

Supermodels could one day have a whole new human cloning career, selling cells from their bodies to make hundreds of "perfect" human clones for tomorrow's parents. Indeed we could soon clone a supermodel without her knowledge or consent - from a drop of saliva or blood... Indeed a former Playboy model wrote to me on this website offering to sell her own DNA - maybe someone will clone her one day. I hope not.

### **Human cloning: who is cloning humans and arguments against cloning**

[youtube:<http://www.youtube.com/watch?v=ZfLyOGQ3TpA> auto]

This video explores how human clones are being made - for medical research. Arguments for and against human cloning research. Why some people want to clone themselves or even to clone the dead (and not just cloning pets).

### **Why investors are moving away from human cloning and why human cloning now looks a last-century way to fight disease.**

[youtube:<http://www.youtube.com/watch?v=1yU99-QIDLc>]

Scroll down this page for introductory article to human cloning - at the bottom you will find more useful human cloning resources including video on how to clone humans and useful human cloning links. This site is especially aimed at students needing data for projects, essays, assignments, dissertations, debates on issues relating to human cloning.

**"The potential of gene technology is beyond the comprehension of most people today" -  
*Dr Patrick Dixon - Wall Street Journal (E)***

Human cloning means designer people with known pedigree. This is the ultimate pedigree child.

Cloning of human embryos has already been achieved - see below. Successful cloning of adults has been announced but not yet proven. It is only a matter of time, months or a very few years before human cloning is a reality for anyone with enough cash, willing to take the [risks](#) of a hideously malformed or emotionally damaged child.

Human cloning of a baby could have happened more than once last year - how would you know? Human cloning headlines are usually at least two years behind what's really going on - see below. What you really need to be asking is what scientists will be saying in press conferences in 2010 about their human cloning research, talking about work that they actually did in 2005.

### **What follows was written in 2003 and is important background on human cloning research**

One thing is beyond any doubt: despite huge risks, and widespread public condemnation, by January 2001, many different scientists across the world were already locked in a race to clone the first human, as a baby for TV cameras.

Huge amounts of money are at stake in human cloning research. Teams have announced their aim, many people have come forward with offers of eggs, their own adult cells and money - and the US still has no laws to prevent human cloning from happening, nor do most other countries of the world.

The headlines above first came nearer reality on 23 Feb 1997 when world media reported the existence of Dolly the sheep: cloned from an adult. I had predicted the Dolly headline in 1993, in my book *The Genetic Revolution*. A few days later, the Edinburgh scientists admitted that frozen cells had been used to make Dolly, having seemed to deny it when the story first broke. That meant that animals (and in theory people) could be cloned after death. US scientists also revealed that they had cloned monkeys (using cells from an embryo). The British scientist responsible for Dolly admitted to a Parliamentary committee (6 March 1997) that human cloning could be possible in two to three years (after vigorous denials by many embryologists). I had been saying the same from the moment the story broke.

### **Made in America, born elsewhere**

President Clinton launched an immediate 90 day report into the implications for human cloning as soon as the news of Dolly became public. Norway did the same while the EC urgently considered a response. The news on human cloning experiments exposed the fact that most nations of the world had little or no legislation covering genetic engineering. This has to change.

Clinton announced in May 1997 that human cloning should be banned. He was warmly applauded. However, what he went on to say was that the proposed ban was only for 5 years, and that nuclear transfer experiments (basic human cloning technique) could continue, though not with government money. In other words "Clones may be made, but not born for the next five years". However, Clinton could not even deliver - his own partial ban was thrown out by Congress. Meanwhile UK Parliament in January 2001 made experimental creation of human clones legal, so long as the embryos were made for medical research and destroyed before implantation.

Richard Seed said over two years ago that he was "a few weeks" from his human cloning experiments. He has attracted money and people. I've met him and debated with him on TV. He has been followed by Clonaid, a new human cloning organisation with cash and 300 couples ready to start. Dr Seed declared that he cannot be stopped from human cloning under current US law, and if human cloning laws are changed he will move the work to Mexico. He has announced a human cloning lab for Japan - purchase of land and \$15 million backing. Every week there is another mammal cloning headline. Dolly the sheep gave birth to a healthy lamb, Bonny. In July 1998 came rumours of a cloned mouse, Mickey, created by Dr Ryuzo Yanagimachi, University of Hawaii. In November 1998, we heard that Japanese scientists had already cloned cows from milk - cells in the milk. If you want to see the staggering pace of human cloning announcements - check out our human cloning news summary.

As I say, remember that what you hear today is not what is going on now, its already old history.

