

Rabbi Bleich's most recent volume is the newly published *Biotechnical Dilemmas: A Jewish Perspective*.

Survey of Recent Halakhic Periodical Literature

CLONING: HOMOLOGOUS REPRODUCTION AND JEWISH LAW

In the year six hundred of the sixth millennium the gates of wisdom will open on high and the fountains of wisdom [will open] below and the world will be readied to enter the seventh millennium. As a person who readies himself to enter the Sabbath on the sixth day, from the time the sun [begins to] decline, so with this as well. An allusion: "In the six hundredth year of the life of Noah . . . all the fountains of the great deep were split and the windows of the heavens were opened" (Genesis 7:11).
Zohar, Bereishit 117a.

There is no gainsaying the fact that the world has witnessed quantum leaps in scientific and technological advances since the mid nineteenth century or, according to Jewish reckoning, since 5600, i.e., the year six hundred in the sixth millennium. As foretold by the *Zohar* the benefits are not merely pragmatic; the explosion of human knowledge is categorized by the *Zohar* as the direct result of heavenly inspiration and serves to herald the advent of the eschatological era of the seventh millennium.

God reveals himself in the processes of nature with the result that insightful understanding of the laws of nature is, in at least some minuscule way, tantamount to apprehension of the Deity. Thus Rambam, *Hilkhot Yesodei ha-Torah* 2:2, writes that love of God is acquired by reflection upon His wondrous created works in which His wisdom can be discerned and, in *Hilkhot Yesodei ha-Torah* 4:12, Rambam declares that increased understanding of the nature of created entities carries with it enhanced love of God. Accordingly, the *tikkun* of which the *Zohar* speaks in describing the burgeoning of knowledge as the harbinger of the eschatological era is at one at the same time both preparation in the

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physical sense, comparable to Sabbath preparations carried out on the preceding day, so that, with the coming of the Messiah, man may enjoy undisturbed leisure to engage in more pursuits and perfection in the sense of intellectual preparation and development in the form of appreciation of the grandeur of creation, and hence of the Creator, so that man will be equipped for a more profound understanding of the nature of God that will be attainable in the eschatological era.

There can be no doubt that unraveling the mysteries of procreation and the genesis of human life are integral to this process. Attempts to fathom those mysteries are entirely laudatory. Whether or not those endeavors yield any licit practical benefit is secondary; their major value, as well as that of all aspects of theoretical science lies in qualitatively enhanced fulfillment of the commandment "And you shall love the Lord, your God" (Deuteronomy 6:5). The legitimacy of acting upon such scientific information is another matter entirely. Surely every thinking person recognizes that not everything that can be done should be done; that which is possible is not for that reason moral.¹

I. SCIENTIFIC BREAKTHROUGH AND POTENTIAL

Not everything that *can* be done *should* be done. But it is a truism that, in the usual course of human events, that which *can* be done *will* be done.

Since the early 1970s ethicists have grappled with the implications of human cloning.² What was then a vague specter now looms as an imminent reality. With the most recent breakthrough in the cloning of fetal mice in Hawaii it is evident that "advances in science are coming faster than even the most confident scientists had imagined."³ Dr. Lee Silver, a mouse geneticist and reproductive biologist at Princeton University, described the speed at which cloning has progressed as "breathtaking" and added, "Absolutely, we are going to have cloning of humans."⁴ The protestation of scientists such as Dr. Ryuzo Yanagimachi, whose cloning experiments have electrified the scientific world, that "we should stick to reproduction the way that Mother Nature did for us"⁵ notwithstanding, it is now conjectured that in vitro fertilization clinics will add human cloning to their repertoires within the next five to ten years.⁶

The new era of reproductive technology was ushered in with the birth of Dolly on July 5, 1996, at the Roslin Institute in Roslin, Scotland.⁷ The birth of a cloned sheep was the culmination of research undertaken by Dr. Ian Wilmut on behalf of PPL Therapeutics Ltd., a

small biotechnology company with headquarters in Edinburgh. The purpose was to use sheep to generate drugs for use in treating human diseases such as hemophilia and cystic fibrosis. Genetic engineering had already been employed to produce sheep whose milk contains a drug, alpha-1 antitrypsin, that is used in treatment of cystic fibrosis. The purpose of cloning sheep was to avoid the laborious and expensive process of genetically engineering large numbers of animals individually. With cloning, once an animal has been genetically adapted, the process need not be repeated; the animal can simply be cloned and, since all its clones will have identical genetic characteristics, the clones will also produce the same drug.⁸

