



Modern Reproductive Technologies and Jewish Law

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A person without knowledge is surely not good; he who moves hurriedly blunders. (Prov. 19:2)

THE RELATIONSHIP between modern technology, biomedical ethics, and Jewish law (halakhah) has been well developed over the past fifty years. As has been noted in a variety of sources and in diverse contexts, Jewish law insists that new technologies—and new reproductive technologies in particular—are neither definitionally prohibited nor definitionally permissible in the eyes of Jewish law, but rather are subject to a case-by-case analysis.¹ Indeed, every legal, religious, or ethical system has to insist that advances in technologies be evaluated against the touchstones of its moral systems. In the Jewish tradition, that touchstone is halakhah, the corpus of Jewish law and ethics. This chapter is an attempt to create a preliminary and tentative analysis of the technology of cloning from a Jewish law perspective. Like all preliminary analyses, it is designed not to advance a rule that represents itself as definitive normative Jewish law, but rather as an attempt to outline some of the issues in the hope that others will focus on the problems and analysis found in this chapter and will sharpen or correct those evaluations. Such is the way that Jewish law seeks truth.

In the case of cloning—as with all advances in reproductive technology—the Jewish tradition is betwixt and between two obligations. On one side is the general Jewish obligation to help those who are in need, and particularly compounded by the specific obligation to reproduce, thus inclining one to permit advances in reproductive technologies that allow those unable to reproduce, to, in fact, reproduce. On the other side is the general inherent moral conservatism associated with the Jewish tradition's insistence that there is an objective, God-given morality, and that not everything that humanity wants or can do is proper. This manifests specifically in the areas of sexuality where the Jewish tradition recognizes a number of halakhic doctrines that restrict sexual activity.² In addition, the Jewish tradition advises one to pause before one permits that which can lead down a variety of slippery slopes whose consequences one does not fully understand, and whose results we cannot predict.

It is the balance between these various needs that drives the Jewish law discussion of all assisted reproductive technology, and it is in that spirit that this preliminary analysis of the problem of cloning is intended. This chapter argues that while there are a variety of technical issues related to cloning that have to be addressed, fundamentally cloning is a form of assisted reproduction—no different from artificial insemination or surrogate motherhood—which, when technologically feasible, should be made available to individuals who need assisted reproduction.³

An analysis of the implications of cloning found in Jewish law contains within it three distinctly different problems in need of resolution. The first one discusses whether the cloning process is permissible (*mutar*), prohibited (*asur*), or a good deed (*mitzvah*). However, the determination of whether any particular conduct is good, bad, or neutral is not dispositive in addressing the second issue: the familial status of an individual (re)produced through cloning in relationship to other humans generally, and other members of this person's "family" specifically.⁴ Finally, even when conduct is permissible or perhaps even a *mitzvah*, Jewish law recognizes that the (rabbinical) authorities of every generation have the authority to temporarily prohibit that which is permissible based on the perception that this intrinsically permissible activity could lead to other, serious violations.⁵ Perhaps cloning is such a case.

The next section of this chapter will review the current state of technology and science as it relates to cloning. The following section will focus on the question of the Jewish law status of clones from various angles, and the section after that proceeds to address whether cloning is permissible,

prohibited or a good deed.⁶ The fourth section will take up the questions of cloning and public policy from a Jewish law perspective.

CLONING: THE SCIENTIFIC BACKGROUND

Cloning, until now the subject of the fictional analysis of the type found in Ira Levin's novel *The Boys from Brazil* (1976), has become a medical reality with the recent cloning of a sheep.⁷ Indeed, there is no doubt that in a few years it will be medically possible to clone human beings, and there is already an extensive discussion about whether such conduct should be permissible.⁸

