Cloning in the media and popular culture

An analysis of German documentaries reveals beliefs and prejudices that are common elsewhere

Giovanni Maio

The public debate on cloning—and its coverage in the media—often features unreal scenarios that are not based on scientific fact, but rather express a diffuse sense of uneasiness. Television documentaries, popular movies and comments in the press frequently reiterate the arguments that cloning threatens humanity or that it could change the entire fabric of society—and not for the better. It is therefore important to examine where such apocalyptic visions of cloning originated and how they have occupied such a prominent place in the media and popular culture (O'Mathúna, 2002). Finding an answer is highly relevant to this and other contentious debates, because we are only able to understand the public rejection of cloning technologies if we are conscious of the sources of popular knowledge on the topic (Van Riper, 2003).

This paper analyses the presentation of clones and cloning—and the scientists involved—in the mass media, with an emphasis on documentary films. What messages do documentaries transmit to the general public, and where do their arguments come from? To answer this question, 25 documentaries that screened on German television between 1996 and 2001 were analysed (Tables 1,2). Although the analysis draws on German films, its conclusions apply to other countries and societies—many of the metaphors for, and arguments against, cloning are used elsewhere in the world and often form the basis for popular mainstream films (Table 3).

In general, these documentaries emphasize the dangers inherent to new scientific developments. Although potential horrors are often juxtaposed with the vision of a miracle cure, negative connotations predominate. This is a reasonable approach: to be relevant for the viewer, it is not enough for television merely to mention a phenomenon or follow a

contentious debate—it must add significance to the dialogue and images to prevent the viewer from changing the channel. From this need to create importance and meaning comes television's predilection to fall back on metaphors when dealing with the debate on human cloning. In his documentary, *Frankensteins Kinder* (*Frankenstein's Children*, 1997), filmmaker Gero von Boehm tells the viewer, "And when the dyke has been breached, techniques such as cloning, together with the correction of genetic material, will decisively alter the world in the new millennium." The image of a dyke breaking underlines the importance of the subject and

creates further tension. It is a metaphor with great dramaturgical value, but it must not be regarded as an ethical argument.

Another approach often used by the media to underscore a threat is to present fiction as fact. Possible future developments are presented in a way that implies that they have already taken place. In this way, the discussion is virtualized—the real situation is not analysed, and the fictional and potential developments carry greater weight than the facts of the case. These essential dramaturgical methods are commonly used in television as part of a general tendency among the media to intensify a sense of insecurity and

Table 1 | German documentaries about cloning

Title	Location	Date	Director
<i>Auf dem Weg zum perfekten Kind? Embryonen zwischen Schöpfung und Verwertung</i> (<i>Towards the Perfect Child? Embryos Between Creation and Utilization</i>)	Germany	1996	Jörg Apfelbach & Hiltrud Fischer-Taubert
<i>Die Menschenmacher: Horror und Hoffnung der Genforscher</i> (<i>The Man-Makers: Horrors and Hopes of Genetic Researchers</i>)	Austria	1997	Kurt Langbein & Elisabeth Scharang
<i>Frankensteins Kinder</i> (<i>Frankenstein's Children</i>)	Germany	1997	Gero von Boehm
<i>Die Zukunft hat schon begonnen: Gendiagnostik — Chancen und Risiken</i> (<i>The Future is Here: Genetic Diagnostic — Chances and Risks</i>)	Germany	1998	Beatrice Sonhüter
<i>Der Mensch als Klon</i> (<i>Le Clonage: Le Saut dans l'Inconnu/Man as a Clone</i>)	Germany/France	1998	Denis Chegaray
<i>Der geklonte Mensch</i> (<i>The Cloned Human</i>)	Germany	1998	Christiane Götz-Sobel
<i>Menschen nach Maß? Chancen und Risiken des Klonens</i> (<i>Tailor-made Humans? Chances and Risks of Cloning</i>)	Germany	1998	Andrea Fock & Wolf Lengwenns
<i>Homo Xerox: Ich wünsche mir ein Klon</i> (<i>Homo Xerox: I Want a Clone</i>)	Germany	1999	Gerlinde Böhm
<i>Von kopflosen Klonfröschen und anderen Hirnlosigkeiten: Embryonenforschung heute und morgen</i> (<i>Of Headless Frogs and Other Brainless Ideas: Research on Embryos Today and Tomorrow</i>)	Germany	1999	Beatrice Sonhüter
<i>Unsterblich und perfekt: Die genetische Revolution und ihre Folgen</i> (<i>Immortal and Perfect: the Genetic Revolution and its Consequences</i>)	Germany	2001	Manfred Ladwig

