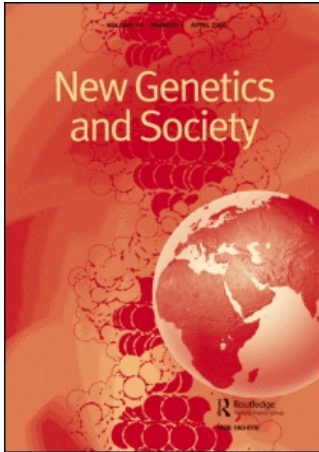


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Eve's sons

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ABSTRACT *The aim of this article is to use the episode of the baby allegedly cloned by the Raelians and born on the day after Christmas 2002 in order to analyse what is threatened by the prospect of cloning as a reproductive method, and why it is a matter of such importance as to provoke immediate and general condemnation. The announcement made by the Raelians provoked public debate in the media. Therefore, analysis of the articles published in the main Italian newspapers during that period allows exploration of the hypothesis that the Raelians' attempt of cloning was generally interpreted as a threat against the basis of our conception of human identity, not only at the individual level—which defines each of us as a balance between difference and continuity—but also at the social level, where human identity is the result of a classification system in which human beings are identified in contrast to other living beings. For these reasons, the case of the Raelians is of particular interest because it strains the reproduction/identity nexus in an extreme way which highlights what otherwise may lie buried beneath a thick layer of taken-for-granted beliefs.*

'We should ask ourselves why a baby only a few days old should cause so much fear.' (Marco Franceschini, Raelian bishop¹)

In late 2002 it was announced during a press conference in Hollywood (Miami) that a baby named Eve had been born the day after Christmas using the nuclear transfer technique. According to the account provided on that occasion, the cloning of baby Eve had taken place in the laboratories of CLONAIID, a research company specialized in human reproduction using cloning techniques. But the CLONAIID laboratories are special not only because they work on human cloning—and apparently with outstanding results—but also because they were founded and are closely connected with the Raelian sect.

The Raelian movement—founded in 1976 by Claude Vorilhon, formerly a French sports journalist—professes a creed which reinterprets the Old and New Testaments on the basis of revelations received from the Elohim, extraterrestrials come to Earth where they reproduced by cloning and thus gave origin to the human species.

The Raelian sect presently has more than 55,000 members scattered among 84 countries. One of the sect's aims is to 'construct an embassy which welcomes the extraterrestrials on their return to Earth. And bring to completion the cloning

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of human beings'.² This explains the Raelians' interest in the most recent advances in scientific research, especially in the field of artificial reproduction, which they believe may enable them to return to their origins and achieve immortality.³

The announcement of Eve's birth, therefore, had all the ingredients necessary to attract media attention and to create a sensation, which predictably ensued. Newspapers and television channels around the world devoted ample space to the affair, giving rise to heated debate on the use of cloning for reproductive purposes.

On the other hand, the possible cloning of human beings continues to arouse great public interest, especially in the mass media. With the birth of Dolly the sheep and the numerous reports thereafter of the cloning of other mammals, the media became particularly sensitized to the issue of reproduction by means of cloning (Durant, Gaskell & Bauer, 1998; Neresini, 2000; Nisbet & Lewenstein, 2002). Not coincidentally, wide media coverage has also been given to the hypothesis of human cloning by, for example, Richard Seed or Severino Antinori and Panos Zavos (Nerlich & Clarke, 2003). Hence, when the spokesperson for the CLONAIID laboratories and for the Raelian sect—Dr Boisselier—announced Eve's cloning, the uproar that ensued was not surprising.

On that occasion, numerous reactions to the announcement consisted of incredulity mixed with strong condemnation. On the one hand, many commentators seriously doubted whether the Raelians could really have achieved what they claimed, given the well-known inefficiency of the technique used to generate Dolly. On the other hand, there was general agreement on the absolute immorality of the act if it had been accomplished. Some emphasised the risks to the health of the unborn child, considering that all successful clones from mammals had subsequently displayed severe dysfunctions; others stressed the unbearable psychological pressure to which the clone would be constantly subject in his/her relationship with his/her parent-twin. Yet others deployed various arguments regarding the 'evil use' made of reproductive cloning, drawing heavily on the imagery of science fiction to do so: for instance, 'that genetic engineering will lead to the evolution of two races, one master-race consisting in descendants of designer babies, off-spring of selfish and rich people set upon perpetuating their selfish genes, the other consisting in those who can't afford the genetic enhancement of their children' (Nerlich, Clarke & Dingwall, 1999).

