

## Case History

The ability to clone an animal raises a number of different possibilities:

- A genetically engineered insentient chicken has been produced. This bird therefore does not suffer from the alleged cruelties associated with battery-farming, but in all other ways resembles traditional intensively reared poultry. Cloning presents an opportunity to rapidly replace the current intensively-farmed poultry flock.
- Lady, a single nine-year old cow, has been recovered from subantarctic Enderby Island. Genetically different from most modern dairy cows, this only remaining survivor of these rare seaweed-eating cattle is unable to breed. Should she be cloned to preserve this unique strain of cattle? What if her milk contained a protein variant suspected to protect humans from all forms of diabetes?
- Charisma, Mark Todd's double Olympic gold medal-winning horse, can be cloned so that a new class of three-day equestrian eventing can be developed. This class aims to let riders compete with genetically identical animals, resulting in a more true measure of competitor skill.

### Commentary One

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My brother and sister used to run a Guinea Pig Olympics on our back lawn. The best performing rodents got the medals. In Olympic equestrian events, however, it is currently the riders who take all. That being so, their horses should be made as equal as possible. We could then be more confident that the winner really would deserve the gold. So it certainly would help if Charisma, or the local hack, could be cloned enough times to give us the full field for each equestrian event. The trouble is that much more would be needed. Only crass genetic determinists think that genes maketh the horse. In fact, a great many other vital resources also contribute. It would be a lot harder to turn that clone into a horse just like Charisma than into a bag of puss or, at best, into a mere ordinary nag. Standing between the clone and a medal in the Moore children's Olympics is a huge amount of cell and organ development just like Charisma's, a history of non-genetic illness much like hers, a very similar record of accident, disease, nutrition, nurture, training, feeding, owner expectation and where-withal, and a set-up in which every relevant person, horse, and other piece of the environment behaves much like all those others did when Charisma hit gold. That's a big ask, and genes would seem to be a pretty small part of the question. Some might in any

case object to cloning even as a modest start to the project of creating equality among equestrian horses. They might suggest that the horses will suffer debilitating identity crises: 'Am I my mother's daughter, my mother's duplicate, Charisma's identical twin? Or am I merely an ordinary horse with a bit more than usual of one modest developmental resource from my mother?' If people can use a bit of imagination to overcome this sort of difficulty, as no doubt they can and will, then horses probably can too. Others might insist that horse cloning is crucially different from and more problematical than identical twinning. They might say, truly enough, that survival of birth for any horse twins, let alone for identical twins, is very rare. They might add, truly enough once more, that cloning differs from twinning in that it is done deliberately, and generates genetic sameness through copying rather than through 'splitting'. For my part, I do not see that any of these differences is ethically significant, but perhaps others will assist my moral imagination on this point. Curiously, no one even seems to notice, still less regard as an ethical issue, the fact that large numbers of horses from particular stables already are more or less identical to one another in their nutrition, nurture, training, and so on. The underlying thought seems to be that genetic likeness is crucial to the 'finished horse' and all these other likenesses are not. This gene worship strikes me as implausible, but I guess we need the detailed science to settle the issue either way. To sum up, then: Charisma can-

not easily be re-made. But if we continue to insist on giving the medals to the riders, then we should at least try. Cloning her would be a modest start.

If we don't want more Charisma then what about more Ladies? There I go too, writing as if the genes maketh the Lady. I must say that I do like the idea of more Ladies. Who knows what this thing called 'bio-diversity' really is, but perhaps we maintain some of it if we keep the Enderby Ladies going. We should of course be careful not to clone so many that they trample and overgraze the indigenous seaweeds, thus provoking a muster and cull. Perhaps the clones will be able to breed, even if Lady herself cannot, but I assume that they too will all be Ladies. A most ungentlemanlike method of reproduction. Perhaps they would breed with Gentlemen of a related species? In a way, that would be so much more natural. But even then, it wouldn't be ideal. It would be a lot like all those pied stilts, who right now are threatening New Zealand's precious black stilts with extinction through hybrid reproduction. We shouldn't tolerate that sort of behaviour in either case. It offends against the Integrity Of Species. So we are left with continuous cloning to maintain the bio-diversity these Ladies bring to the world. Alternatively, we could find something better to do with our money. Oh yes, and there is the business of the protein to protect all humans from diabetes. That sounds like a bonus. Presumably, that feature could also be engineered into other sorts of cattle, thus separating out its

benefits from the fate of the Enderby Ladies.