Table 2 | German documentaries about cloning as part of a television magazine

Title of documentary	Title of television magazine	TV Channel	Date
<i>Gene und Klonen: einfach erklärt</i> (<i>Genes and Cloning: Simply Explained</i>)	Quarks & Co	WDR	11 March 1997
<i>Chancen und Grenzen der Medizin</i> (<i>Chances and Limits of Medicine</i>)	Spiegel TV	Vox	5 July 1997
<i>Der Mensch spielt Gott: Über das Klonen der Lebewesen</i> (<i>Man is Playing God: About Cloning</i>)	Abenteuer Forschung	ZDF	25 March 1998
<i>Klonen ohne Grenzen?</i> (<i>Cloning Without Frontiers?</i>)	Globus	3sat	29 July 1998
<i>Frankenstein läßt grüßen: Kommt der geklonte Mensch?</i> (<i>Greetings from Frankenstein: Is the Cloned Human on the Way?</i>)	Münchener Runde	BR	3 September 1998
<i>Geklontes Leben</i> (<i>Cloned Life</i>)	Quarks & Co	WDR	20 October 1998
<i>Klonen: Menschen nach Mass</i> (<i>Cloning: Tailor-Made Humans</i>)	Discovery—Die Welt entdecken	ZDF	12 May 1999
<i>Hilfe aus dem Reagenzglas: Heilung durch Klonen</i> (<i>From the Test Tube: Curing by Cloning</i>)	Brisant	ARD	17 August 1999
<i>Der geklonte Mensch: Schreckensvision oder medizinischer Fortschritt?</i> (<i>The Cloned Human: Horror Vision or Medical Progress?</i>)	Visite	N3	24 August 1999
<i>Patent auf Leben: Von der Schöpfung zur Abschöpfung?</i> (<i>Patenting Life: From Creation to Profit</i>)	Perspektive Das Gesellschaftsmagazin	B3	29 May 2000
<i>Geklonte Zukunft</i> (<i>Cloned Future</i>)	Kulturzeit	3sat	26 August 2000
<i>Verheissung oder Horror? Der Zugriff auf das Erbgut</i> (<i>Promise or Horror? Accessing the Genome</i>)	Mona Lisa	ZDF	27 August 2000
<i>Therapeutisches Klonen</i> (<i>Therapeutic Cloning</i>)	Fakt	MDR	28 August 2000
<i>Mit Genen heilen</i> (<i>Healing with Genes</i>)	Quarks & Co	WDR	12 September 2000
<i>Der geklonte Mensch</i> (<i>The Cloned Human</i>)	Aspekte	ZDF	8 December 2000
<i>Klonen von embryonalen Stammzellen</i> (<i>The Cloning of Embryonic Stem Cells</i>)	Nano	3sat	20 December 2000

...we are only able to understand the public rejection of cloning technologies if we are conscious of the sources of popular knowledge on the topic

threat. A further glance at how this threat is presented is particularly informative.

By far, the most frequently highlighted danger of cloning technologies is the potential to use them for eugenic purposes. In the feature *Chancen und Grenzen der Medizin* (*Chances and Limits of Medicine*, 1997), as part of the 'Spiegel TV Special' series, the speaker refers directly to cloning: "Old fears of a new racial teaching are reawakened by a test tube." *Der geklonte Mensch* (*The Cloned Human*, 1998) makes the statement, "Cloning is only the first step toward the replication of successful specimens and the fabrication of ideal human types." In the perception of the general public, cloning is not only a new technique, but also a symbol for the increasing power of scientists and for the disposition of humanity. The television magazine *Kulturzeit* introduced the film *Geklonte Zukunft* (*Cloned Future*, 2000), with the comment, "...we have arrived at the final stage of development: unattained up to now, but theoretically possible—the human clone." Cloning symbolizes the scientific

endeavour to control nature in the service of knowledge and power. Thus, in the public perception—and accordingly in the media—it has become a general symbol for the ambivalent potential of genetic technology. Because the collective imagination and the fantasies roused by genetic technology are, in particular, eugenic fantasies, this link between cloning and eugenics is automatic. When television combines these two problematic areas, it uses an interpretation that is already predominant in society. The association between cloning and eugenics might not be at the suggestion of the media, but could instead be a result of the interpretation of existing social and cultural ideas.

