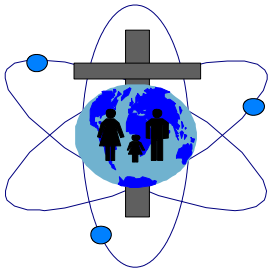
SOCIETY, RELIGION AND TECHNOLOGY PROJECT

Church of Scotland



IS IT RIGHT TO CLONE ANIMALS?

It was ironic that Dolly the cloned sheep caused a media sensation about human cloning, which may never happen, and we neglected the important ethical questions of cloning animals which we can already do. This information sheet aims to redress the balance.

What's the Church doing Here?

Since 1993, the Church of Scotland's Society, Religion and Technology Project (SRT) has looked in depth at the ethics of genetic engineering and cloning in animals and plants with an expert working group. Leading scientists, including Dr Ian Wilmut, leader of the Roslin team that produced Dolly, discussed issues with specialists in ethics, theology, sociology and risk, which culminated in a major book "Engineering Genesis", published by Earthscan in November 1998. So when Dolly hit the headlines, the church was already in a position to offer a balanced and informed view on this local Edinburgh issue with global implications. In May 1997 the Church of Scotland General Assembly gave the first view of a UK church, and has been much quoted, for example in a recent UNESCO declaration on cloning. The SRT director is much engaged in UK, European and international ethical discussions about cloning and related issues, and has spoken, written and broadcast widely on them. To help shed light on these confused and often misrepresented issues, we have produced two information sheets - this one on animal cloning and another on human and embryo cloning.

Is Cloning Animals Simply Wrong?

Cloning occurs naturally in many plants and micro-organisms, and in some lower animals. However, it does not normally happen in humans and mammals, except for identical twins. Should we respect this biological distinction or celebrate our capacity to override it? For creatures that rely on sexual reproduction it is important for a healthy population to maintain good genetic diversity. Cloning such creatures could be said to be a step in the wrong direction, against the grain of God-given variety in nature, whose very diversity is a cause of praise to its creator, and of pleasure and use to ourselves. Where God evolves a system of boundless possibilities by diversification, should humans select out certain functions we think are the best, and simply replicate them? Does cloning animals exceed a limit? In our second cloning sheet we argue why human cloning is ethically unacceptable, and one reason is the instrumental way it would use and control other humans. This argument could not be used as an absolute objection to cloning animals, however, if we already accept a certain amount of valid human use of animals. Should we then add cloning to the set of technological manipulations we already do on farm and other animals, or is there a difference? We now look at several cases.

Genetically Modifying Farm Animals to make Pharmaceuticals in Milk

For some years the Roslin Institute and PPL Therapeutics have been genetically engineering sheep and other mammals to produce proteins of medical value in their milk. The first product for emphysema and cystic fibrosis is approaching the end of its clinical trials, and others are scheduled to follow. This raised no serious ethical problems for the SRT working group or the church. There are clear human benefits with few animal welfare or other concerns once past the experimental stage. But in the experimental phase, the modification is normally hit and miss and uses many animals.

Cloning to Improve Genetic Modification in Farm Animals

Dolly was not the main aim of the research programme. Its main aim was not cloning for itself, but to find better ways of genetic modification, using less animals by growing an animal from genetically modified cells. This produced the genetically modified cloned sheep, Polly. That she was a clone was a side effect. The Church of Scotland accepted animal cloning in this limited context, aimed at a clear medical need, where cloning was not the main intention, and where natural methods would not work. Much basic science remains to be understood, however, and with such novel technology precaution is undoubtedly called for. A report of the UK Farm Animal Welfare Council Report (FAWC) is rightly cautious over the potential uses of cloning in animals. It calls for a moratorium on nuclear transfer cloning in commercial agriculture while further investigation is made of welfare problems and uncertainties over oversized offspring, perinatal and birth problems, and aged DNA. (How old is Dolly - her age since birth, or that age plus the age of the ewe she was cloned from?) The report is also right in seeking regulations to protect cloned farmed livestock and a National Standing Committee to oversee the development of cloning technology. This agrees with our SRT working group's conclusion for a standing commission on the ethics of non-human biotechnology.

Animal Cloning in Novel Research?

The FAWC report disappoints, however, in not discussing what would and would not constitute right uses of animal cloning technology. The surprise discovery in 1998 that mice can be cloned suddenly opened up much wider possibilities to develop applications in animals and, potentially, humans. It is much easier to work with mice than farm animals, and many more laboratories can now jump on the cloning bandwagon, pushing cloning research forward much faster. This raises a question. What sort of research should it be used for? Roslin's original work in sheep cloning for pharmaceutical production may be acceptable, but its extension to genetic modification for modified pigs' hearts for human transplantation is more controversial (see our sheets on xenotransplantation and GM animals). To clone an animal is a such a serious intervention that the ethical rule "No, unless .." should apply. Cloned cats and other pets are not a adequate justification but a trivialisation of science.

Cloning in Farm Animal Production

More of problem still would be the use of cloning in farm animal production. Most dairy cattle in the UK are already produced by artificial insemination, where the semen from one select bull can service numerous cows, and embryo transfer extends this further. It might be the next logical step to clone prime cattle in a breeding programme, to raise more breeding stock to the highest level of "genetic merit", or even to clone the best beasts for fattening for slaughter. In 1997, the Church of Scotland General Assembly, however, took the view that to clone animals routinely for meat or milk production would be taking instrumental intervention into animals one step too far, given that natural methods of breeding exist. Copying the complete genetic blueprint for efficiency's sake is a factory mass production mentality inappropriate to animal husbandry. Our fellow creatures are more than identical widgets on an assembly line. If the main benefit is not a clear human or animal need (such as perhaps cloning to combat animal disease) mere commercial convenience or supermarket production efficiency are not enough to justify this intervention. There are limits on how far we should commodify animals for their functional worth. Just as in the Old Testament an ox was not to be muzzled while it trod out the grain, animals have certain freedoms which we should preserve. We may use them, but we also need to remind ourselves that they are God's creatures first, to whom we may not do everything we like. Given the abuses which a commercial drive has led to in some areas of animal production, surely here is a place to draw a line.

Our SRT book "Engineering Genesis", published by Earthscan ISBN 1 85383 570 6 at £14.95, examines animal genetic engineering and cloning questions in much more depth and how such technological uses of animals should be weighed against the human benefits which are being sought.

For our book "Engineering Genesis" or more about these or other ethical issues in technology, contact :
Society, Religion and Technology Project, John Knox House, 45 High Street, Edinburgh EH1 1SR, Scotland
Tel : +44 (0)131-556 2953, Fax : +44 (0)131-556 7478, email : srtp@srtp.org.uk
Visit our Website at : http://www.srtp.org.uk