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CLONING ANIMALS AND HUMANS

Society, Religion and Technology Project Report, 1997 Church of Scotland General Assembly

Introduction

In February 1997, Dolly the cloned sheep became a global news sensation. Scientists at the Roslin Institute and PPL Therapeutics outside Edinburgh had rewritten the laws of biology in producing a live sheep by cloning from cells of the udder of an adult ewe by nuclear transfer. The Director of the Church of Scotland's Society, Religion and Technology Project quickly became a focus for ethical comment, with numerous TV, radio, newspaper and magazine interviews and articles, including BBC's Newsnight and Heart of the Matter programmes, and German and Dutch national television. These opportunities arose because the SRT Project was already involved in assessing the issue, having for the last three years had an expert working group on the ethical issues of genetic engineering, one of whose members is the Roslin scientist who "produced" Dolly, Dr Ian Wilmut. As a result, SRT was in a unique position to offer informed and balanced comment to the world's media, and to influence the course of a debate in which sensation and ill-judged speculation were rife.

A very significant development was the fact that quite a lot of media picked up SRT's involvement from the Internet. This was because Dr Bruce had a written article on the ethics of cloning at the time of the first Roslin cloning discovery a year before, and had included this in SRT's own site on the World Wide Web. When the news broke, press agencies like CNN News searched for "cloning" on the Internet and found SRT's article as one of very few in existence. They put in a link to SRT from the own site, and all the world has since been following the trail - a month later, the SRT article was still receiving 400 Internet "visits" every day. This speaks volumes for the importance of SRT's work at the cutting edge of some of the most important issues which science is raising for our times. SRT identified four main issues - the basic genetic engineering work at Roslin, whether we should already clone animals, whether we might one day clone humans, and how such research should be controlled and kept accountable to the public.

Cloning Animals

Much of the media attention focused on speculation about cloning humans, but missed the more immediate impact on animals, and the ethical questions on how far we should apply technology to them. The cloning arose from Roslin's search for more effective ways to do the existing work at PPL Therapeutics of genetically engineering sheep to produce therapeutic proteins in sheep's and cow's milk. The first product for emphysema and cystic fibrosis sufferers is undergoing clinical trials, and a range of other medical applications is in prospect. The SRT Project working group had already found this work generally ethically acceptable. There were clear human benefits, with few animal welfare or other concerns once past the experimental stage.

The new method should enable Roslin to do a more precise genetic modification using less experimental animals, but the side effect is that the resulting sheep is a clone, genetically almost identical to its founder. PPL might clone 5-10 sheep from a single genetically modified animal, but would then breed naturally thereafter to give flocks of varied sheep, but all containing the desired genetic modification. On this very limited scale, this would not seem ethically unacceptable. The possibility that farm animals might be cloned routinely for meat or milk production on a large scale is however a very different matter. In animal breeding, the need to maintain genetic diversity sets practical limits on how far cloning would make sense, but certain applications are already being considered. A breeder might wish to clone the best breeding stock to sell for feeding up for slaughter, or to found new nucleus herds. Would this be carrying our use of animals one stage too far?

For the Christian, the world around us is God's creation. Variety is one of its characteristic features, and especially at the level of higher animals and humans. The overall picture in the Bible, in commandments, stories and poetry, is of a creation whose sheer diversity is itself a cause of praise to its creator. To reduce this diversity to a strict blueprint, and produce replica animals routinely on demand, would seem to go against something basic and God-given about the nature of life. The very fact that selective breeding has its limits reflects this fact. Some would argue that cloning is thus absolutely wrong, no matter what it was being used for. SRT argues that scale and intention play a part. PPL's limited context could be acceptable since the main intention was not the clone as such but growing an animal of a known genetic composition, where natural methods would not work. What would be unacceptable would be in routine animal production, where natural methods exist, but would be side-stepped on the grounds of