Cloning is such an interesting topic for the media because the idea of creating a 'copy' of an adult animal has overtones of old stories about the artificial creation of a human (Poon, 2000; Wulff, 2001)—stories about blasphemy, a rebellious act against divine order. Such legends are deeply anchored in the Judaeo-Christian myths of creation and in popular culture, most notably Mary Shelley's *Frankenstein*, which itself has become an important symbol for popular myths. It is therefore not surprising that many documentaries on the subject of cloning allude to Frankenstein: von Boehm's documentary is entitled

Frankenstein's Children; a round-table discussion on Bavarian television was called *Greetings from Frankenstein: Is the Cloned Human on the Way?* (1998), and many documentaries feature segments from *Frankenstein* films. The complete title of Shelley's novel reads *Frankenstein, or the Modern Prometheus*, and just as she alludes to this other mythical figure, the Frankenstein story itself has become a kind of mythical narrative, with a long series of adaptations in film and literature. However, Frankenstein is not the only figure of popular culture from which documentaries on cloning draw their inspiration. Often, scenes from other films appear, for instance Michael Crichton's *Coma* (1978) or *The Boys from Brazil* (1978). What messages do documentary films transmit by this steady recourse to fiction?

Popular movies about cloning almost always have four main messages. First, the clone is potentially evil, whereas the original from which it was copied is good. Particular examples of this are *Embryo* (1976) or *The Darker Side of Terror* (1979), in which the clones are criminals. The inverse dramaturgy,

From this need to create importance and meaning comes television's predilection to fall back on metaphors...

with a good clone and an evil original, has never been produced. The point of these films is to underscore—by means of cloning—the protagonist's individuality and originality (Hopkins, 1998). Second, the creator of the clone is eventually punished for the blasphemous act of creation; cloning is portrayed as breaking a taboo. In most films, it is a criminal activity, which takes place away from public scrutiny and serves secret interests. Third, the creation of the artificial human often takes place in a civilization of decay or catastrophe. Most movies on cloning sketch a totalitarian society. Fourth, order is eventually restored by the death of the artificial creature (SeeBlen, 2000).

Frankenstein and other clones in these films are, ultimately, personifications of an alienated existence, and are unable to reach human perfection. Thus, Frankenstein represents an anti-image, a split personality, which desires wholeness but cannot reach it. If the artificial human is usually presented in popular culture as the personification of a soul-less being, this narrative transmits the message that a human clone cannot be as perfect as a human created 'naturally'. In this context, any attempt to create an artificial human is considered to be blasphemous.

If one assumes that these stories, central to many films, are inherent components of popular culture, it becomes clear that the media have no choice but to draw on these culturally predetermined semantics. Indeed, cloning is blasphemous; this is the message that documentaries use to express the often-reiterated argument that humankind must

not play God. If documentaries label human cloning as an illegitimate second act of creation, a connection can therefore be drawn to the contextual positioning of cloning in popular culture.

The media are quick to take up and emphasize the risks inherent to cloning technologies. However, they do not restrict themselves to the production of fear, but also position the topic within the tension of fear and promise (Mulkay, 1993). Alongside the risks, promising new developments are highlighted. In an introduction to a feature on therapeutic cloning, the anchorman of the scientific television magazine *Globus* commented, "In our next contribution we will take up the subject of an old dream, a dream of medicine to be able to cure hopeless cases and one method may be stem cells" (*Cloning Without Frontiers?* 1998). Even if the subsequent feature illuminated the ethical questions of stem-cell research in a neutral and differentiated manner, the 'rhetoric of hope' (Mulkay, 1993, 1996) was a main theme, with the phrase "carriers of medical hope" repeated throughout the film. The feature ended with the creed: "Stem cells—whether acquired through therapeutic cloning or taken from the bone marrow of adults—allow medicine to enter a new era and the human comes a little closer to his ancient hope of immortality." These are, in essence, stories of miracle healings. Even if television documentaries provide a different picture and treat the topic seriously, they use a language that does not

come from scientific discourse, but from narrations and old stories about curing and healing, in order to capture the attention of the viewer (Maio, 2001; Nelkin & Lindee, 1998).

