

AVRAHAM STEINBERG

Human Cloning—Scientific, Moral and Jewish Perspectives

In general, Judaism adopts a cautious, conservative stance toward scientific or social innovations whose direction is uncertain. Nonetheless, on a fundamental level, as the author of the *Tiferet Yisrael* states, “anything there is no reason to forbid is permissible, and needs no justification. For the Torah has not enumerated all permissible things, rather forbidden ones” [*Tiferet Yisrael, Yadayim* 4, 3]. The primary question regarding the technology of cloning humans is, therefore: Is there an inherent, specific transgression of halakhah and/or *hashkafah* in the actual process of cloning or in its results?

In order to answer this fundamental question, we must examine several aspects of *hashkafah* and halakhah.

a. Does the development of cloning of human beings include an assault on the very belief in the Creator of the world?

Undoubtedly the answer is no. This technology, like all other modern reproductive technologies, exemplifies creation “*yesh mi-yesh*” (something from something)—the unearthing and use of preexisting factors in the nature of Creation; such utilization of knowledge of nature in no way constitutes a new creation. Only the Creator of the universe is able to create a world *ex nihilo*. Also, these technologies do not solve the mystery of life or disclose life’s basic, fundamental essence.

AVRAHAM STEINBERG, M.D., is the Director of the Center for Medical Ethics at the Hebrew University, Hadassah Medical School, and Senior Attending Physician, Pediatric Neurologist, Department of Pediatrics, at the Shaare Zedek Medical Center in Jerusalem. He was awarded the Israel Prize in 1999 in recognition of his extensive contributions to the field of Jewish medical ethics.

On the contrary, the more knowledge we gain, the greater is our appreciation of and admiration for the Creator of the universe. According to Rambam, this knowledge is in fact the way to fulfill the *mizvah* of love of God (*Hil. Yesodei ha-Torah* 2:2).

b. Should the technology of cloning humans be viewed as a fundamental halakhic-hashkafic transgression of interfering with Creation?

In the worldview of Judaism, human beings are permitted and obligated to build and develop the world in all directions for the betterment of humanity. As the editors' questions indicate, many sources demonstrate that activities of developing and advancing the world should be viewed not as contradicting the decree of the King of the world or as meddling wrongly in creation, but as forging a helpful partnership between God and humanity.

Although, fundamentally, involvement with Creation is permissible, three compelling conditions must be satisfied if such involvement is to be justified: 1) There is no essential halakhic prohibition in the actual actions of technological advancement; 2) The process of improvement of Creation does not have a prohibited result which cannot be prevented or corrected; 3) The act of improvement benefits humans, and, moreover, the derived benefit surpasses the detriment. This notion can be found worded in many ways by the great halakhic masters. There are those who explain the prohibitions of witchcraft, crossbreeding and even *sha'atnez* as a transformation in the order of creation.¹ But cloning humans through technology is a natural act which does not introduce a totally unfamiliar species into nature, and thus differs from both witchcraft and interbreeding. In this respect, human cloning is no different from the using of antibiotics to decimate injurious bacteria.

c. Does the benefit of the technology for human cloning surpass the detriment?

The answer to this question is still uncertain. Science and technology *per se* are morally neutral. The determining factor from a socio-moral perspective is the *use* of this science and technology. Like almost any scientific and technological advancement, cloning entails both positives and negatives; it carries the potential for significant medical benefits but also gives rise to deep concerns.

On the positive side, cloning has the capability to renew activity of damaged cells or allow the exchange of cells that have died with others that have been cloned. Thus it may provide, for example, a solution for

sufferers of Parkinson's or Alzheimer's Disease. Cloning also can curb the unchecked proliferation of cancerous cells. Achieving these benefits requires only the technology, not necessarily the cloning of humans. Cloning may also create organs or tissues of humans or animals with identical immunities who could then serve as sources of transplant organs. In addition, human cloning may mitigate the problems that confront infertile couples.

Yet we must be wary of the dangers. The technology in question poses substantial risks to human society, on the order of unregulated atomic power or ecological recklessness. We confront the spectre of eugenic methods: the aspiration to duplicate humans of unique distinction (genius, strength, beauty, etc.), the self-duplication of diabolical dictators like Hitler, Quaddafi or Saddam Hussein. The creation of large groups of people of identical appearance and personality would also compromise the individuality of every member and do away with the respect accorded to people in virtue of their uniqueness and individuality. There is the possibility of negative psychological damage to the identical products of cloning. Next, the loss of genetic variation among cloned humans could cause genetic inferiority and reduce the chances of survival relative to people created by the intermixing of genetic material from male and female. The use of mature cells enlivened with the potential to develop into whole organisms would include negative changes that arose with age in the cell and will be transferred to progeny. We might see the rise of "black markets" of fetuses created from people of "desirable" traits, such as geniuses or particularly strong or beautiful people, etc., creating an industry of fetuses to be sold to interested potential parents. There could be significant problems in identifying paternity and maternity, as well as extreme alterations in the societal determination and definition of parenthood.

