

## Science in culture

## Womb with a view?

All is not as it seems in a television programme on the life of a fetus.

**Martin Kemp**

We tend to believe what we see, provided that the image obeys certain rules of internal consistency. Although we have plenty of evidence to reject the old adage that the camera never lies, particularly in this era of digital manipulation, we are perceptually prone to trust a representation that exudes an air of the 'real thing', especially if it has a photographic look. Illustrators therefore have an ethical imperative to use their skills in the service of a contract of trust with the viewer. With recent advances in computer graphics, these issues of trust have assumed a heightened urgency.

Film-makers have access to techniques that can render in compelling detail interactive hordes of warriors using just a few real actors. That's entertainment, they say. But exploiting computer-generated (CG) imagery in public science broadcasting is quite another matter.

Visual images can now convey the unseeable in brilliant colours and with wondrous spatial conviction, whether they are great arrays in the cosmos or molecular engineering. Such images are clearly a good thing in the communication of science. However, the viewer is frequently not told about the status of the images. When they relate to matters of considerable emotional and social importance, the stakes in the contract of trust can be huge.

On our screens we see a beautiful picture of a four-month fetus, yielding nothing in pink-appeal to a Raphael bambino. The fetus wheels slowly in space, apparently expressing feelings through its gestures and expressions. A voice-over intones some syrupy poetry, apparently composed by



the precocious infant through the adult medium of poet Roger McGough. We are told that the images come courtesy of new 'four-dimensional' (4D) scans (three dimensions plus real time).

This is what we were shown in the two-hour programme *Life before Birth*, made in Britain by Pioneer Productions and directed by Toby McDonald. The film was screened in Britain as *In the Womb* on the National Geographic channel on 11 March and on Channel 4 on 9 April.

There were some glimpses of relatively raw scans, but most of the spectacular visuals relied on animated models made by Middlesex-based company Artem. The fetuses were sculpted in wax, cast in silicon and hand painted. Animation specialists MillTV — better known for special-effects work in the film *Gladiator* — then set the models in motion. The skill and imagination behind the models were of the highest order, and the

results were seductive, visually and emotionally. We felt that we were eye witnesses to a beauty and conscious life previously unseen.

But at no stage was it clear what we were seeing. The credits named the companies responsible, but did not explain how the images were generated, and they were all implicitly accorded the same level of 'visual truth'.

Only on MillTV's website is the process made clear: "After months of research, courtesy of 4D ultrasound scans, medical books and pictures of mummified fetuses,

MillTV developed anatomically accurate CG recreations of month-four and month-seven fetuses." Each elaborate and laborious animation involved such methods as "multi-layering" for "shadowing, depth of field and colour correction flexibility".

In an area of medicine where public feelings run violently high, more honesty is required if the contract of trust with the viewer is to be honoured. I should like to propose a law and a consequent rule. The law is that the greater the skill available for making utterly convincing and seductive images, the greater is the power of potential deception. The rule is that the more sophisticated the techniques, the greater is the responsibility for openness in explaining how the images have been generated and where they stand in relation to the raw data.

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## An autistic look at animals

### Animals in Translation: Using the Mysteries of Autism to Decode Animal Behaviour

by Temple Grandin & Catherine Johnson  
Scribner/Bloomsbury: 2005. 368 pp.  
\$25/£16.99

**Marian Stamp Dawkins**

There are two remarkable things about Temple Grandin. The first is that she has arguably done more than anyone else in the world to improve the welfare of animals in a practical way. Her major contribution has been to go into places that most of us would probably prefer not to think about — slaughterhouses — and imagine what it would be like to be an animal on its way to being killed. She has dramatically improved the welfare of these animals, not by making



**An eye for detail:** Temple Grandin believes her autism helps her to see things like a cow does.

any expensive modifications to the slaughter plants but by suggesting simple changes that cost nothing, such as removing a yellow coat hanging over a grey fence, or altering

the lighting to eliminate shiny reflections from a puddle. By removing stimuli that frighten cattle and cause them to stop and pile up on one another, the cattle move more easily, they don't slip and fall, and the use of electric goads is almost unnecessary. These things are all very simple and effective. It's just that no one had thought of them before.

The second remarkable thing about her is that she is autistic.

In *Animals in Translation*, Grandin argues that these two things are intimately connected. Her autism, she believes, gives her a remarkable insight into the way animals see the world. Animals, like autists, concentrate on detail. It is obvious to her that the yellow coat would be a scary stimulus to a cow, but the rest of us, concentrating on the bigger picture, would simply not realize unless it was pointed out to us. If Grandin's claim that her autism helps her to see the world through the eyes of other species sounds far-fetched, we have to remember her