However, the fear and indignation aroused by reproductive cloning cannot be understood only in terms of the arguments just outlined, which are both too technical to be shared by most people and too weak to explain the general and automatic rejection of the very idea of reproductive cloning. Without considering that the term itself 'cloning' provokes an immediate hostile reaction, to the point that the word itself is often replaced with synonyms like 'cell nuclear replacement' (Klotzko, 2005, p. 62).

Between hope and fear

The debate, therefore, does not warrant analysis to determine whether or not the CLONAIID laboratories have been actually successful; it is more interesting to use

it as a useful occasion to explore what is at stake in the discussion on scientific advances in understanding and manipulating the human reproductive process.

One aspect in particular should attract our attention: the almost unanimous opposition against the cloning of human beings for reproductive purposes tends to regard itself as self-evident. It is not necessary to adduce arguments against human cloning; all that is required is a generic appeal to the sacredness—not necessarily religious—of human life and nature. As a consequence, the public debate on this issue is singularly poor in arguments which justify a ban on reproductive cloning (Klotzko, 2005), especially when it is carried forward in the mass media (Petersen, 2002, p. 78).

And this is precisely the point: What lies behind the automatic and poorly argued condemnation of reproductive cloning? Why do we find this ban so natural as to consider cloning immediately unnatural and immoral?

It is easy to understand that the main aspects of the problem rotate around the reproduction/identity relation (Turney, 1998; Franklin, 1999). In order to analyse what is threatened by the prospect of cloning as a reproductive method, it may therefore be useful to investigate the nexus between reproduction and identity by observing it 'in negative', that is, when its basic assumptions are threatened by the prospect of reproductive cloning. This is obviously something that could be investigated in cases other than that of the Raelians. Yet the Raelians are of particular interest because their straining of the reproduction/identity nexus is an extreme case which highlights what otherwise may lie buried beneath a thick layer of routines and taken-for-granted beliefs.

Nobody takes the Raelians seriously, in fact, and their claims can be easily dismissed as absurd and scientifically implausible fantasies bred by a desire for cheap publicity. But it is precisely the hyperbolic nature of their claims and the unanimous condemnation that they provoke which provide an opportunity to investigate what is at stake when cloning as reproductive method becomes a topic for public discussion.

Generally, the debate on the New Reproductive Technologies (NRTs), especially when it extends to include cloning, consists of a mix of hope and fear. As has been already emphasised, the rhetoric of fear on the one hand, and of hope on the other, springs from a common basis, to which the former refers 'in negative' and the latter 'in positive'. For example, on analysing the parliamentary debate that preceded approval in the UK of the Human Embryology and Fertilisation Bill (1989–1990), Mulkay (1993) maintains that whereas the rhetoric of hope stresses the benefits expected from research using human embryos, that of fear is associated with the violation of basic cultural categories and moral values.⁴

However, both hope and fear:

...tend to derive their evocative powers from the notion of boundaries as the means through which cultural categories and moral values are upheld... NRTs can be understood as problematic objects insofar as they represent the possibility of disturbance in the existing classifications which comprise the social/moral order. Phrases such as 'Designers

Babies' or 'genetic engineering', for example, merge contradictory signifiers into a single identity. They work by juxtaposing previously 'separate' realms of experience—in this case, the world of the laboratory and that of an innocent human life; fertility and commercialization; the natural and the artificial... Put simply, then, NRTs are construed as endowed with the potential to bring conceptual and social categories into confusion. (Bloomfield & Vurdubakis, 1995, p. 535)

Also in the case of cloning, the arguments and the rhetoric used by the actors involved in the debate give rise to 'taxonomic anomalies' which generate fear (*ibid.*, p. 536); and the debate provoked by the announcement of Eve's birth is, therefore, a good opportunity to investigate such anomalies further and to gain clearer understanding of what it is that they threaten.