The research was certainly not conducted in a vacuum. Scientists have long been able to use skin cells from a frog to clone embryos that grow to the tadpole stage before dying. Much more successful is a process known as twin splitting. In 1993 Dr. Jerry Hall and Robert Stillmann of George Washington University separated as yet undifferentiated fetal cells of embryos to the two, four and eight cell stages of development and allowed each cell to develop as a separate embryo. The immediate precursor of the Roslin experiment was the work of Dr. Steen Willadsen who was the first to successfully clone a sheep⁹ from an embryo cell. Willadsen took cell nuclei, which contain the genetic blueprint encoded in DNA, and added them to animal ova whose own nuclei he had removed.¹⁰

However, cells derived from early embryos are not suitable for genetic engineering. Manipulation of embryo cells leads to their death with the result that they cannot be grown in a laboratory so that genes can be added in order to cause the organism to produce pharmaceutical agents. Moreover, vast numbers of cells must be grown in order to assure that at least a few will become genetically modified. Wilmut and his associate, Dr. Keith Campbell, successfully took the nucleus of a cell removed from the udder of a mature sheep and inserted it into the ovum of a ewe from which they had previously removed the existing nucleus. The egg was then jolted with a burst of electricity causing it to behave as if it was newly fertilized. The difficulty of the procedure is evidenced by the fact that it successfully culminated in the birth of a lamb only after 277 attempts.

Some time after the birth of Dolly, ABS Global Inc., a company in De Forest, Wisconsin, announced the birth of Gene, a calf that was cloned from a genetically altered fetal cell.¹¹ Less than two years after the cloning of a sheep from an adult cell, Dr. James Robl of the University of Massachusetts at Amherst and Dr. Steven L. Stice, a scientist

employed by Advanced Cell Technology, a commercial firm, reported the cloning of Holstein calves from genetically engineered fetal cells taken from a fifty-five-day-old male Holstein embryo.¹² Two hundred seventy-six fetal cells were inserted into an equal number of unfertilized cow eggs whose own genetic material had been removed. At the end of a week only thirty-three embryos remained alive. Twenty-eight of those were transferred to eleven cows that served as surrogate mothers. Four calves survived to parturition, but one of the calves died five days after birth as the result of a congenital heart defect. Robl and Stice had previously attempted to clone calves from adult cells but none of the fetuses survived. There have been other unpublished reports of cows pregnant with fetuses cloned from adult cells¹³ but there have been no reports of the birth of other cows or sheep cloned from adult cells.

More recently and more dramatically, biologists at the University of Hawaii have reported the cloning of over fifty mice, including clones of clones, from the cells of adult mice.¹⁴

These experiments have implications far beyond the goal of facilitating the manufacture of pharmaceutical products from genetically altered cells which itself is potentially of far-reaching benefit in the treatment of numerous diseases and disorders. Cells of mature organs are capable of reproducing themselves but cannot be altered to form the cells of different organs. In effect, the DNA of differentiated cells is programmed to reproduce cells of one specialized type and of no other. Thus, for example, if a pancreas is destroyed a new pancreas cannot be generated by other cells in the body. Successful cloning of adult cells demonstrates that, when inserted into an ovum, the program of a cell's DNA can be reversed thereby allowing the cell to reproduce and develop into cells of other bodily organs. When the process is more fully understood, it may become possible to create particular organs to replace those that become diseased or destroyed.