One of the most glaring worries concerns the potential, eventually, for Brave New World upheavals in the international societal order, where people would be created in a non-domestic, mechanical, indifferent setting, without identifiable parents and without love. It should be noted, however, that even in the cloning conditions used to create Dolly, the products are not wholly identical, since genetic composition alone does not create a person. Environment exerts a substantial influence on development, particularly emotional development, and varying human characteristics, including will, emotion, value systems and so forth. Even on the genetic-physical level, many changes occur under the influence of the environment.

d. Does the actual technology for cloning humans present substantial halakhic prohibitions?

From a halakhic perspective, it can be said that there is no substantial, defined prohibition inherent in creating humans without the pairing of man and woman. However, the Sages established that naturally there are three partners in a human being—the father, the mother and God (*Kiddushin* 30b). This is certainly the proper and preferred way in the Jewish outlook, and, presumably, even in a world where cloning is practiced, the means by which most humans will be formed. There is no proof, though, that this statement of the Sages *obligates* us to procreate in this way, as distinct from merely noting the way of the world. Furthermore, *Hazal's* statement is essentially fulfilled in the process of cloning, in which a human is formed by the genetic material of a man and a woman and the humane-spiritual essence implanted by God. It should further be noted that from a halakhic standpoint, there is a certain leniency in using cloning for reproductive purposes rather than employing other modern reproductive methods, as the latter require the extraction of sperm from donors, while cloning does not.

There are those who maintain that cloning comes under the halakhic rubric of witchcraft, especially considering that in *Tanakh* and *Hazal*, witchcraft is related to the unnatural creation of humans and animals (Exodus 7:11-12; *Sanhedrin* 67b). In my humble opinion, this conclusion is totally baseless. According to Rambam (*Guide of the Perplexed* III:37), anything for which the association of cause and effect is established by accepted scientific rules and is dictated by natural logic does not constitute witchcraft; likewise, anything proven by experience, even if not prescribed by logic, is permissible. Even according to the opinions of those *rishonim* who maintain that witchcraft uses actual efficacious forces,² the technology in question does not seem to be included in the prohibition of witchcraft. The Torah's prohibition of witchcraft, according to this approach, refers to the use of evil spirits or powers with destructive intent (see Ramban to Ex. 7: 11). The prohibition of witchcraft does not include acts done with constructive intentions, as explicated by *Sefer ha-Hinukh* (*mizvah* 62) “. . . In this vein, our sages of blessed memory said as a general rule: Whatever contains a purpose of healing, is not considered of ‘the ways of the Emorites’ (*Shabbat* 67b). In other words, it is not to be forbidden because of an aspect of sorcery [in it]—since there is a useful benefit in it, truly found by experience, this is not one of the forbidden ways. For they were forbidden only on account of the harm in them.” (see also *Enziklopedyah Talmudit* vol. 7, s.v.

Darkhei ha-Emori). Furthermore, essentially natural processes present no problem of witchcraft or following “the ways of the Emorites,” even if not performed in the generally practiced manner. Meiri, in his *Bet ha-Beḥirah* commentary to *Sanhedrin* 67b, writes that “Anything done as a natural activity is not included in the prohibition of witchcraft. *Even if one knew how to create creatures without natural procreation, as is known in the books of nature, he may engage in this activity, since anything natural does not fall under the rubric of witchcraft.*” It is certainly reasonable to suggest that the scientific technology of cloning should not be likened to witchcraft either.

e. What are the halakhic questions arising from the use of human cloning technologies, and are there any halakhically prohibited situations resulting from the utilization of this technology?

Three halakhic dilemmas stem from the use of this technology.

- Does the product of cloning receive the status of a *golem*, which is not treated as a human, cannot be included in a *minyán* and may even be killed? ³

The answer is definitely negative. The principal reason that a *golem* is not considered human and may be permissibly killed, is that the verse, as interpreted by *Ḥazal*, reads, “One who spills the blood of a human-in-a-human [*ha-adam ba-adam*—his blood shall be spilled” (Gen. 9:6), teaching that the prohibition of murder applies exclusively to a human formed within another human (i.e., as a fetus is formed in a mother’s womb), but not to a *golem* that is created by mystical means (such as using the *Sefer Yeḥirah* or placing the explicit name of God in its mouth; see Rashi to *Sanhedrin* 67b). In the cloning process, however, a human is created by *natural* factors, no less than is a fetus in its mother’s womb. In fact, it continues its development within a woman’s womb as any other “regular” human being. Hence, it is clear that a product of cloning has the full status of a human of flesh and blood, since anyone born of a woman is a person, regardless of initial conception, and would certainly be included in the prohibition of murder and the like.

- Does one fulfill his obligation of “be fruitful and multiply” in this fashion?

The answer to this query depends on a debate amongst the *posekim*. Some maintain that the *mizvah* of *peru u-revu* is satisfied only by full, natural conjugal relations, while others maintain that the *mizvah* depends on the birth of a viable newborn rather than intercourse.⁴

- Who is the father?

