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Reflections on cloning

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PONTIFICIA ACADEMIA PRO VITA

REFLECTIONS ON CLONING

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1
HISTORICAL BACKGROUND

Advances in knowledge and related developments in the procedures of molecular biology, genetics and artificial fertilization have long made it possible to experiment with and successfully achieve the cloning of plants and animals.

Since the '30s experiments have been made in producing identical individuals by artificial twin splitting, a procedure which can be improperly called cloning.

The practice of twin splitting in the zootechnical field has been spreading in experimental barns as an incentive to the multiple production of select exemplars.

In 1993 Jerry Hall and Robert Stilmann of George Washington University published data concerning the twin splitting they performed on human embryos of two, four and eight embryoblasts. These experiments were conducted without the prior consent of the appropriate Ethics Committee and were published, according to the authors, in order to stimulate the ethical debate.

The news published in the journal *Nature,* 27 February 1997, about the birth of the sheep Dolly through the efforts of the Scottish scientists Jan Vilmut and K.H.S. Campbell and their team at Edinburgh's Roslin Institute, however, had an unusual effect on public opinion and led to statements being issued by committees and national and international authorities: this happened because it was something new and was considered troubling.

There are two new aspects of this event. The first is that it is not a question of splitting but of a radical innovation defined as cloning, that is, an asexual and agamic reproduction meant to produce individuals biologically identical to the adult which provided the nuclear genetic inheritance. The second is that until now this type of true and proper cloning was considered impossible. It was thought that the DNA in the somatic cells of the higher forms of animal life, having already undergone the imprinting of

differentiation, could no longer recover their original totipotentiality and, consequently, their ability to direct the development of a new individual.
With the overcoming of this supposed impossibility, the way now seems open to human cloning, understood as the replication of one or more individuals somatically identical to the donor.
The event has rightly caused concern and alarm. But after an initial phase of unanimous opposition, some have wished to call attention to the need for guaranteeing freedom of research, for not demonizing progress. The prediction has even been made that the Catholic Church herself will one day accept cloning.
Now that some time has passed, it would be useful in a more detached way to examine closely the fact that has been noted as a disturbing event.

2
THE BIOLOGICAL FACTS

In its biological aspects as a form of artificial reproduction, cloning is achieved without the contribution of two gametes; therefore it is an asexual and agamic reproduction. Fertilization properly so-called is replaced by the "fusion" of a nucleus taken from a somatic cell of the individual one wishes to clone, or of the somatic cell itself, with an oocyte from which the nucleus has been removed, that is, an oocyte lacking the maternal genome. Since the nucleus of the somatic cell contains the whole genetic inheritance, the individual obtained possesses—except for possible alterations—the genetic identity of the nucleus' donor. It is this essential genetic correspondence with the donor that produces in the new individual the somatic replica or copy of the donor itself.
The Edinburgh event occurred after 277 oocyte-donor nucleus fusions: only eight were successful, that is, only eight of the 277 started to develop as embryos and only one of these eight embryos reached birth: the lamb called Dolly.
Many doubts and questions remain about quite a few aspects of the experiment: for example, the possibility that among the 277 donor cells used there were some "staminals", that is, cells endowed with a not totally differentiated genome; the role that could have been played by possibly residual mitochondrial DNA in the maternal ovum; and many other questions which the researchers, unfortunately, did not even attempt to address. However, it is still an event that goes beyond the forms of artificial fertilization known until now, which have always been performed by using two gametes.
It should be stressed that the development of individuals obtained by cloning, apart from eventual possible mutations—and there could be many—should produce a body structure very similar to that of the DNA donor: this is the most disturbing result, especially when the experiment is applied to the human species.
It should be noted however that, should the extension of cloning to the human species be desired, this duplication of body structure does not necessarily imply a perfectly identical person, understood in his ontological and psychological reality. The spiritual soul, which is the essential constituent of every subject belonging to the human species and is created directly by God, cannot be generated by the parents, produced by artificial fertilization or cloned. Furthermore, psychological development, culture and environment always lead to different personalities; this is a well-known fact even among twins, whose resemblance does not mean identity. The popular image or aura of omnipotence that accompanies cloning should at least be put into perspective.