What about the Workers? The genetically engineered battery chickens, that is. We could get fastidious about the feasibility of their story. But that's boring. Leave aside too whether this new battery farming would be justifiable overall. If it really would be less painful for the chickens, then in this respect at least, it would be an improvement on the current set-up. Of course, losing sentience would probably also mean losing chicken pleasures and other goods, if any, that battery hens would otherwise enjoy. It wouldn't matter that these new chickens would quickly replace the old, as long as there would be no great suffering in the transition, and as long as the lives of the new chickens would be at least as much worth living as those of the old. We probably would not lose much chicken diversity either, because many squeamish customers would want to retain the mark of sentience upon their breakfast eggs, and would thus switch to non-battery eggs. The net result might even be less battery farming overall than at present. So this proposal really does have something in it for everyone. My only concern is that the new genetically homogeneous population of battery hens would be very vulnerable to epidemic disease. Those who do not want the industry to collapse might consequently prefer to engineer the new characteristic into the germ-lines of a genetically wide variety of battery chickens, and then just let them reproduce in the standard family values way. The battery hen stock should then be more resilient than the clone stock would be to epidemic disease.

### *Commentary Two*

**Barbara Nicholas**

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**T**echnology continues to present us with all sorts of possibilities for action in and on the world. Cloning is just the latest manifestation of the need to choose how we will relate to one another and to the non-human world.

Science and technology have provided us with the knowledge and means to survive with more comfort than in the past. But the concepts of respect for nature, working with natural cycles

and within natural limits now have little currency. Instead, in western scientific culture, we make the assumption that we will wrest nature's secrets from her, force our way through any restrictions that 'natural' processes impose, and look for opportunities to turn any situation to the advantage of (at least a few groups of) humans. Within such a framework of thinking there are few problems with the possible uses of cloning technology imagined here. All meet the needs (albeit only for entertainment or profit) of humans, and do not appear to be causing suffering to animals – and yet ...

Yet I hesitate. I do not want to pass on a world where we have still further reduced the non-human world to things that we can manipulate and use as mere means to an end.

I trace my resistance to two (related) issues, one to do with ecology, the other with culture.

First, ecology. On practical grounds, reducing the non-human world to something we can manipulate and control is not working! For all the advances in science, for all that we know about the inner working of the atom or the cell, or of the wonders of outer space, we still seem to be on a path that is leading to immense environmental degradation and the destruction of many of the world's species. Population pressure is part of that, but a lifestyle based in the 'benefits' of science and technology is a major contributor.

I welcome many of the benefits of modern medicine, and I am grateful that if my cabbages are eaten by white butterfly, my potatoes get the blight and my house cow dies, I can still visit the supermarket and pick up some food. I like being able to flick a switch and have some light or heat. But we also live with the threat of the greenhouse effect (largely traceable to western lifestyle and patterns of food and energy consumption); the ozone hole will be around for the rest of my life; my insect-free food, synthetic fabrics, and cheap footwear is available at the cost of polluted soil and waterways – in New Zealand and elsewhere in the world. We cannot unlearn what we know, but that does not mean that we have to be blind to the consequences of the advances of science and technology. It is a mixed blessing.

The approach to life that would encourage cloning of Lady or the breed-

ing or cloning of an insentient chicken is generating as much as it is solving problems. Technology is not necessarily progress or an advance. No one step in these scientific developments may in itself be unacceptable, but the directions in which it is moving human relationships with the non-human world should be a cause for concern, caution, and possibly regulation.