And some scientists in the field are determined to keep it that way. Hence you only knew about Dolly's creation when she was already 7 months old - more on this below. Another example of secrecy was the extraordinary announcement by Advanced Cell Technology, Massachusetts on 12 November 1998 that three years previously they managed to take the nucleus from a human cell from Dr Jose Cibelli and insert it into a cows egg. The human genes activated and the egg began to divide. They destroyed it at the 32 cell stage, well on the way to becoming a Dr Cibelli's clone. This research was more spectacular than Dolly, yet carried out years earlier with a total news blackout. More recently in March 2001 Australian scientists said they had been carrying on similar secret human cloning experiments using human cells and pig eggs for over two years. What I want to know is this: what are they doing today that they won't be talking about till 2002 or 2003 or perhaps 2004?

### **The public has a right to know**

It has been good to see truth about cloning begin to prevail, after deliberate under-playing of the news by so-called "experts" in a damage limitation exercise to prevent destruction of their research grants by public demand. They have been scared by public reaction. They think the public has no real understanding and so these matters should be kept from the public eye, discussed only by scientists and ethical committees. But these committees are dominated by the industry.

What will be the next human cloning headline? You can be sure that we will see a continuous stream of new revelations now that has become politically acceptable for scientists to come out of the woodwork and talk about these things.

### **"I want to clone my dad and have him as a baby"**

Just before the announcement of Dolly the sheep, someone e-mailed me asking if she could clone her dead father. The answer of course is yes, so long as living cells have been kept in culture, taken from before death, or have been frozen in an appropriate manner. She is also willing to be cloned herself. These are important issues, not science fiction. I had another e-mail from a man offering to volunteer to be cloned. Scott writes "Do you need any [volunteers](#) for human cloning experiments?"

Let me make it absolutely clear that I am opposed to human cloning on ethical grounds. It is open to gross abuse. It undermines the uniqueness of the individual and raises profound religious and ethical questions.

### **Three reasons not to clone: ([Press here for more](#))**

**1. Health [risks](#) from mutation of genes** - an abnormal baby would be a nightmare come true. Huge [risks](#) of mutations - of a monster. Just look at what has happened in animal experiments. You can't always spot the mutations or developmental abnormalities by gene testing, nor by ultrasound scans, until after birth.

**2. Emotional risks** - child grows up knowing her mother is her sister, her grandmother is her mother. Every time her mother looks at her she is seeing herself growing up. Unbearable emotional pressures on a teenager trying to establish his or her identity. What happens to a marriage when the "father" sees his wife's clone grow up into the exact replica (by appearance)

of the beautiful 18 year old he fell in love with 35 years ago? A sexual relationship would of course be with his wife's twin, no incest involved technically.

**3. Risk of abuse of the technology** - see below.

### **Reasons people may want human cloning:**

Reasons why people want human cloning may be rational or irrational. That is not the point. The fact is that a recent US survey conducted by CNN found that 6% of US citizens think human cloning could be quite a good idea. Judging by people who leave comments on this website, the reasons may vary widely. Here are a few:

- Recover someone who was loved - a twin, a reminder.
- Infertility - rather than use donated sperm and eggs, why not use a cell of your own to give birth to "yourself", your own twin?
- Eugenics - an attempt to improve the human race.
- Megalomania - a desire to reproduce one's own qualities.
- Spare parts - using a cell from your own body to duplicate yourself. Take tissue e.g. bone marrow, then offer baby for adoption.
- Assisting medical research
- Just curiosity

### **Cloning the living and the dead**

Human cloning has always caught the public imagination. We now have the technology to take a few cells from a modern day Einstein, or a musical genius or a child prodigy and to create hundreds of cloned babies which have exactly the same genes. Of course, as identical twins, clones will have individual differences, separate identities - separate souls. However, studies of twins raised apart show remarkable similarities. There is more in our genes than we often realise.

Just think how attractive that could be to some dictator who fancies the idea of watching himself growing up, or dreams of populating the world with a new race of genetically superior people.

We will almost certainly be able to clone the dead too, from cells taken from their bodies before

they die and kept alive in culture. This is a standard technique. In this way parents could "reproduce" a carbon copy of a child who tragically died. Dolly the sheep was made using frozen cells. (Clonaid claimed in January 2003 that they had cloned the dead son of a Japanese couple who had been killed in an accident).

For years, many scientists have been telling us that human cloning was impossible, and would never be possible. How wrong they all were. It is absurd for geneticists and embryologists to mock and stifle debate by dismissing vital issues as "science fiction". As we have seen recently, yesterday's science fiction is today's reality when it comes to genes. We can hardly keep pace with the lightning advances being made.