Despite this impossibility of involving the spirit, which is the source of personality, the thought of human cloning has already led to the imagining of hypothetical cases inspired by the desire for omnipotence: duplicating individuals endowed with exceptional talent and beauty; reproducing the image of departed loved ones; selecting healthy individuals immune from genetic diseases; the possibility of choosing a person's sex; producing selected frozen embryos to be transferred *in utero* at a later time to provide spare organs, etc.

By regarding these hypothetical cases as science fiction, proposals can soon be advanced for cloning considered "reasonable" or "compassionate": the procreation of a child in a family whose father suffers from aspermia or to replace the dying child of a widowed mother; one could say that these cases have nothing to do with the fantasies of science fiction.

But what would be the anthropological significance of this activity in the deplorable prospect of applying it to man?

3
ETHICAL PROBLEMS CONNECTED WITH HUMAN CLONING

Human cloning belongs to the eugenics project and is thus subject to all the ethical and juridical observations that have amply condemned it. As Hans Jonas has already written, it is "both in method the most despotic and in aim the most slavish form of genetic manipulation; its objective is not an arbitrary modification of the hereditary material but precisely its equally arbitrary *fixation*in contrast to the dominant strategy of nature" (cf. Hans Jonas, *Cloniamo un uomo: dall'eugenetica all'ingegneria genetica,* in *Tecnica, medicina ed etica,* Einaudi, Turin 1997, pp. 122-54, p. 136).

It represents a radical manipulation of the constitutive relationality and complementarity which is at the origin of human procreation in both its biological and strictly personal aspects. It tends to make bisexuality a purely functional left-over, given that an ovum must be used without its *nucleus in order to make room*for the clone-embryo and requires, for now, a female womb so that its development may be brought to term. This is how all the experimental procedures in zootechny are being conducted, thus changing the specific meaning of human reproduction.

In this vision we find the logic of industrial production: market research must be explored and promoted, experimentation refined, ever newer models produced.

Women are radically exploited and reduced to a few of their purely biological functions (providing ova and womb) and research looks to the possibility of constructing artificial wombs, the last step to fabricating human beings in the laboratory.

In the cloning process the basic relationships of the human person are perverted: filiation, consanguinity, kinship, parenthood. A woman can be the twin sister of her mother, lack a biological father and be the daughter of her grandfather. *In vitro* fertilization has already led to the confusion of parentage, but cloning will mean the radical rupture of these bonds.

As in every artificial activity, what occurs in nature is "mimicked" and "imitated", but only at the price of ignoring how man surpasses his biological component, which moreover is reduced to those forms of reproduction that have characterized only the biologically simplest and least evolved organisms.

The idea is fostered that some individuals can have total dominion over the existence of others, to the point of programming their biological identity—selected according to arbitrary or purely utilitarian criteria—which, although not exhausting man's personal identity, which is characterized by the spirit, is a constitutive part of it. This selective concept of man will have, among other things, a heavy cultural fallout beyond the—numerically limited—practice of cloning, since there will be a growing conviction that the value of man and woman does not depend on their personal identity but only on those biological qualities that can be appraised and therefore selected.

Human cloning must also be judged negative with regard to the dignity of the person cloned, who enters the world by virtue of being the "copy" (even if only a biological copy) of another being: this practice paves the way to the clone's radical suffering, for his psychic identity is jeopardized by the real or even by the merely virtual presence of his "other". Nor can we suppose that a conspiracy of silence will prevail, a conspiracy which, as Jonas already noted, would be impossible and equally immoral: since the "clone" was produced because he resembles someone who was "worthwhile" cloning, he will be the object of no less fateful expectations and attention, which will constitute a true and proper attack on his personal subjectivity.

If the human cloning project intends to stop "before" implantation in the womb, trying to avoid at least some of the consequences we have just indicated, it appears equally unjust from the moral standpoint.

A prohibition of cloning which would be limited to preventing the birth of a cloned child, but which would still permit the cloning of an embryo-foetus, would involve experimentation on embryos and foetuses and would require their suppression before birth—a cruel, exploitative way of treating human beings.

In any case, such experimentation is immoral because it involves the arbitrary use of the human body (by now decidedly regarded as a machine composed of parts) as a mere research tool. The human body is an integral part of every individual's dignity and personal identity, and it is not permissible to use women as a source of ova for conducting cloning experiments.

It is immoral because even in the case of a clone, we are in the presence of a "man", although in the embryonic stage.