The general characteristics of the debate in Italy

For this reason, analysis was made of a corpus of 112 articles published in four leading Italian newspapers (*Il Corriere della Sera*, *La Repubblica*, *La Stampa*, *il Sole24ore*) in the period between 28 December 2002 and 13 January 2003. In fact, the majority of the articles are concentrated in the first three days of the Eva affair; the attention of the media abated relatively rapidly and the episode soon sank into oblivion. The general characteristics of the debate can be described by analyzing the articles from a quantitative point of view.⁵

As usual, especially in Italy, the majority of the articles were written by journalists, only just over one in every 10 of them by scientific journalists. Only one article was written by a scientist. Few articles dealt specifically with the theme of identity and its relationship with reproduction (16%). The majority discussed other issues, for example, the credibility of the story (37%), the history of the Raelians and a description of their beliefs (29%), and the legal regulation of cloning (23%) and its moral condemnation (23%). However, the large majority of articles made implicit reference to the theme of identity and its connections with reproductive processes, often introducing oppositions in order to organize the discourse on the topic.

Therefore, in order to analyze the relationship between reproduction and identity in the debate on cloning, it is useful to identify these oppositions and to show how the issues and the positions taken up by the actors concerned with the debate are structured on them. For example, that of reproductive cloning *versus* therapeutic cloning is present in 16% of the articles analysed, while that of science *versus* non-science appears in 23%.

Another recurrent opposition—to be found in 15% of the articles—more closely concerns the issue of identity. It distinguishes biographical identity (as gradually formed through experience) from genetic identity, which arises only from the individual's DNA. Although explicitly formulated in only 11% of the articles, also the distinction between 'natural' and 'artificial' plays a role of prime importance in the debate; in fact, it is used both by the Raelians—'you

humans were created in a laboratory by us, the Elohim, 25 thousand years ago' (*Il Corriere della Sera*, 28 December 2002, p. 5)—and by their opponents—'cloning is a normal fact in nature: homozygotic twins are an example, and every time we transplant the twig of a tree we make a clone' (*La Stampa*, 28 December 2002, p. 2).

First to be noted is that not by chance, scientists have been the main proponents of the distinctions in question. In various ways, for example, scientists have insisted during the debate that therapeutic cloning should not be confused with reproductive cloning.⁶ Their argumentative strategy develops through a constant appeal to other distinctions. Therapeutic cloning, they claim, is a 'good' practice in that it is directed towards a beneficial end (the treatment of incurable diseases), whilst reproductive cloning is an aberrant practice because it is pursued for commercial ends by 'pseudo-scientists'. In this way scientists have sought to reiterate the distinction between science and non-science: the former is conducted by scientists and therefore is good; the latter is conducted by unreliable people like the Raelians and is, therefore, irremediably bad. They also reiterate the distinction because the uproar provoked by the announcement of Eve's birth is interpreted by scientists as a threat to their research, and because it generates generalized opposition against it which weakens the distinctions on which scientific research is based.

The ethical legitimacy of therapeutic cloning is also sustained by assuming clear distinctions between biographical identity and genetic identity, and between embryo and person. With regard to the former, scientists have repeatedly stressed that a clone has (almost) the same genetic identity as the organism from whose DNA it has been produced, but not the same biographical identity. The latter distinction implicitly contains the idea that it is only possible to speak of a person when the genetic heritage has fully realized its potential—emphasising some aspects and muting others—according to its ongoing interactions with the environment: that is, with the set of circumstances and experiences that give full-fledged form to the individual identity.

Ranged against the scientists and their distinctions—also sustained by 'lay' (in the entirely Italian sense of 'non-Catholic') experts in bioethics—are various representatives of Catholicism, whether high-ranking clerics or experts who embrace Catholic doctrine. These reject outright the distinction between therapeutic and reproductive cloning on the ground that there is no difference between embryo and person and therefore, implicitly, between the project of person (that is 'genetic identity') and person (that is 'biographical identity').

It is, therefore, evident that these oppositions are not only used to position the various actors in the debate engendered by the alleged birth of Eve, and in general on cloning. They also serve to organize diverse conceptions of identity. Yet, however different these conceptions may be, they share at least three assumptions of especial importance for the present discussion.