There are also questions about how the father should be defined in the process of cloning. Halakhically, the sperm donor is the father, regardless of whether he is the mother's husband. We have not found a definition of paternity when the contribution to the fetus is genetic material like a mature cell's nucleus, rather than sperm. How shall a father or mother be determined and defined in this process? This question must be dealt with in the context of a variety of possible scenarios, and space limitations prevent me from pursuing it here. It should be noted, however, that, at least in some situations, a clone, like a convert, may have no halakhic father at all, in this case because no male has donated sperm.

f. Is gene manipulation permissible?

Fundamentally, somatic gene therapy, i. e., the replacement of defective genes with "corrected" ones, is no different from any other sort of medical intervention, for example, administering antibiotics or performing transplants. If the medical benefits to an individual patient outweigh the risks, gene therapy is permitted (though admittedly the terms "treatment" and "welfare" need precise definition). However, changes that have no therapeutic purpose, or changes that affect the germ line and hence future generations, pose weighty problems. Admittedly, at first glance, changes in reproductive cells that affect the germ line seem easy to justify because they promise to eliminate hereditary diseases from the population. But harm can result if we make mistakes or poor choices; and we also confront the fear of eugenics. In such cases, efficacy and safety must be established, and the community must develop methods of supervising experimentation and the applications of genetic intervention, as it has done in the case of Tay-Sachs disease. Some observers compare the dangers of genetic intervention to those posed by the atom bomb.

The use of genetic engineering on plants and animals to improve their quality is permitted by R. Shlomo Zalman Auerbach *z"l* even when genes are transferred from one species to another.⁵ The prohibition of *kil'ayim* applies only when the part of the plant that is transferred has the potential to give rise to a complete new plant. Also, cloning animals with human genetic material in order to produce parts that humans can use for transplantation does not constitute *kil'ayim*; and in fact such research should be encouraged to save human life. In contrast, to crossbreed a human with an animal definitely contradicts the will of the King and is unequivocally forbidden. Research into this area should be banned.

g. Practical Suggestions:

The technology of human cloning poses no threat to the belief in the Creator of the world and the Creator of mankind. There is not, and should not be, any shifting of basic values or beliefs in light of these technological advancements.

In addition, scientific history has taught us that stopping scientific, technological progress for long in the name of moral, social and religious ends is impossible, especially when highly influential special interests groups exist—namely economic-industrial groups—which will undoubtedly push for the furtherance of this technology. The world has become a global village in which any scientific discovery will, sooner or later, spread to all the countries of the world. Therefore, local/national restrictions are pointless, since stopping development in one country will not prevent development in another. For instance, the United States ordered a moratorium on IVF research and development, but the technology advanced in other countries, like England and Australia. We must therefore proceed on the assumption that eventually human cloning will be developed. It would be fitting to allow for the development of this technology in a closely supervised and cautious manner and to adopt from the outset activities of administration and scrupulous regulation of this technology, rather than to unconditionally outlaw development.

Nevertheless, at this stage, scientific involvement in the cloning of full humans should be uniformly forbidden. This unqualified ban should be limited to several years, with the option to extend it in conjunction with developments in this period. The parliaments of the Western world should establish a multi-disciplinary, international committee that will examine the positive and negative aspects of the topic before us, to the extent it can be defined and located at this stage. Furthermore, this international committee should be empowered to continue studying genetic engineering for long after the ban, providing regular public reports to the international community.

Notes

1. See *Sefer ha-Hinukh, mizvot* 62, 244, 551; and especially R. Avraham Yizhak Kook, *Ozarot Ha-ReaYaH*, ed. Yehiel Zuriel (Jerusalem, 5748), part 2, p. 901.
2. See Ramban to Deut. 18:9; Rashba, Responsa, 1:#413; R. Bahya, Ex. 22:17; *Sefer ha-Hinukh, mizvot* 62 and 511; Gra, *Yoreh De'ah* 179:13.

3. See the story of Rava in *Sanhedrin* 65b as well as the stories about the Golem of Prague. See Responsa *Hakham Zevi* 6:93; *Resp. She'elat Yavez*, 1:41 and 2:82; Responsa *Divrei Meshullam*, 10; *Gevurot Shimonim* 52; *Gilyon ha-Shas* by R. Yosef Engel, *Sanhedrin* 19b; *Birkei Yosef*, O.H., 55; *Ikkarei ha-Dat*, 50,15; *Pithei Teshuvah Y.D.* 62,2; see at length Responsa *Rivevot Efrayim* 7:385. Finally, the reader is referred to John Loike's essay in this issue. (References to responsa are by volume and responsum number rather than page number.)
4. See *Enziklopedyah Hilkhatait Refuit*, ed. A. Steinberg, vol. 1 (2nd ed., Jerusalem 1988), s.v. "hafrayah melakhutit," 153; vol. 2 (1991), s.v. "hafrayah huzgufit," 138-39.
5. See Rabbi Y. M. Stern, *Sefer Kashrut Arba Minim* (Jerusalem, 1992), 181-82.