Secondly, my resistance to approaches that see the non-human world as means to an end is based in wonder and respect for that which is 'other', different, not-us. This is a matter of the culture we embrace. Science need not be an exploitative practice. Fascination and wonder can be a reason for exploring the world, whether at a microscopic or macroscopic level. But we can choose just how we find out things, and what we find out, and whether a particular way of using knowledge is consistent with the sort of relationship that we wish to have with the non-human world (as well as with our own human bodies).

The human community now carries the responsibility to choose the terms on which we will relate to the non-human world. Science and technology gives us the power and knowledge to decide (at least in the short term) whether we will treat the non-human world as something to be manipulated and used, or something with which we live in an interdependent and respectful relationship. And this is a decision that is about the sort of culture we are and will become. We can, now, relate on almost whatever terms we choose: we can struggle for power and control; or we can allow that which is 'not us', 'other', to be what it is, and find some way to live in recognition of our place in an interdependent ecosystem.

Such a decision is, I argue, now a choice about what sort of culture we are creating. It is a choice about how we will be in the world, what social boundaries we place on our communities, and how we express our relationship with the non-human world. We have found ways around, or through, many of the 'natural' boundaries that have constrained our activities. Now we must choose for ourselves what, if any, constraints we will put on human actions. We can do many things – science and technology give us that power. But should we?

So should we clone an insentient chicken, the last cow from Enderby

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Island, or Charisma? In all likelihood we will end up doing all three, in some form or another. But on balance I think we are unwise. We would be better to find alternative ways of producing eggs, to experience the grief that we have wiped out yet another species (and then allow our grief to motivate us to look after the world's ecosystems), and to accept that it is no great disaster that equestrian eventing still combines a combination of training, skill, and breeding.

### Information for Contributors

The *Otago Bioethics Report* publishes short papers on Bioethics, particularly those with an emphasis upon current New Zealand issues.

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■ Surrogacy in New Zealand  
References continued from page 4

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■ The Cloning of Dolly  
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The final issue concerns the *implications for humanity* - the cultural ideal we want for ourselves. This issue relates to the sort of people we want to become - people who regard the non-human world as a means to an end, or people who respect the non-human world for its own sake. It is this aspect which has captured much of the public and media attention. Someone who sees nature as a resource to be used might defend cloning, whereas someone who considers all life forms sacrosanct might not. Many of us take the middle ground, accepting that while nature is a source of raw materials, it is also something to be used wisely and with care. Similarly, we accept that there needs to be a balance between human and animal needs, and that animals may be used but only if that use is humane.

It is well to remember that cloning in animals might well have some positive spin-offs for humans; for instance, cloning animals may produce humans health products or products which allow improved goods to be produced. Also, developing the technology in

animals may help develop human cloning for assisted reproduction and organ transplantation programmes. However, human cloning raises ethical issues beyond the scope of this paper.

Undoubtedly, the most well-known implication, if not fear, for humans is that which we normally associate with Hitler and *The Boys from Brazil* - the multiplication of undesirable so-called 'elite' individuals. This aspect has gained most recent attention, leading one critic to comment 'The real sheep are the media who have blindly followed the cloning story, shrieking of its horrors.' The newspaper reports of the cloning of Megan and Morag last year, included headlines such as 'scientists welcome move to clone sheep' and that it may 'herald a brave new farm world'. However, the newspapers also picked up on something which was not presented in the original science article, that some animals suffered serious defects. In contrast, this year's report of the cloning of Dolly resulted not only in headlines such as 'science of the lambs' and 'clone on the range' but more significantly that such technology 'raises alarm over humans', and

'Frankenstein fear revived'. Thus, at present, we appear to be debating the morality of cloning of animals on human grounds. Is this sensible for the future of both animals and humans? It is accepted that animals and humans can be treated differently (for example, moribund animals must, by law, be euthanased). It would be a pity if the benefits of animal cloning were not fully realised, because of the perceived harms of human cloning.

### Further reading

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