In the perception of the general public, cloning is...a symbol for the increasing power of scientists and for the disposition of humanity

This polarization between horror and wonder is widely used in the media, which tend to accentuate the dangers as well as the opportunities. The titles of many documentaries already exhibit this tendency: *The Man-Makers: Horrors and Hopes of Genetic Researchers* (1997); *The Cloned Human: Horror Vision or Medical Progress?* (1999); *Promise or Horror? Accessing the Genome* (2000). Television presents ethical problems not as matters of negotiation, which could be resolved by consensus, but rather as conflicts between two incompatible sides. It tends to amplify ambiguity by emphasizing the differences, rather than the possibility of a compromise.

In all of the television documentaries on cloning that we analysed, the scientists had a strong presence and occupied more screen time than other people interviewed. However, it is notable that the media rely on just a few representatives of the field, who appear in nearly every production. The selection of these researchers is surely a

Table 3 | Cloning in popular film and television movies

Title	Release location	Release date	Director
<i>Four Sided Triangle</i>	UK	1953	Terence Fisher
<i>Fearless Frank</i>	USA	1967	Philip Kaufman
<i>The Resurrection of Zachary Wheeler</i>	USA	1971	Robert Wynn
<i>The Clones</i>	USA	1973	Lamar Card, Paul Hunt
<i>Sleeper</i>	USA	1973	Woody Allen
<i>Embryo</i>	USA	1976	Ralph Nelson
<i>The Clones of Bruce Lee</i>	Hong Kong	1977	Joseph Kong
<i>The Clone Master</i> (TV)	USA	1978	Don Medford
<i>The Darker Side of Terror</i> (TV)	USA	1979	Gus Trikonis
<i>Parts: The Clonus Horror</i>	USA	1979	Robert S. Fiveson
<i>Blade Runner</i>	USA	1982	Ridley Scott
<i>Anna to the Infinite Power</i>	USA	1983	Robert Wiemer
<i>Daijōbu, Mai Furendo</i>	Japan	1983	Ryu Murakami
<i>Creator</i>	USA	1985	Ivan Passer
<i>Terminus</i>	France	1987	Pierre-William Glenn
<i>The Cloning of Joanna May</i> (TV)	UK	1992	Philip Saville
<i>Body Snatchers</i>	USA	1993	Abel Ferrara
<i>Alien: Resurrection</i>	USA	1997	Jean-Pierre Jeunet
<i>Fantozzi 2000: La Clonazione</i>	Italy	1999	Domenico Saverni
<i>The 6th Day</i>	USA/Canada	2000	Roger Spottiswoode
<i>Replicant</i>	USA	2001	Ringo Lam
<i>Repli-Kate</i>	USA/Germany	2002	Frank Longo
<i>If</i>	USA	2003	Lisa Stoll
<i>Blueprint</i>	Germany	2003	Rolf Schübel
<i>Godsend</i>	USA/Canada	2004	Nick Hamm

reflection of their compatibility with the television medium, rather than of their positions in the scientific community. It is therefore remarkable that these researchers are either extremely eccentric or appear to be far removed from the real world. In some presentations, the familiar figure of the 'mad scientist' resonates. In *Frankenstein's Children*, for example, a voiceover tells the viewer that, "the production of identical copies of human beings—the final crossing of this limit is the goal of this researcher at the verge of insanity. But it would be thoughtless to trivialize him in this manner." In most cases, the scientists appear to be representatives of a science isolated from society and are even presented as pursuing secret research.

The atmosphere of the laboratory further enhances this image. Research facilities are often deliberately represented as disconcerting, powerful and cold. In *Frankenstein's Children*, von Boehm films the researchers from below and at a slanted angle. "We physicians and researchers are natural scientists and not sociologists," a researcher states in Götz-Sobel's film, which is symptomatic of many of these documentaries. In

general, the scientist represents 'cold', rational science, which has moved away from 'healthy', human intuition. These rhetorical methods of contrast are used by many documentaries: the cold researcher in contrast to personal intuition; the scientist's rational view of the embryo as a 'collection of cells' versus the implicit view of the embryo as a potential human being that needs to be protected. The documentary *Unsterblich und Perfekt* (*Immortal and Perfect*, 2001) states, "Seemingly without feeling, scientists work on life...researchers see the embryo as a formable basic material for further manipulation."