All the moral reasons which led to the condemnation of *in vitro* fertilization as such and to the radical censure of *in vitro* fertilization for merely experimental purposes must also be applied to human cloning.

The "human cloning" project represents the terrible aberration to which value-free science is driven and is a sign of the profound malaise of our civilization, which looks to science, technology and the "quality of life" as surrogates for the meaning of life and its salvation.

The proclamation of the "death of God", in the vain hope of a "superman", produces an unmistakable result: the "death of man". It cannot be forgotten that the denial of man's creaturely status, far from exalting human freedom, in fact creates new forms of slavery, discrimination and profound suffering. Cloning risks being the tragic parody of God's omnipotence. Man, to whom God has entrusted the created world, giving him freedom and intelligence, finds no limits to his action dictated solely by practical impossibility: he himself must learn how to set these limits by discerning good and evil. Once again man is asked to choose: it is his responsibility to decide whether to transform technology into a

tool of liberation or to become its slave by introducing new forms of violence and suffering.
The difference should again be pointed out between the conception of life as a gift of love and the view of the human being as an industrial product.
Halting the human cloning project is a moral duty which must also be translated into cultural, social and legislative terms. The progress of scientific research is not the same as the rise of scientistic despotism, which today seems to be replacing the old ideologies. In a democratic, pluralistic system, the first guarantee of each individual's freedom is established by unconditionally respecting human dignity at every phase of life, regardless of the intellectual or physical abilities one possesses or lacks. In human cloning the necessary condition for any society begins to collapse: that of treating man always and everywhere as an end, as a value, and never as a mere means or simple object.

4
HUMAN RIGHTS AND FREEDOM OF RESEARCH

At the level of human rights, the possibility of human cloning represents a violation of the two fundamental principles on which all human rights are based: the principle of equality among human beings and the principle of non-discrimination.
Contrary to what may appear at first sight, the principle of parity and equality among human beings is violated by this possible form of man's domination over man, and the discrimination comes about through the whole selective-eugenic dimension inherent in the logic of cloning. The Resolution of the European Parliament (12 March 1997) expressly states the violation of these two principles and forcefully appeals for the prohibition of human cloning and for the value of the dignity of the human person. Since 1983 the European Parliament and all the laws passed to legalize artificial procreation, even the most permissive, have always forbidden human cloning. It should be recalled that the Church's Magisterium has condemned the possibility of human cloning, twin fission and parthenogenesis in the 1987 Instruction *Donum vitae*. The basic reasons for the inhuman nature of possible human cloning are not because it is an extreme form of artificial procreation in comparison to other legally approved forms, such as *in vitro* fertilization, etc.
As we have said, the reason for its rejection is that it denies the dignity of the person subjected to cloning and the dignity of human procreation.
The most urgent need now seems to be that of re-establishing the harmony between the demands of scientific research and indispensable human values. The scientist cannot regard the moral rejection of human cloning as a humiliation; on the contrary, this prohibition eliminates the demiurgic degeneration of research by restoring its dignity. The dignity of scientific research consists in the fact that it is one of the richest resources for humanity's welfare.
Moreover, there is a place for research, including cloning, in the vegetable and animal kingdoms, wherever it answers a need or provides a significant benefit for man or for other living beings, provided that the rules for protecting the animal itself and the obligation to respect the biodiversity of species are observed.
When scientific research in man's interest aims to cure diseases, to relieve suffering, to solve problems due to malnutrition, to make better use of the earth's resources, it represents a hope for humanity, entrusted to the talent and efforts of scientists.

To enable biomedical science to maintain and strengthen its relationship with the true welfare of man and society, it is necessary to foster, as the Holy Father recalls in the Encyclical *Evangelium vitae,* a "contemplative outlook" on man himself and the world, with a vision of reality as God's creation and in a context of solidarity between science, the good of the person and of society.

"It is the outlook of those who see life in its deeper meaning, who grasp its utter gratuitousness, its beauty and its invitation to freedom and responsibility. It is the outlook of those who do not presume to take possession of reality but instead accept it as a gift, discovering in all things the reflection of the Creator and seeing in every person his living image" (*Evangelium vitae,* n. 83).

Prof. Juan de Dios Vial Correa
President

Mons. Elio Sgreccia
Vice-President

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