Firstly, strikingly evident is the central importance of the body as a referent for the definition of identity. It is the body that is reproduced or nurtured; it is the body that anchors our relational experiences to the environment; and it is again the body that is the necessary basis for any discourse on identity.

Secondly, all the conceptions of identity evoked by the debate pertain to a classification scheme which assigns human beings a particular place in the world. All the oppositions that emerge from the debate explicitly affirm the difference of human beings (as in the case of the distinction between animal and human cloning), or they do so more indirectly but no less significantly. For example, the distinction between person and non-person in regard to the embryo implicitly draws a boundary between human and non-human, even if this is a boundary which shifts according to the definition of identity being used. The same applies to the opposition between therapeutic and reproductive cloning, and also to that between genetic and biographical identity. Although these distinctions mark out a demarcation line which varies according to the different positions taken up by the actors in the debate, they nevertheless refer to a scheme which allocates humans to a distinctive class with respect to other living beings.

Finally, identity—however it is defined—is conceived as a delicate amalgam of differences and continuities which hinges on randomness: it is a random genetic heritage ensured by natural reproduction, the foundation of individual identity, which both ensures the continuity of the species and couples individual identity with the collective identity of humankind through the membership bond thus established.

Difference and continuity

Besides these diverse conceptions of identity, the debate affirms not only the idea that we are our genetic heritage, but also that the random remix of DNA deriving from natural reproduction furnishes the correct combination of continuity and difference on which is based our conception of identity. In this perspective, *difference* is viewed as the guarantee of uniqueness, particularly with regard to everything that can be recognized as similar but not equal. The identity of the human species is accordingly defined as that which we share with those who are similar to us, despite the differences that distinguish us at the individual level.

The other essential requisite of identity is *continuity*: that which remains the same over time despite or aside from possible changes. Individual identity, in fact, is exactly that which enables us to recognize ourselves as the same over time despite the changes that occur in us and around us. This aspect of identity reflects the profound need for ‘ontological security’ described by Giddens (1990, p. 96): the need to trust in ‘the continuity of self-identity and in the constancy of the surrounding social and material environments’ of our action.

Hence, the concept of ‘genetic heritage’—at least in its version shared by the public at large and recurrently used in the media—is closely compatible with the requisites of difference and continuity that support the notion of identity. The DNA of each of us is similar to that of all human beings, but it is sufficiently different for us to be able to identify ourselves as unique: the genome persists over time, to the point that it is transmitted from generation to generation, and—although it undergoes changes (mutations)—its substantial continuity is never affected. This is nothing new, it might be said. And it is no coincidence that

all the actors in the debate have implicitly defined identity as a mix of difference and permanence.

However, a novel feature emerges if we consider where this permanence is located—if, that is, we seek to identify the seat of identity. In fact, not only does DNA seem to have taken the place of the soul (Nelkin & Lindee, 1995; van Dijck, 1998), but the mind and the brain seem to have replaced what in the past was represented by the heart. Once again, the Raelians forcefully express out loud what otherwise tends to remain implicit in our discourse: on the one hand: 'an American couple lost a ten-month-old baby... his genes were crying out, like a ghost might, to be reproduced', affirms Boisselier (*La Repubblica*, 29 December 2002, p. 6); on the other hand, 'the cloned organisms... would obviously only be empty bodies, but by means of an information loading process,⁷ people could transfer their personalities into them' (*ibid.*).

Yet there is an element of continuity between the past and present conceptions of where the locus of identity resides. This locus is the body. Although the body may no longer be the biblical 'temple of the soul' it certainly appears to be the seat of the identity. It is through the mediation of the body that the 'DNA = identity' equation becomes plausible; the 'cultural' resilience of this equivalence is explained by the revaluation of the body as the seat of the identity: DNA is the body, and the body is identity. Once again, the ineffable Boisselier overtly expresses this notion, which seems to be widely shared: 'I don't believe in the soul, but in the body yes' (*Il Corriere della Sera*, 29 December 2002, p. 13).