As noted, the successful cloning of Dolly, the prospect of human cloning became much more than a theoretical conjecture. The initial reaction of both ethicists and scientists was that human cloning is morally unacceptable. President Clinton, following the recommendation of the National Bioethics Advisory Commission, banned the use of federal money to conduct human cloning experiments and requested that privately funded enterprises adhere to a voluntary ban on human cloning. Nevertheless, at present, other than in California,¹⁵ the cloning of a human being is perfectly legal in the United States, although it is prohibited by law in Britain, Spain, Denmark, Germany and Australia.¹⁶

Despite the generally negative view with regard to cloning

humans, G. Richard Seed, a Chicago physicist who has been involved in various forms of fertility research since the early 1970's, has announced that he has assembled a team of scientists for the purpose of cloning a human being before the procedure is banned and is seeking venture capital for the project.¹⁷ Moreover, the climate of opinion has changed rapidly. Three decades ago, two fertility experts, Sophia J. Kleegman and Sherwin A. Kaufman, wrote that reproductive breakthroughs pass through several predictable stages. Reactions proceed from "horrified negation" to "negation without horror" to "slow and gradual curiosity, study, evaluation" and, finally, to "a very slow but steady acceptance."¹⁸ The *volte face* that has occurred with regard to the prospect of human cloning is best expressed in a headline that appeared in the *New York Times*: "On Cloning Humans, 'Never' Turns Swiftly Into 'Why Not.'"¹⁹ In that article Dr. Steen Willadsen, the cloning pioneer who developed the fundamental methods for cloning animals, is quoted as saying that it is just a matter of time before the first human is cloned. Earlier, John Paris, a Jesuit ethicist, remarked that he is certain that humans will be cloned: "I can't imagine a world in which someone won't try it. There are two things that drive man—power and money. And fame leads to fortune. Someone will try it."²⁰

The present climate of opinion makes analysis of the moral and ethical issues involved in cloning an imperative. But the enterprise must be undertaken honestly and objectively. To quote the late Professor Paul Ramsey, it is imperative that we

raise the ethical questions with a serious and not a frivolous conscience. A man of frivolous conscience announces that there are ethical quandaries ahead that we must urgently consider before the future catches up with us. By this he often means that we need to devise a new ethics that will provide the rationalization for doing in the future what men are bound to do because of the new actions and interventions science will have made possible. In contrast, a man of serious conscience means to say in raising urgent ethical questions that there may be some things that men should never do. The good things that men do can be made complete only by the things they refuse to do.²¹

II. HUMAN INTERVENTION IN THE NATURAL ORDER

Faith communities that base their moral teaching upon natural law theory regard various forms of artificial procreation as immoral. The

immorality of such acts lies not in their artificiality *per se* but in the fact that they thwart the natural character of transmission of human life. In its Thomistic formulation, the essence of natural law is a divinely ordained teleological system and the notion that divine wisdom, in guiding all creatures to their proper ends, imparts moral law to man through the medium of his intellect. As a rational creature, man's intellect inclines him toward the actions and goals proper to his nature. Thus, according to natural law theorists, among other things, lying, gluttony, drunkenness and contraception are all immoral for essentially the same reason. Such acts are performed by a human faculty created for a readily discernible purpose. The evil in the immoral form of conduct described lies in the abuse of a natural faculty by its use in an unnatural manner.

These natural law theorists further assert that it is in the nature of man to transmit life through conjugal union. Use of body fluids or tissue for generation of life in some other manner, they contend, constitutes a subversion of man's teleological function and purpose. They maintain that it is the conjugal act by which the spouses become one flesh, and only the conjugal act, that is designed for the purpose of generating human life. In effect, the phrase ". . . and they shall be one flesh" (Genesis 2:24) is understood by these theorists as having a double meaning: (1) A man "shall cleave to his wife" in order that they "shall be one flesh," i.e., that they may jointly produce a single flesh, namely, a child. Hence the announced *telos* of the conjugal act is procreation. (2) The generation of a child reflexively causes the parents themselves to become "one flesh." Thus generation of new life has as its *telos* solidification of the marital bond. Generation of a human life in some other manner and for some other purpose violates the divinely ordained *telos* for which the human body was created. On that analysis, homologous artificial fertilization is unacceptable because it separates the unitive and procreative aspects of propagation of the human species. Thus it has been stated that:

By comparison with the transmission of other forms of life in the universe, the transmission of human life has a special character of its own, which derives from the special nature of the human person. "The transmission of human life is entrusted by nature to a personal and conscious act and as such is subject to the all-holy laws of God: immutable and inviolable laws which must be recognized and observed. For this reason one cannot use means and follow methods which could be licit in the transmission of the life of plants and animals."²²