### **....will we ever ?**

In 1993, the Mail on Sunday described my meeting in the 1980s with a leading British scientist who claimed he had cloned human embryos by artificial twinning. He had separated cells shortly after fertilisation in a process mimicked by nature some 4,000 times a day somewhere in the world. Each cell had the potential to become a new embryo. Over 15 years later, this scientist has yet to go public about his early experiments.

The reaction from leading embryologists in 1993 was swift and damning. They said that it was impossible in humans, and anyway, who would want to do it? This was despite the fact that artificial twinning was already a standard breeding technique in other mammals, and that natural human twins have been around since the beginning of human existence. Indeed, 4,000 identical twins are born every day somewhere in the world. It is a proven technology. Anyone with an ounce of intelligence could see that artificial acceleration of the natural twinning process should not only be possible, but also able in theory to produce healthy children. Thus the protestations were particularly silly, but swallowed by the media with hardly a question.

### **Artificial trimming of human embryos in 1993**

Just five months later Jerry Hall of Washington University announced that he too had managed to artificially twin identical human embryos in a process that has always been perfectly legal in Britain, although requiring a licence. The embryos he used were defective and were destroyed shortly after the experiments. Nevertheless, his work caused public outcry.

The event was reported in scientific language as part of a research paper in a journal but the

significance was completely missed. The trouble is that [genetics](#) is complicated and understood by only a few journalists in any depth. Perhaps that is why the BBC decided when the news broke about Dolly the sheep that the story should not be covered at all because it was not news. This bizarre line was held for half a day after I first telephoned Press Association and the Sunday Telegraph to tell them that another paper was about to run the story on the front page. The Sunday Telegraph responded at 9pm Saturday night by stopping the paper and redoing their own front page. Press Association ran two pages on it, sent all over the world. Within an hour television companies globally were beginning to wake up. Within 48 hours President Clinton was issuing emergency measures having been shocked by what was possible under US law.

### **Human cloning for new organs**

One reason people have given for doing this kind of research is to make spare parts in the future. Once an embryo has been twinned, one embryo can be implanted and allowed to develop into a baby, while the other is frozen.

If the child later develops an illness such as leukaemia, then the frozen twin could be thawed and implanted into a surrogate mother, to be culled for spare parts after a few months' gestation. You and I may react against such ideas, but when sick or dying children are involved, pressures can be enormous to do all that is scientifically possible. Parents are very persuasive. Who can stare a beautiful child in the face and try to explain about ethics in the face of possible death, about statistical chances and moral dangers? These things are extremely difficult and [genetics](#) is making choices more complex still.

A number of steps have already been taken. For example, tissue from aborted fetuses is already used to treat adults. Time-warp twins have already been born - non-identical twins conceived in the laboratory on the same day, but implanted 18 months apart. And it is not unknown for a mother to agree to have another child for the express purpose of providing much needed transplant material for the older child. Spare part production from clones would extend these principles.

For some time, I have speculated that we would be able to go further: instead of merely producing artificial twins identical to each other but not to their parents, we would one day be able to produce several hundred identical children, just using human eggs and cells from an adult (nuclear transfer).

This too was dismissed out of hand as alarmist and fanciful by leading authorities, despite the fact that such experiments had already been carried out successfully in frogs as long ago as 1952. Frogs are easier than mammals to manipulate which is probably why we heard in 1997 of headless frogs rather than headless sheep. The truth is that when it comes to cloning of mammals there has been at times a deliberate conspiracy of silence. At the very moment of such protestations, advanced experiments of varying kinds were already taking place in utmost secrecy.

Make no mistake: gene technology has the power to cure, feed, alter and destroy us, and many scientists are scared of a massive public reaction which could stop their work - if you find out what they are up to. There is a reluctance to tell the full story until afterwards.

### **Scientific announcements can be long after events**

When it came to cloning Dolly the sheep, why was there no press statement a year before about what they were hoping to do? Dr Wilmut of the Roslin Institute in Edinburgh told me during a World Service interview that one reason for delay was to file a patent. Gene technology is big business, and cloning is worth millions. The cloning announcement was initially valued by the city at \$60 million - the amount by which the PPL shares rose on the days following the announcement.

At the time I said the next step (soon) would be cloning of adult mammals. Once again there was a chorus of indignant reaction from the cloning industry with the usual comments "No one would want to" or "It can't be done". They are wrong. The fact is that at the very moment that these comments were being made, the Roslin Institute was already well advanced in such adult cloning techniques. Hence a year or so later, we heard not only that they had succeeded, but that the lambs were already six months old. The time to debate these matters is not a year or more after an experiment, but before the process begins.