Not by chance, the importance of the body in the construction and maintenance of identity has been emphasised as a key feature of post-modern society. The body functions as an increasingly indispensable material support and symbolic referent as the traditional bases of identity are eroded by the reflexive application of the founding principles themselves of modernity (Beck, 1986; Giddens, 1991) or, at any rate, by the disappearance of the modern certainties (Bauman, 1995; Featherstone, Hepworth & Turner, 1991; Shilling, 1993).

We increasingly cleave to the idea that 'we are our bodies' because the body seems to be the last bulwark left after the dissolving of social and cultural certainties concerning our identity (Giddens, 1990; Melucci, 1996). Thus, whereas the modern individual defined himself as the 'provider of goods', the post-modern individual is the 'collector of pleasures' or better the 'seeker of sensations'. In this new dimension the body performs a crucial function as the 'receiver of sensations' (Bauman, 1995, pp. 111–13). Hence, if the identity is founded on a constant search for new experiences, the body becomes the material and symbolic referent in which to anchor the self. The body figures in our culture as both the material support for our existence and the icon of our identity. It is therefore a good to be cherished, exhibited and conserved (Featherstone *et al.*, 1991; Giddens, 1990, 1991; Shilling, 1993; Melucci, 1996; Bauman, 1995; Lash, 1979). It is thus not an exaggeration to say that:

... we are living in the time of the body . . . People everywhere seem to cherish the dream of stretching biologically determined and culturally

defined limits, of finding somewhere in the depths of the body a true self which they can bring out and make visible to all. (Lundin & Akesson, 1996, p. 5)

In this perspective, reproduction becomes principally (re)production of a body, and if this body, as an expression of DNA, is the same as someone else's, then the persons who inhabit the two bodies will be identical: that is, they will have the same identity (Haraway, 1989, p. 353).

Accordingly, although the Raelians' claims are evidently absurd, they epitomize images and beliefs that belong to our cultural landscape. Claims like 'Eve is only the first step towards immortality' (*La Repubblica*, 29 December 2002, p. 15) may sound like claptrap intended to exploit the good faith of an ingenuous minority; but other statements—for example 'the clone should not be a copy of a human being but the rebirth of the same person in a younger body' or 'we are waiting for science to take the necessary steps to achieve the goal of eternal life' (*Il Corriere della Sera*, 28 December 2002, p. 3)—contain rather explicit allusions to concepts deeply rooted in our social context on the one hand, to the growing importance given to the body, while on the other, to the prospects of defeating disease and perhaps even of death held out by modern scientific medicine.

The secularized notion of 'eternal life' exemplified by the Raelian interpretation of cloning encounters the utopia advanced by modern medicine. Indeed, cloning as the infinite prolongation of the body—and what is more, a healthy and young body—serves to fill the void left by the unfulfilled (as yet) promises of scientific medicine (Callahan, 1998). Public opinion is therefore receptive to the Raelian Utopia also because of the expectations that modern medicine has long aroused.

However, while the prospect of cloning arouses our deepest desires to overcome uncertainties about our identity through perpetuation of the body, the same prospect elicits an instinctive rejection expressed by all the actors in the debate on Eve. This is because the idea of a perfectly replicated body disrupts the classification system on which individual and collective identity is grounded. This classification system is the product of a set of oppositions—for example, as seen before, natural vs. artificial, human vs. animal, biographical vs. genetic—that enable the human species and single individuals to be located in a precisely defined and reassuring order.

The place of human beings

For this reason, cloning has been instinctively depicted as a threat against 'society' and/or against 'humanity', without no justification being adduced in support of that opinion. It is not difficult to find assertions with the same tenor as the following: 'Do we realize that going down this road means entirely unhinging the values of humanity?' (*La Stampa*, 28 December 2002, p. 2); 'Cloning is monstrous' (*ibid.*); 'Of course, from the ethical point of view, cloning is to be condemned. . . . There is not even need to discuss it, either from a religious point of view or from

that of human reason and natural ethics' (*ibid.*, p. 4); 'Attempts at human cloning are madness' (*La Repubblica*, 30 December 2002, p. 21).