With regard to cloning specifically, the same source declares:

. . . attempts or hypotheses for obtaining a human being without any connection with sexuality through “twin fission,” cloning or parthenogenesis are to be considered contrary to the moral law, since they are in opposition to the dignity both of human procreation and of the conjugal union.²³

There is no reflection in Jewish tradition of a doctrine that establishes a global prohibition forbidding man to tamper with known or presumed *teloi* of creation. There are indeed individual thinkers who have explained the rationale underlying particular *mizvot* in a manner echoing such a concept. Biblical commandments prohibiting interbreeding of species and the mingling of diverse agricultural species certainly lend themselves to such an interpretation. Although Rashi, in his commentary to Leviticus 19:19, regards those restrictions as *hukkim*, i.e., arational statutes not subject to human inquiry, Ramban, *loc. cit.*, takes sharp issue with Rashi and opines that interbreeding and prohibited mingling of species are forbidden as constituting illicit tampering with creation. Ramban states that every creature and every plant is endowed by God with cosmically arranged distinctive features and qualities and is designed to reproduce itself so long as the universe endures. Crossbreeding and cross-fertilization produce a reconfiguration of those distinctive qualities and also compromise reproductive potential. By engaging in such activities man usurps the divine prerogative in producing a new species or entity with its own novel set of attributes and, presumably, less than optimally suited to fulfill the divinely ordained *telos* associated with the original species.

Ibn Ezra has been understood as presenting the matter in a somewhat different light in declaring that the Torah prohibits crossbreeding of species because the act thwarts prorogation of the species and hence represents an injustice to the animals who are prevented from fulfilling the divine purpose of propagating their respective species²⁴ and as explaining the prohibitions against the mixture of agricultural species as well as the combination of linen and wool in the of cloth of a garment as violative of the natural order decreed by the Creator.²⁵ R. Samson Raphael Hirsch had no difficulty in explaining the prohibition regarding *sha'atnez* (the mixing of linen and wool) in similar terms. Indeed, R. Hirsch understood all *hukkim* as being reflective of the principle that man should not interfere with the order and harmony—and hence the

telos—of creation.²⁶ According to R. Hirsch, such laws are distinguished from *mishpatim* or so-called rational commandments only because our duties toward fellow men are more intelligible to us by virtue of our recognition of our own needs and aspirations. That particular purposes are similarly assigned to animals and even to inanimate objects is not immediately grasped by the human intellect and hence *hukkim* are depicted as arational. It is noteworthy that, although R. Hirsch regards these commandments as designed to prevent interference with divinely ordained *teloi*, unlike natural law theologians, he regards the *teloi* themselves as not being immediately available to human reason. That is certainly confirmed by the fact that no natural law philosopher has ever asserted that the manufacture of linsey-woolsey or even agricultural hybridization is intuitively perceived as violative of the divine plan for creation.

Were it to be assumed that tampering with the ostensive or presumed nature of animal species is always forbidden, most forms of genetic engineering would be illicit. No bacterium is designed by nature to clean up oil spills by metabolizing petroleum or to excrete human insulin for use by diabetics. In the absence of evidence in rabbinic sources to the contrary, it must be assumed that, even accepting Ramban's explanation of the prohibition against interbreeding or R. Hirsch's broader analysis of the rationale underlying *hukkim* in general, such strictures must be understood as limited to those matters explicitly prohibited.²⁷

Indeed, there is a perceptible tension between the concepts enunciated by Ramban and R. Samson Raphael Hirsch and the many midrashic sources indicating that man is an active partner in the process of creation and, as such, is charged with bringing creative processes to completion. Indeed, the biblical charge to Adam exhorting him to "fill the earth and conquer it" (Genesis 1:28) seems to give Adam *carte blanche* to engage in any form of conduct that is not specifically proscribed. The problem is readily resolved if it is understood that, in general, the functions and *teloi* of the products of creation are not immutable; that the Creator did not intend to bar man from applying his ingenuity in finding new uses and purposes for the objects of creation;²⁸ and that there is no injustice to animal species or inanimate objects in doing so. Immutability of function and *telos* is the exception, not the rule. Thus, for example, it has never been suggested that manufacture and use of synthetic fibers in the making of clothes is in any way a contravention of either the letter or spirit of the law.²⁹ The exceptions were announced by the Creator as formal prohibitions.³⁰ It is precisely because human reason cannot intuit, or even comprehend, when and under what circumstances contravention of the

natural order is inappropriate that these commandments are in the nature of *hukkim*.