### **Cloning human embryos for research**

Some scientists claim that cures for certain diseases will only be found by cloning human embryos for research. Investors are not convinced: since UK Parliament approved human cloning for research there have been less than five applications. One was a research facility in Newcastle, the other was the Edinburgh creators of Dolly. Neither facility succeeded in raising enough funds and most of the work quickly ground to a halt.

The fact is that cloned human embryos have been left behind by huge advances in adult stem cell research, which has attracted large amounts of research funding.

### **Research in secret**

Secrecy continues. The other day after a media related discussion on cloning humans, a leading British infertility specialist confessed to me privately that he was carrying out experiments himself on animals relating to human medical research that would raise serious ethical questions in the public mind if the experiments became known. He made it very clear that he had no intention of letting the public know because a reaction would endanger his work. He claimed it was not really in secret because he had talked to an ethical committee about it.

As I said to him, what disturbs me is that people like him appear to say one thing in public, on the media, and another the moment the cameras are turned off. There is an inconsistency which undermines trust and destroys credibility. Certainly when it comes to cloning as we have seen the track record of honesty is not good among so-called "experts".

We are also seeing ever more bizarre methods of reproduction. It has been announced that a pair of embryonic children are growing up inside the same womb, with five parents between them. Angela is a surrogate mother who is pregnant with the fetuses of two different couples. This has resulted from research by the same doctor who was responsible for the birth of a child two year's after its mother's death in 1995. Angela is 35 years old, living in Rome. She has not been paid a fee.

### **Ability to alter life on earth**

Since we now have the ability to alter life on earth, we had better think hard about the kind of world we want. It is no good simply reacting to today's headlines with dismay and revulsion. We must push ahead of the news to debate the future. We do not have much time. We must also resist the temptation to a black and white approach. Many of the issues are complex, and gene technology has tremendous power for good if properly used.

The question is: where do we draw the line? In the last 24 months, more than a million new

animals with mutant genes were born in British laboratories alone. Each is a "transgenic" mix of genes from two or more different animals, eg., mouse and rabbit or monkey and rat. Genes from humans are already working in microbes, fish, rabbits, mice, pigs, sheep and cows. Some of these humanised pigs may be providers of heart transplants in the future.

### **How many human genes does an animal need to have to gain human rights?**

Pigs have a tiny amount of human genes, but a richer mix could be made. Geep have already been born - half sheep and half goat. What about combining humans and monkeys to make a half and half breed? This is not difficult. All you have to do is combine two balls of growing cells in the pre-embryo stage. Human and rabbit cells have already been combined to make a humabbit - announced late in 2000. Fortunately, only a few human embryo cells were added to the rabbit embryo - which was born looking exactly like a normal rabbit but with a mixture of human cells throughout its brain, skin, bone, kidneys, liver, eyes and heart.

Will humonkeys be recognised as morally responsible individuals before the law if they are able to talk? Monkeys and humans share most of their genes in common anyway. Will theologians decide that humonkeys are able to receive salvation like the rest of us?

### **We need a global agreement on cloning laws**

We cannot go on like this, lurching from one sensational headline to another. We urgently need a comprehensive Gene Charter with global agreement on how this technology should be used. Too many decisions about this technology are controlled by specialist committees dominated by scientists involved in or sympathetic to the work.

There is a huge ethical vacuum. We do not need bombastic moralistic statements, but rather a common-sense view, based on principles which the whole community can support and understand. Two foundation stones should be respect for the uniqueness and mystery of human life, and care for future of the planet. So far decisions made have been pragmatic rather than based on higher values. The church has a vital role to play.

Now we know what can be done; the question is: what should we do? Are these doors that should be opened? A Nobel prize winner who helped develop nuclear science has said he fears a new generation of smart viruses could wipe us all out. But this is just another aspect of the same thing.

The lesson of history is that whatever is possible will be tried somewhere by someone at some time but this is no excuse for sitting back. Whilst it is true that laws cannot prevent catastrophe or crime, they do help define the boundaries of acceptable behaviour and make deviation less common.

Politicians are populists. They tend to go with the flow of public opinion on things like human cloning which in turn is often swung by media debate. That is why it so vitally important that people from every walk of life take every opportunity to contribute to the human cloning media debate.

### **What kind of future do you want?**

The choice is ours. We cannot ignore gene technology, nor should we condemn all of it, although there should be a complete ban on human cloning. The key is proper regulation - not just in the UK but world-wide. We need an urgent UN-sponsored global summit on biotechnology followed by international agreement. Either we control gene technology today, or gene technology will redesign us by tomorrow.