The central message—that scientists perceive reality from a point of view in contrast to 'good common sense'—and the presentation of the laboratory as a cold, mysterious and heartless place, is certainly an exaggeration of science as the mysterious. One may lament this method of presentation, but in the end, it is a widespread association and prejudice in society. Pierre Bourdieu has described television as a medium of the commonplace (Bourdieu, 1998). "The journalistic field," he wrote, "rests on the totality of all of the shared

basic assumptions and dogmas," and the blind researcher driven only by the pursuit of knowledge is a commonplace platitude, which is firmly anchored in the collective imagination of society.

Within this is embedded another societal assumption, namely the idea of progress as an inexorable entity. von Boehm gives the following message in the final scene of *Frankenstein's Children*: "Research moves continually forward, and this is something that we finally have to understand. When Dr. Frankenstein wanted to create the perfect human, the result was a monster, which killed him in the end." In *Cloned Future*, a voiceover states: "Research knows no limits. Will we meet the monsters from film and literature of which we have always been afraid in future?" In the documentary *The Cloned Human* (1998), the narrator emphasizes "The use of cloning for humans is forbidden in Europe, but research knows no limits." This series could easily be continued. There is scarcely a documentary on cloning that does not paint an image of science as an inexorable entity.

Another particular characteristic of these films is the choice of religious metaphors to describe genes and their function. Films repeatedly speak of genes as the "universal language of life" or as "the basis for reaching into the depths of the secret of life" (*The Cloned Human: Horror Vision or Medical Progress?*). Another film states: "Science is busy eliciting all of the secrets of the roots of human life," and even speaks of "the Holy Grail of the genetic researcher" (*Promise or Horror?* 2000). What is remarkable about these metaphors is the intrinsic contradiction in the transmitted messages. On the one hand, the documentaries repeatedly emphasize, through commentaries and interviews, that human beings are not determined solely by their genes. "The human is more than the sum of his genes" is often repeated, and scientific magazines expressly emphasize that the influence of the environment is a decisive element for development. On the other hand, images of cloned Einsteins convey a message exactly opposite to this, implying that Einstein could be copied by replicating his genes. Many reports include statements against genetic

The primary interest of television is and must be the cultural context of a news item

essentialism, but at the same time they amplify the belief in precisely this essentialism by their choice of accompanying images. Pictures of Barbie® dolls, wax figures or marionettes transmit the message that cloning creates an exact copy of a human being.

Genetic essentialism also becomes implicit in the choice of words, when, for example, the subject is talking about “completely healthy, but completely identical, standard humans”. In the documentary *Homo Xerox* (1999), the scientist Jens Reich comforts us with his comment: “Every person, even if he is a twin, can develop in a very fundamentally different way; there remains so much freedom, that it is more than just what is set out by the DNA.” At the same time, however, this statement is contrasted with the statement of a layperson, who states: “If I have a cloned child, it can only grow up to be like me.” Television’s message about the meaning of genes remains ambiguous, perhaps as much as scientific studies on the subject. But even if there is a tendency to emphasize genetic determinism, this simply reflects common prejudices in society—and television is a mirror of societal presumptions (Nelkin, 2000).

Which ethical questions about cloning are transmitted by television? The initial suspicion—that television takes up only arguments against cloning and systematically ignores others—could not be confirmed after our analysis of the chosen documentaries. The objections to cloning in these documentaries are multilayered, whereas the choice of the arguments depends to a large degree on the profile of the particular feature. For example, a scientific television magazine may concentrate on the argument of biodiversity, just as the women’s magazine *Mona Lisa* appeals to the individual rights of women. The most frequently mentioned arguments against cloning are the objection to ‘playing God’, the particular emphasis on individuality and the singularity of every human being. If television insists on featuring these arguments, it is not because they are the strongest from an ethical point of view. Television does not appeal to ethics as an instrument of morality, it appeals to established interpretations of the world.

The image of cloning in the media can only be understood if one does not view cloning as a concrete subject, but approaches it from the perspective of popular culture. The primary interest of television is and must be the cultural context of a news

item. Television is convincing and interesting when it links news with the viewers’ own experiences, and this functions only when it appeals to an established pattern of how they see and interpret the world.