More generally, man's creative power, at least to the extent that it does not involve creation of novel species, is extolled in rabbinic sources. The divine appellation "*Shaddai*" is understood in rabbinic exegesis as an acronym: *she-amarti le-olami "dai"*—Who said to My universe, "Enough!" Thus the verse, "I, the Lord Shaddai" (Genesis 17:1) is rendered by *Midrash Rabbah* 46:2, "I am the Lord who said to the universe 'Enough!'"³¹ R. Jonathan Eibeschutz, *Tiferet Yonatan, ad locum*, followed by R. Joseph Ber Soloveitchik, *Bet ha-Levi, ad locum*, explains that, in His creation of various artifacts, God arrested their development before completion. Man plants a seed, the seed germinates, a stalk grows and kernels of wheat develop. The Creator could well have made it possible for the kernels to crumble into flour, for the flour to absorb rain or moisture from the atmosphere, for the wind to churn the water-drenched flour so that dough be formed and for the heat of the sun to bake the mixture in order to yield a product that might literally be termed a "breadfruit." Instead, the Creator arrested the process long before its completion and ordained that grinding of the wheat, mixing the flour with water, kneading the dough and baking the bread be performed by man. Similarly, the flax plant could have been endowed with properties causing strands of flax to separate and intertwine themselves in a cloth which might grow in the shape of a cloak. Instead, the process is arrested and brought to completion by man. Indeed, the Gemara, *Shabbat* 30b, declares that in the eschatological era the Land of Israel will yield "cakes" and "linen garments." *Bet ha-Levi* explains that the import of that statement is simply that, in the end of days, God will allow the processes of creation to be culminated by modifying the natural order in a manner that will permit the creative process to become complete and thus spare man any travail. In the interim, however, he has declared, "Enough!" i.e., He has precipitously interrupted the process of creation and co-opted man, who must complete the process, as a collaborator in fashioning the universe.

The concept of man as an active partner in bringing the process of creation to completion as portrayed in the aggadic statement of the Gemara reappears much later in rabbinic writings as an explanation of the nature of the forms of "labor" that are prohibited on the Sabbath. In the nineteenth century, R. Jacob Zevi Mecklenberg, *Ha-Ketav ve-ha-Kabbalah*, Exodus 20 10, and R. Samson Raphael Hirsch,³² each writing independently take note of the fact that the "labor" prohibited on *Shabbat* is not a correlative of physical exertion. For example, carrying or

stacking heavy objects, so long as performed within the confines of a private domain, entails no violation of any biblical prohibition, while placing even a small quantity of food over an already existing flame constitutes a capital transgression. These scholars develop the thesis that, on the Sabbath, the Jew is commanded to emulate God who desisted from creative endeavors on the seventh day. The notion of exertion or expenditure of physical energy in association with the Deity is entirely noncognitive. God “rested” on the seventh day “from all His work that He created” (Genesis 2:2) solely in the sense that he ceased to bring novel entities into being. Man, too, assert these writers, is commanded to rest on the seventh day, not from physical labor, but from activities that serve to complete the creative process and bring it to fruition. Thus God created foodstuffs, but many are inedible until cooked; man initiates the process of cooking which serves to render those products edible and in doing so completes the creation of food. God arrested the creative process by saying “Enough!” and left it for man to bring the process to final culmination. It is precisely such activity, *viz.*, completion of the creative process that is prohibited to man regardless of how effortless and physically undemanding the task may be. To rephrase the concept, six days a week man engages in completing the tasks left uncompleted by the Creator and by doing so becomes an active partner in the process of creation; on the seventh, the Jew emulates the Creator by ceasing and desisting from all such creative endeavors.

