

# MIRORS OF CLONING

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ing of a sheep could have managed not to suggest what the researchers have denied—that people, too, will be cloned shortly. But such luck is not to be expected.

For instance, a Dr Patrick Dixon has hailed the prospect, reporting that he "had been asked by a woman last week how she could clone her father, who had died" and had replied that "it will be possible sooner than she thinks."

Since the father is already dead, this seems to be a flat lie, because cloning of the dead, *Jurassic Park* style, is not considered to be a possibility at all. But what is really going on here?

As a practical proposition, the idea of cloning people is hopeless, for at least three good reasons. The first is that a different upbringing necessarily produces a different person. You don't get your father back. After all, half the

point about your father is that he has his memories of being your father, and nobody is going to clone those.

If, on the other hand, what you want is a duplicate of a genius, different circumstances may give the new clone different wishes and interests from its model. At this point—reason two—you

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cannot force this new individual to follow the old path. (Indeed, the fact that you were trying to force them shows what is wrong with the scheme).

Moreover—reasons three—human beings take 20 years to grow up. Whatever you wanted them to do is likely to be out of date by the time they are fit to be employed in it. Neglect of this was a puzzle in *Brave New World*, where the teams of cloned workers had been designed to fit their jobs exactly. These jobs would have had to be held static for them from their birth until they reached retiring age, which doesn't (as has been already suggested) seem to make a lot of sense.

If, however, the scheme is just a general means for producing workers it is vacuous because there is never a shortage of people—indeed, quite the reverse. Existing ways of producing more people are much cheaper and more reliable than anything in the laboratory, and existing ways of making those people do what their betters want seem still to be quite effective.

I don't, then, think that the idea of cloning people—especially the idea of doing it on a large scale—is usually even intended as a practical proposition at all. It is primarily a fantasy about power. What is disturbing doesn't seem to be the prospect of these things actually happening, but the kind of excitement which the power-fantasies generate, not just at street level but perhaps also among the kind of people who control funds for scientific research.

The researchers actually in charge of the sheep give reputable medical reasons for their work, no doubt in good faith, and the developments that they hope for may well follow. It won't, however, have done their grant-application any harm that the idea of cloning excites the public.

Interference with the reproductive process is one of those topics, along with artificial intelligence and attempts to cross the species-barrier, which are

deeply sensational because they touch on primitive fantasies which carry a strong suggestion of magic.

This crude fact is always going to make them particularly salient, and therefore particularly attractive, to funding agencies.

Is this wrong? Well, for one thing, it would be nice if scientific research could be directed much more strongly by need. There is a dire need for better kinds of contraceptive, something which, it seems, is not economic for any drug firm now to develop. There are also a lot of environmental problems which seem liable to affect the survival of our species and perhaps that of others species too, but which are too long-term to be easily funded.

Apart from this angle, what actually alarms people about this particular project is probably not anything specific to it, but the suggestion of human cloning in the offing, in association with the general disturbance of customs that has resulted over many years from the invention of a number

of new reproductive techniques.

Even when these inventions are beneficial in certain cases, they complicate life fearfully for large numbers of people who have to make unexpected choices on new issues that cannot possibly be really clear to them.

Inevitably, this places them in the hands of the experts. It is, I think, quite reasonable for the public to feel that the whole business of reproduction is increasingly being taken out of their hands and made into a technical 'scientific' matter, where they have little choice but to do what they are told because they simply do not understand the alternatives.

Besides this, what about the sheep? Dolly herself may well be quite nicely treated, though she seems likely to spend rather more of her time in laboratories than a sheep might wish.

But the one development which seems really likely to come out of this discovery is surely yet more misery for the creatures in the intensive farms. Cloning the most eatable and docile of them may well prove a practical proposition and it certainly isn't going to improve their lives.

Altogether, maybe—except for nettles and dandelions—duplication really is quite a bad idea.

## Boy produces three pairs of identical frogs

NEW YORK—After reading a 1930s book about cloning, a 13-year-old boy took the top prize at his middle school's science fair by creating twin frogs in a petri dish. In fact, he produced three sets of identical frogs.

What Tim Cassano accomplished is not cloning, but he did "blow everybody away".

Tim carried off the "Best of Show" rosette ribbon prize at his school outside Honeoye Falls, a village south of Rochester. Amazed onlookers said college students would have trouble repeating the eighth-grader's experiment.

"No student here has ever attempted what he's attempted", his science teacher, Carolyn Czarniecki, said. "I'm not putting him on a huge pedestal but... it's remarkable for a 13-year-old".

Basically, he took frog eggs that were fertilised naturally and split them, creating twins.

That is a very long way from the cloning of Dolly the sheep in Scotland and two rhesus monkeys in Oregon.

In Scotland, cells were taken from the udder tissue of a ewe the scientists wanted to copy and fused electronically into an unfertilised sheep's egg, which had its nucleus removed so its genes did not affect the copy.

The eggs, now equipped with the

ewe's nucleus, grew into embryos that were placed in ewes to grow into a copy of the original, cloning an adult mammal for the first time.

The DNA used came from the ewe's udder cells, proving cells designed for something other than reproduction could be used to regenerate an entire mammal.

Tim thought up his project just before Christmas and needed only an aquarium, petri dishes, glass tubes and highly reproductive African frogs.

Once he got the frogs to mate, Tim tried a variety of methods to split the eggs. He wound up tying them, a method he learned from a 1930s book about a cloning experiment.

Robert Angerer, who teaches developmental and molecular biology at the University of Rochester, said Tim's project would be a challenging one even for college undergraduates.

The teenager wasn't sure if he was able to split the fertilised egg at the two-cell stage of development or the more difficult one-stage. Mr Angerer said the boy probably split the egg at the two-cell stage. That doesn't diminish the feat in the eyes of some tough critics.

"I think he's definitely going to be a scientific genius when he's older", his aunt, Sherry Cassano, says. "He already is".



adult animal, Dolly the sheep.