It is antique myths and sagas that provide people with the images that they associate with cloning (Wetzstein, 2001). Probably the oldest, stemming from the Talmudic period, is the Jewish story of the golem, a human-like being made out of clay to serve its maker. The relation of the golem motif to biblical stories of creation is obvious: the creator makes a creature of clay and breathes life into it. The myth of Prometheus tells exactly the same story of admonition and warning against presumptive hubris. From the time of the Talmud and antique mythology, literature has been populated with golems and Prometheuses, advancing to mechanistic humans in Fritz Lang’s *Metropolis* (1927), and finally to the creation of the homunculus. The poetry of the Romantic period adopted the idea of artificially created humans and placed it in the vicinity of blasphemy (Wetzstein, 2001), a position that is difficult to shift today.

Cloning is a regular subject in daily newspapers, and on television and radio. As a subject of everyday conversation, cloning is frequently related to eugenics, to the loss of human individuality and to blasphemy. These connotations are used frequently not because they are ethical arguments against cloning, but because they are part of our popular culture. Long before Dolly, the word ‘cloning’ had a specific meaning, which was shaped not by science but by literature and film, drawing from ancient myths of creation. Although the forms of the artificial human change with time and culture, all have one thing in common: they are characterless and nameless beings, incapable of living up to the plan of their creator. These myths are still present in today’s public debate on cloning and stem-cell research. Because these old stories have established themselves in the cultural imagination, they are used by the mass media independently of their validity to describe the current problem. Knowledge of these associations can be important for biology and medicine today, because it helps us to better understand the anxieties in the population about advanced biomedical research. Consciousness of these relationships makes it possible for those participating in the political and ethical discourse to

Long before Dolly, the word ‘cloning’ had a specific meaning...

approach these traditional prejudices effectively and to realize that it is time to integrate a new type of story into our mental culture.

REFERENCES

- Bourdieu P (1998) *Über das Fernsehen*. Frankfurt, Germany: Suhrkamp
- Hopkins PD (1998) Bad copies. How popular media represent cloning as an ethical problem. *Hastings Cent Rep* 28: 6–13
- Maio G (2001) Medizinethik und Medien. Analyse der durch das Fernsehen vermittelten Wertebilder in Bezug auf medizinethische Problemfelder. In Maio G, Roelcke V (eds) *Medizin und Kultur* pp267–282. Stuttgart, Germany: Schattauer
- Mulkay M (1993) Rhetorics of hope and fear in the great embryo debate. *Soc Stud Sci* 23: 721–742
- Mulkay M (1996) Frankenstein and the debate over embryo research. *Sci Technol Human Values* 21: 157–176
- Nelkin D (2000) From promises of progress to portents of peril: public responses to genetic engineering. In Wear S, Bono JJ, Logue G, McEvoy A (eds) *Ethical Issues in Health Care on the Frontiers of the Twenty-first Century* pp155–170. Dordrecht, The Netherlands: Kluwer
- Nelkin D, Lindee MS (1998) Cloning in the popular imagination. *Camb Q Healthc Ethics* 7: 145–149
- O’Mathúna DP (2002) What to call human cloning. *EMBO Rep* 3: 502–505
- Poon PN (2000) Evolution of the clonal man: inventing science unfiction. *J Med Humanit* 21: 159–173
- Seeßlen G (2000) Traumreplikanten des Kinos: Passage durch alte und neue Bewegungsbilder. In Aurich R, Jacobsen W, Jatho G (eds) *Künstliche Menschen, Manische Maschinen, Kontrollierte Körper* pp 13–42. Berlin, Germany: Jovis
- Van Riper AB (2003) What the public thinks it knows about science. *EMBO Rep* 4: 1104–1107
- Wetzstein V (2001) Lasst uns Menschen machen. Über Homunculi und andere Kreaturen. *Z Med Ethik* 47: 313–321
- Wulff HJ (2001) Klone im Kinofilm. *Medien Praktisch* 3: 47–53

Giovanni Maio is Director of the Interdisciplinary Centre for Ethics at the University of Freiburg, Germany.
E-mail: giovanni.maio@uniklinik-freiburg.de

doi:10.1038/sj.embo.7400652