It is abundantly clear that human intervention in the natural order is normatively interdicted only to the extent that there are explicit prohibitions limiting such intervention. Moreover, there is no evidence either from Scripture or from rabbinic writings that forms of intervention or manipulation not expressly banned are contrary to the spirit of the law. Quite to the contrary, Jewish tradition, although it certainly recognizes divine proprietorship of the universe, nevertheless, gratefully acknowledges that while “The heavens are the heavens of God” yet “the earth has He given to the sons of man” (Psalms 115:16). In bestowing that gift upon mankind, the Creator has granted man dominion over the world in which he lives and over the living species that are coinhabitants of that world. Man has been given license to apply his intellect, ingenuity and physical prowess in developing the world in which he has been placed subject only to limitations imposed by the laws of the Torah, including the general admonition not to do harm to others, as well as by the constraints imposed by good sense and considerations of prudence.

There is ample reason to assume that Jewish teaching would not

frown upon cloning of either animals or humans simply because it is a form of asexual, and hence “unnatural,” reproduction. The Gemara, *Sanhedrin* 65b, relates that R. Hanina and R. Oshia met every Friday for the purpose of perusing *Sefer Yezirah* in order to create a calf for their Sabbath meal. This anecdote is recounted by the Gemara without the slightest hint of censure. The text incontrovertibly yields two principles: 1) asexual husbandry, at least with regard to animal species, is morally innocuous; and 2) harnessing metaphysical forces, or “white magic,” at least when practiced by masters of the Kabbalah, is acceptable. Although there is nothing in this narrative that may be cited as providing an explicit basis for extending such sanction to creation of a hybrid, interbreed or genetically engineered animal, the report certainly reflects acceptance of the legitimacy of asexual, and hence homologous, reproduction of animals.

III. MAN AS CREATOR OF MAN

The notion that man is an active partner of the Deity in the process of creation extends to the creation of members of the human species as well. This is poignantly reflected in the words of the Sages recorded in *Kiddushin* 30b: “There are three partners in [the conception of] a person: his father, his mother and God.” Thus man, in engaging in procreative activity in order to promulgate the human species, is depicted as an active participant in the ongoing process of creation. The question is whether procreative license is limited to sexual reproduction or whether it encompasses asexual or homologous reproduction as well.

There may well be cogent reason to distinguish between various forms of asexual reproduction with the result that approbation expressed with regard to a particular mode of reproduction may not necessarily be transposed to endorsement of all. Thus, for example, artificial splitting of an embryo in the earliest stages of cell division represents a relatively minimal level of human intervention. Parthenogenesis, although homologous in nature, is more closely akin to natural reproduction with the result that it is less likely than cloning to be found objectionable. Cloning involves a much higher degree of manipulation and interference with the natural order. Least natural is the creation of a *golem* or anthropoid in whom replication of already existing human genetic material is completely lacking. For reasons that require no elaboration, creation of a *golem* is the only form of asexual reproduction heretofore addressed in rabbinic literature. Although cloning may pre-

sent an array of halakhic and moral issues significantly different from those posed in the fashioning of a *golem*, examination of extant *golem* literature is instructive for purposes of establishing an attitudinal framework in which the contemporary problem can be examined.

The most significant source by far is the narrative recorded by the Gemara, *Sanhedrin* 65b. According to Rashi's understanding, the Gemara cites the verse "Your iniquities have been a barrier between you and your God" (Isaiah 59:2) as establishing that, but for their supposedly minor transgressions, the righteous would find it within their power to emulate God and create a universe.³³ Presumably in illustration of that point, the Gemara reports that Rava created a man and sent him to R. Zeira. R. Zeira spoke to the man but he did not answer. Thereupon R. Zeira said to him, "You stem from [our] colleagues."³⁴ Return to your dust."

R. Zeira must have been aware that the creature appearing before him was an anthropoid before he attempted to engaged him in conversation; otherwise, it would have been impossible for R. Zeira to have known that he was not simply confronting a mute person. R. Zeira then proceeded to destroy the creature because, as an artificial creature he regarded it as defective or undesirable.³⁵ Had the anthropoid been capable of speech R. Zeira would presumably have had no problem with its continued existence.