In order to discuss cloning, one must understand exactly what cloning is. Every human being currently in the world is the product of a genetic mixture: one's father provides half of one's nucleic genetic material and one's mother contributes the other half; this genetic material is united in fertilization, which normally happens after intercourse but can also happen in a petri dish via in vitro fertilization (known as IVF). A child bears a genetic similarity to his mother and father but cannot be genetically identical to either one of them, as each has contributed only half of their genetic materials. Every person also has, along with his or her nucleic DNA, mitochondrial DNA, which is located not in the nucleus of the cell but in the cytoplasm. This mitochondrial DNA is inherited solely from one's mother through the egg that she provides and is identical to hers; mitochondrial DNA creates certain proteins needed to function (particularly for respiration—energy metabolism on the cellular level). A father contributes no mitochondrial DNA to his children. As noted in a commentary in *Nature*, a woman suffering from a mitochondrial disease might be able to produce children free of the disease by having the nucleus of her egg implanted in a donor's oocyte, thus providing the same chromosomal genetic code but with disease-free mitochondrial DNA.⁹

Siblings who are not identical twins share some of the genetic materials of their parents; however, since each sperm and each egg take a different (sub)set of material from the parents, each sibling has a unique genetic makeup based on a combination of portions of their parents' genes different from that found in their siblings.¹⁰ Identical twins, though, are the product of a single fertilized egg of a unique genetic makeup which splits in half after fertilization, leaving two fully formed zygotes which develop into two fully formed—but genetically identical—siblings.¹¹ These two children share an absolutely identical genetic makeup and until recently represented the only case available in which two people could have an identical genetic makeup.¹²

In the current state of cloning technology, genetic material is isolated from cells taken from a donor. This genetic material is then introduced into the nucleus of an egg/ovum whose own nucleic genetic material has been destroyed, so as to produce an egg/ovum that contains a full set of genetic material identical to the nucleic genetic material of the donor. If the genetic material is taken from one person and the egg is taken from another, the non-nucleic genetic material of the clone will be that of the egg donor and not the gene donor, whereas the nucleic genetic material will be from the gene donor.¹³ A woman could avoid this problem and produce a "full clone" by using her own genetic material and one of her own eggs/ova in the cloning process; that clone will have the exact same DNA makeup as its clonor.

Through stimulation, the egg/ovum with transplanted nucleic genetic material is induced to behave like a fertilized egg, and it then starts the process of cellular division and development as if it is a newly fertilized diploid with genetic materials from a mother and a father. It divides and reproduces, and when implanted into the uterus of a gestational mother, the zygote will grow and develop into a fully formed fetus which will eventually be born from the uterus of its gestational mother. In the current state of technology, all fertilized eggs—including cloned ones—are implanted in a uterus and are carried to term like all normal pregnancies.¹⁴

The child who is born from this gestational mother is genetically identical to the donor(s) of the genetic material and bears no genetic relationship to the gestational mother.¹⁵ It is not a combination of the genetic material of two people (the mother and father). It is instead identical to the genetic makeup of the one who donated the DNA.¹⁶ It is as if, on a genetic level, this person produced an identical twin, many years after the first person was born.¹⁷ It is impossible to genetically distinguish cells of the clone from cells of the clonor as their genetic makeup remains absolutely identical. Indeed, there is no reason why this process could not be done from the cells of a person who is deceased.

STATUS ISSUES RELATED TO ONE WHO IS CLONED

Who Is the Clone's Family?

The Jewish legal tradition would, in my opinion, be inclined to label the gestational mother (the one who served as an incubator for this cloned individual) as the legal mother of the child, as this woman has most of the apparent indicia of motherhood according to Jewish law.¹⁸ While this child bears no genetic relationship to its gestational mother, particularly when the donor i

a male, there are no other possible candidates whom Jewish law could label the mother, and thus it seems reasonable to believe that this woman would be considered the mother of the child according to Jewish law.