Also, scientists have fuelled this process of *a priori* condemnation, even if their opposition is sometimes justified on the basis of risks to the baby's health, given the current imperfect state of the nuclear transfer technique, and the possible harmful consequences for 'freedom of research'. Thus the Raelians' experiment should be criticised both 'because someone may raise doubts concerning the reliability of the scientific community, which is instead healthy and able to regulate itself', and because 'if human cloning gains ground, it will raise a quantity of ethical and social problems' (*La Stampa*, 29 December 2002, p. 6).

This repeated reference to cloning as an unspecified threat to human identity, as both an individual and a species, is rooted in the conviction that the 'natural' method of reproduction is a cornerstone of human identity. And this relates to the idea that the genetic remixing—randomness—connected with the 'natural' reproductive act guarantees the mix of difference and continuity that underpins our conception of identity.

Albeit indirectly, also, the position taken up by the Catholic Church seems to support this interpretation of the cloning-reproduction-identity nexus, for example by means of pronouncements like the following made by Cardinal Lustiger:

Cloning a human being means erasing the human sexual act, that is, the act of love between two individuals which is at the basis of procreation and the continuity of the human species. Accepting the principle of human cloning means accepting the end of love and humanity. (*La Repubblica*, 30 December 2002, p. 21)

A similar opinion has been expressed by Hans Jonas, who insisted on the 'transcendent right of each individual to a genotype which is his or hers alone, not shared with others, unrepeatable' (*La Repubblica*, 31 December 2002, p. 1), and by Jurgen Habermas, who argued that cloning devalued the self because 'someone who discovers that he has been programmed knows that he is no longer the 'undivided' author of his life story' (*ibid.*, p. 14).

For that matter, also doctors and scientists seem to have taken up the same position: 'All human beings have to date benefited from the gamble which gives them a fundamental freedom, that of being unique in body and mind, We are all single products of a random mixing of the genomes of two parents of opposite sex. This has never been disputed and is a value for each of us'; and again: 'modifying the parameters of procreation calls the nature itself of the human species into question' (*La Stampa*, 3 January 2003, p. 24); or cloning means 'jamming the essential engine of evolution which is the remixing of our biological heritages, sometimes also called love' (*La Repubblica*, 28 December 2002, p. 3).

However, 'difference' as a central requisite of identity was declined in ways that varied from one actor in the debate to another. Thus, again by way of example, the Catholic Church seems to define identity as a difference which, although 'complete from the beginning', is *progressively expressed* through the individual life

history, while for scientists it is a difference which, because it is not initially endowed with all its defining features, must be *progressively constructed*, again through the individual life history.

According to the former view, the randomness intrinsic in ‘natural’ reproduction fulfils the requirement of uniqueness, while on the contrary, the duplication of the genome produced by cloning threatens this essential requirement for identity. For those of the second opinion—i.e., mainly the scientists—the absence of cellular specialization in the embryo in the early days of its development makes it an incomplete program requiring interactions with the environment to acquire definitive form—that is, the uniqueness that attributes identity.

Around a common nucleus centred on difference and permanence, therefore, the debate engendered by the Raelians’ announcement comprises rather different conceptions of identity which rest on acceptance or rejection of certain distinctions.

But the various conceptions of identity deployed in the debate on Eve do not only share this mix of difference and continuity around which they organize their structure; they also refer to a classificatory order in which the human species occupies a specific place that guarantees its uniqueness. The prospect of cloning, especially reproductive, seemingly threatens precisely this classification, and its importance is measured by the quantity of negative argument-devoid reactions that cloning provokes.

Conclusions

In order to understand the hostile yet scarcely reasoned reaction to the announcement of Eve’s birth through reproductive cloning, account must be taken of a series of contradictions typical of high modernity. Firstly, the general paradox of reflexive modernization—that is, greater knowledge about ourselves and our world and therefore our greater ability to intervene in ourselves and our world, associated with erosion of the foundations on which this knowledge is grounded—translates into the particular paradox whereby as our knowledge and our ability to control our bodies increase, so our certainties about what the body is diminish in parallel (Shilling, 1993, p. 183). Secondly, high modernity has created a context in which identity becomes a ‘reflexively organized project’: a construction as crucial as it is fragile which gives great importance to the body, the principal foundation of a highly unstable identity and the best way to give it tangible form (Giddens, 1991).