Maharsha's comments *ad locum* are most revealing in this regard. Maharsha comments that speech is the "power of the soul." The anthropoid could not speak, declares Maharsha, because Rava lacked the ability to create a soul and R. Zeira proceeded to destroy it precisely because it was not endowed with a human soul. It follows from Maharsha's analysis that had Rava, either by harnessing the teachings of *Sefer Yezirah* or otherwise, been capable of creating an anthropoid endowed with a soul, R. Zeira would have had no objection.³⁶

Maharsha's analysis serves to underscore the import of the Gemara's original statement declaring that, in the total absence of transgression, the righteous are capable of creating not merely an anthropoid but even an entire universe and to resolve the tension between that statement and R. Zeira's destruction of the anthropoid actually created by Rava. The Gemara ascribes the power of creation to the righteous in terminology that is entirely matter of fact. There is no hint that such power should not be utilized just as there is no censure of R. Hanina and R. Oshia for having created a calf. R. Zeira did not destroy the *golem* created by Rava because he disapproved of Rava's attempt to engage in such an enterprise but because the result was not satisfactory. Rava, presumably because of the "inequities" that constitute a barrier

between man and God, was incapable of creating a man endowed with a soul. Had it indeed been within Rava's power to do so, R. Zeira would not have interfered. However, upon discovering the inherent deficiency of the anthropoid, R. Zeira destroyed the creature.³⁷ Although the considerations that prompted R. Zeira to act in that manner are not spelled out, R. Zeira undoubtedly had reason to fear that the imperfect anthropoid arising from a failed attempt to create a human would prove to be a source of grief. Indeed, as will be noted later,³⁸ this indeed proved to be the case with regard to the *golem* purportedly created by R. Elijah of Helm.

Nevertheless, even if man has the power to create a clone endowed with a human soul, there may well be reason to question whether that power should be used. Lurking beneath the surface of theological opposition to cloning is not simply that artificial creation of human beings represents an illicit mode of *imitatio Dei* but that success in such an endeavor would have a profound psychological effect upon the perceiver, *viz.*, perception of the uniqueness of the Deity as compromised by human emulation of creative function would lead to denial of divine creation of the universe and even to denial of the existence of God.

That concern is indeed echoed in one kabbalistic source. One of the earliest medieval references to creation of a *golem* is found in a thirteenth-century work, *Sefer ha-Gematri'ot*, authored by disciples of R. Judah the Pious.³⁹ That source reports:

Ben Sira wanted to study *Sefer Yezirah*. A voice [*bat kol*] came out and said, "You cannot do it alone." He went to Jeremiah his father. Ben Sira is [numerically equivalent to] Ben Yermiyahu, [the son of Jeremiah] and they studied it and after three years, a man was created to them, upon whose forehead it was written 'Emet, as on the forehead of Adam. And the created one said to them: If the Unique One, the Holy One, Blessed be He, created Adam, when he wanted to kill [*le-hamit*] Adam, He erased a letter from 'emet and what remained is MeT [dead], even more so I would like to do it and you shall no longer create a man, so that people shall not err concerning him, as it happened in the generation of Enosh.⁴⁰ This is why Jeremiah said: Cursed is the man who relies on Adam. The created man said to them: Reverse the combination of the letter backwards. And they erased the 'aleph from his forehead and he immediately turned into ashes.⁴¹

As expressed in *Sefer ha-Gematri'ot* the concern to which the *golem* gives voice is that he might be deified as, according to the midrashic tradition cited in this narrative, had previously occurred in the genera-

tion of Enosh when people prostrated themselves before Adam believing that he was God because of his gargantuan height.

