

It's Alive!!!

Scientists clone Dolly the sheep

The argument is nothing new. Will we ever let our technology get out of control? Will we always press on when we should be stopping to think about the consequences? This debate has existed ever since man has been able to make serious changes in the world around him. Nuclear weapons, space travel, computers, robotics – these are just a few of the items that have been placed on the table in discussion of technology versus ethics.

In the 1990's, a new topic was introduced. The idea of cloning. A "clone" is, by definition, an organism that descends from another organism (*without any sexual reproduction*), and contains the *exact* same genetic material as the first. The concept is nothing new, but in earlier generations it was simply the topic of sci-fi films and campfire tales.

In 1993, all of those horror stories became a little more real. That year, scientists succeeded in splitting a fertilized human egg, making two embryos. While not technically a clone (*these embryos were more like "twins"*), it became apparent that geneticists now had the ability to manipulate natural development. The idea of creating a clone was no longer a fantasy – it was a goal.

In 1995, the goal was accomplished. Scientists at the Roslin Institute in Edinburgh, Scotland, cloned an embryonic cell which had been cultivated for several weeks. This was an amazing breakthrough, but it didn't get much reaction from the public. Perhaps, because the cloning was still done on the petri-dish level, from cells that had not fully developed.

The scientists at Roslin continued with their work, and were soon ready for the next big step. This time, they attempted to make a clone from an adult cell of a fully-grown mammal.

On July 5, 1996, Dolly the sheep was born. Dolly was cloned from a single adult cell, and her successful birth sparks excitement, controversy, and fear throughout the world.

What now? After Dolly's successful cloning and birth, it was no longer questioned if cloning were possible. It definitely was. The question now was what to do with this new technology. The scientists at the Roslin Institute, and elsewhere around the world, were anxious to carry on with their studies and see what innovations they could create by using cloning.



In theory, cloning can have several positive applications. It can be used to heal injured organs, eliminate negative mutations, and even advance reproduction. Of course, there's also the unsettling vision of Frankenstein, when a mad scientist plays God and ends up destroying the world.

Once the news of Dolly's birth leaked out, the debate raged on. Obviously, cloning a sheep is not enough to strike fear into the hearts of many, but the conversation quickly switched to humans. If a sheep could be cloned, so could a human being. The scientists didn't deny it, and were anxious to begin experimentation.

Religious leaders, politicians, and others deemed this idea as highly unethical – and very dangerous. Before any experimentation continued, they claimed that it was necessary to fully understand the implications. In response to these warning, the National Academy of Sciences maintained its support for research cloning for therapeutic purposes, but not for human reproduction.

Another unsettling blow came in 2003. Dolly the sheep died at the early age of six and a half – many sheep live twice that long.