This gives rise to another contradiction: whilst the body is an increasingly crucial referent for the identity, the conditions that attribute it that role undermine socially shared conceptions of what the body is, how it should be constructed or protected, and about the relationship between body and identity.

The prospect of human cloning and the debate that it provokes both highlight and materialize this modern paradox. On the one hand, cloning manifests our increased knowledge and ability to control the body, both in its therapeutic version—we can treat hitherto incurable diseases—and in its reproductive

version—we can circumvent the constraint of sexed reproduction. On the other hand, it is a threat to the body, to its temporal boundaries and its stability, and therefore undermines the bases of individual identity.

It thus seems no accident that the bulk of the debate on cloning has been conducted paying attention to the individual level, while the collective one has been entirely ignored, or at most left in the background.

But cloning is a threat also to the identity of the human species because it reveals the fragility of the boundaries that distinguish us from animals, while it makes us similar to machines, an organized set of biological components (Noble, 1997; Klotzko, 2005), the diversity of which is merely the fruit of our imagination, of our culture, and has been bred by our ignorance of the ultimate processes of life. Revealing the latter would strip the veil from human uniqueness; it would be the 'final disenchantment'.

Cloning can thus be interpreted as the most concrete expression of one of the principles that inspire contemporary biological research: that of 'the unity of life'. Because of this principle, molecular biology seems to strike at the heart of the presumed 'diversity' of the human species and therefore at the roots of our identity:

...with the advent of genetic engineering in the 1970s, the unity of the living world was proven to a point not previously imaginable. All the creatures that inhabit this earth, whatever their environment, size, or means of subsistence—snails, lobster, fly, or giraffe—all turn out to be made from molecules that are more or less identical... The diversity of life forms results from small changes in the regulatory systems that govern the expression of the genes (Jacob, 1997, p. 3).

And moreover: 'genes and proteins are no longer unique objects, idiosyncrasies particular to a species. Structures look very much the same from one species to another' (Jacob, 1997, p. 79).

As a consequence, if our idea of 'nature' contains the core of our diversity, then defending 'nature', conserving its inner features and subdivisions, for example, those among species, means defending our identity, repulsing the assault of the 'final disenchantment' that would reveal its fragility: 'public anxiety created by the uncertainty and disputability of causes and consequences is compounded by the cultural threat offered by bio-innovation to the anthropocentric sense of 'the natural'. While advanced genetic engineering appears on one level as the ultimate expression of anthropocentric control over nature, at another level the sense of the permeability of all boundaries disturbs the existing sensibility of what it is to be human and the hierarchies by which humans situate themselves amongst other life-forms' (O'Mahony, 1999, p. 5).

Disputing the classification that assigns human beings a precise place in the natural order, therefore, highlights the socially constructed nature of the distinctions to which we 'naturally' refer in order to start the process of the reflexive organization of our self. We thus become dramatically aware that 'where biology and nature end and culture begins is not decided outside culture. This

is the new paradox. We are thus overcultural beings facing the necessity to decide on our own nature' (Melucci, 1997, p. 69).

The classification put under discussion by cloning is not only the invisible structure which orders human interactions (Douglas, 1966; Bowker & Star, 1999) but also the base of human identity (Douglas, 1986).

Cloning, therefore, appears to jeopardize the constant social work of reproducing and maintaining the boundaries between individual identity and membership of the human species, between human beings and living beings, between natural and artificial.

Notes

1. *Il Corriere della Sera*, 29 December 2002, p. 6.
2. A self description of the Raelians' aims in their website <http://it.rael.org/>
3. For further information on the Raelians, see Palmer (2004).
4. Similar conclusions have been reached by analysis of the parliamentary debate on embryo research in Holland (Kirejczyk, 1999).
5. A data set containing information on each article (coverage, placement, author, use of images and metaphors, topics) was constructed for this purpose.
6. Use of this distinction by scientists is not a new development. See on this, for example, Neresini (2000) and Nerlich and Clarke (2003).
7. Assuming, implicitly, that information to be transferred are contained in our brain.

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