However, the same narrative is presented in a somewhat different manner by the anonymous author of a manuscript treatise titled *The Secret of the Name of 42 Letters*:

We found in *Sefer ha-Bitahon* written by R. Yehudah (ben Bateirah) that Jeremiah, of blessed memory, was studying *Sefer Yezirah* alone: A voice came out and said to him: Take a companion. He went to Sira his son and they studied [together] for three years in order to accomplish what was written. Then they that feared the Lord spoke one with the other. At the end of three years, when they wanted to combine the alphabets, according to the *Zeruf*, [combination] the *Mikhlol* and the *Ma'amar*, a man was created, and on his forehead it was written, YHVH 'Elohim 'Emet. In the hand of that man there was a knife, and he was erasing the 'aleph of the word 'emet and there remained met. Jeremiah rent his garment and said to him, Why did you erase the 'aleph of 'emet? He answered him, "I will tell you a parable . . . Thus is God, when He created you in the image, likeness and form. Now, when you created a man like Him, the people will say that there is no God in the world but you." Jeremiah told him, "If so, how can we repair it" [*mai takanteh*]? He answered them, "Write the letters backwards on the dust that was thrown, by the intention of your heart and do not think about the way of [its] honor or of its order [*tikkuno*] but do all this backwards." And they also did so and that man became before their eyes dust and ashes. Then, Jeremiah said, "Indeed it is worthwhile to study these matters for the sake of knowing the power and dynamis of the creator of the world, but not in order to do [them]. You shall study them in order to comprehend and teach."⁴²

Whether or not successful cloning of a human being in the early years of the twentieth-first century would have the same profound psychological impact as the creation of an awesome anthropoid in the days of Jeremiah or even in the thirteenth-century is speculative. Neither polytheistic confusion nor deification of man appears to be likely in our day, although belief in the Deity's role as Creator of the universe, and of man in particular, may be weakened in the minds of some. Moreover, the concern voiced in this anonymous kabbalistic treatise is not reflected in authoritative halakhic sources. Nevertheless, there is a widespread perception that any attempt at human cloning would constitute an act of extreme hubris on the part of man.

IV. IMPORT OF THE *GOLEM* LITERATURE

The rabbinic literature devoted to the *golem* is of importance with regard to another matter pertaining to cloning as well, *viz.*, the halakhic status of a cloned individual. In its broadest terms, the question is whether or not an anthropoid enjoys the halakhic status of a human being. Particular issues that have been addressed explicitly are whether destruction of an anthropoid is tantamount to homicide, whether an anthropoid can be counted in a *minyan* and whether its corpse defiles in the manner of a human cadaver. Analogous questions have also been raised with regard to animals created in a similar manner, e.g., may the meat of such an animal be cooked in milk and may the animal be offered as a sacrifice. The discussion of these questions with regard to anthropoids is only the first step in an analysis of the relevant halakhic issues since generation from human gametes, gestation *in vitro* as well as normal parturition as will be shown, may indeed significantly alter the conclusions. These discussions are, however, entirely relevant to the analogous situation of a cloned embryo or an embryo fertilized *in vitro* that is also subsequently artificially incubated outside the mother's womb as described by Aldous Huxley in his *Brave New World*.

In the course of Jewish history there have been numerous reports concerning the creation of a *golem* by various individuals.⁴³ In the annals of Halakhah, most significant by far is the narrative of R. Zevi Ashkenazi. R. Zevi Ashkenazi, *Teshuvot Hakham Zevi*, no. 93, reports that his grandfather,⁴⁴ R. Elijah Ba'al Shem of Helm, had created a *golem*.⁴⁵ *Hakham Zevi's* son, R. Jacob Emden, *She'ilat Ya'avez*, II, no. 82, adds that when the *golem* "grew stronger and greater because of the Divine Name written on a paper attached to his forehead," R. Elijah became afraid that the *golem* would wax harmful and destructive. R. Elijah therefore destroyed the creature by tearing the paper from the *golem's* forehead whereupon the *golem* fell to the ground as a lump of dust.⁴⁶

Although the discussion is directed to an entirely different issue, *Hakham Zevi*, perhaps prompted by the fact that his grandfather subsequently destroyed the *golem* that he himself had created, remarks, *en passant*, that even if the *golem* is deemed to be human for other purposes, its destruction is not a violation of the prohibition against homicide. The basic assumption, *viz.*, that there is no attendant prohibition is amply evidenced by R. Zeira's conduct with regard to the anthropoid created by Rava. The simplest explanation for R. Zeira's lack of concern in taking the life of the anthropoid is that such a creature is not at all