One might, at first glance, question this result. However, consider the case of a woman born with no ovaries, who as an infant is given an ovary transplant. Twenty years later, this woman marries and has a child. Who is the legal mother of the child? I am convinced that Jewish law acknowledges that the woman who received the ovary transplant, who had a sexual relationship with a man, and who ovulated, conceived, implanted, nurtured, and bore this child is the halakhic mother of the child, even though she has no genetic relationship with the child.¹⁹ Thus this child would have a maternal relationship with the woman who bore him. Elsewhere I have written:

1. If conception occurs within a woman's body, removal of the fetus after implantation (and, according to most authorities, after 40 days) does not change the identity of the mother according to Jewish law. The mother would be established at the time of removal from the womb and would be the woman in whom conception occurred.
2. Children conceived in a test tube and implanted in a host carrier are the legal children of the woman who gave birth to them since parturition and birth occurred in that woman, and conception is not legally significant since it occurred in no woman's body.
3. Children conceived in a woman who had an ovarian transplant are the legal children of the woman who bore them.²⁰

It would appear that rule 2 governs this case, and thus the gestational mother is the legal mother according to Jewish law.

However, in the past fifteen years, a robust discussion within Jewish law has developed as to whether a child can halakhically have two or more mothers. According to my teacher, Rabbi J. David Bleich, a preeminent authority on Jewish medical ethics as well as other areas of Jewish law, a number of Jewish law authorities would be inclined to rule that it is possible for a child to have two mothers according to Jewish law, and in a case of surrogate motherhood, both mothers are to be considered the mother. Rabbi Bleich reports that the late Rabbi Shlomo Zalman Auerbach adhered to this view.²¹ If such was the (Jewish) law, there would be little doubt that the one who contributed the genetic materials would also be considered the mother according to Jewish law were she a woman—as her contribution is clearly greater than the egg donor, who is considered a mother by this analysis.

Indeed, it is quite possible to argue that both the clonor and the egg donor, who contributes the mitochondrial DNA, would be considered “mothers” according to Jewish law by this analysis, which assumes that more than one mother is possible. The logic behind naming the one who contributes the nucleic genetic material as the mother seems persuasive if one considers the egg donor to be a mother in surrogacy situations. If one maintains that a woman who contributes an egg and does not carry the child to term is a mother according to Jewish law, certainly one who contributes all of the genetic materials—twice as much as is normally contributed by the mother—is considered a mother according to Jewish law, by these same authorities. The rationale for labeling the contributor of the egg/ovum as the mother would seem to be that the contribution of either the mitochondrial DNA or the egg itself is enough of a contribution that, within a system that labels any woman who contributes as “a mother,” this person too is a mother.

On the other hand, if one agrees with those authorities who label the gestational mother as “the only mother” to the exclusion of all other mothers and the ovum donor as of no legal significance according to Jewish law, one is uncertain what the proper result is in this case. The contributor of the genetic material still lacks the indicia of motherhood according to this school of thought. However, unlike the typical mother, who contributes but half the genetic material, this woman contributed all of the genetic material, and thus has a greater claim to parenthood than an egg donor in the case of surrogate motherhood.²² Nonetheless, the weight of this line of reasoning argues that Jewish law focuses on parturition and birth, and labels the gestational mother as the “real” mother.²³ This result should govern the case of cloning also—the birth mother should be the “real” mother according to Jewish law.

If the donor of the genetic material is a man, it would appear that the above logic concerning the identity of the mother is even more persuasive in determining who the father is. Just like a man who reproduces through *in vitro* fertilization contributes only half of the genetic material through his sperm, and is still considered the father according to normative Jewish law (even though there has been no sexual act and no clear procreative activity), certainly in this case where the man contributed all of the nucleic genetic material, it would appear to be enough to label this person the father according to Jewish law and to state that this person has fulfilled the commandment to be fruitful and multiply or its rabbinic analog.

To reach this result, one must resolve a number of halakhic disputes about the duty to procreate. There are those authorities who maintain that, absent a sexual relationship, there is no paternity; certainly those authorities rule that no paternity is established in the case of cloning.²⁴ So too there

are some authorities who rule that absent a sexual relationship—even if paternity is established—there is no fulfillment of the biblical obligation to “be fruitful and multiply”²⁵ or a fulfillment of the rabbinic obligation to “inhabit the earth.”²⁶ Cloning involves no sexual relationship and thus would not fulfill the mitzvah to procreate according to Jewish law.²⁷

However, neither of these two approaches is considered normative in Jewish law. The vast majority of Jewish law authorities rule that children produced through other than sexual means are the legal children of the inseminator, and indeed such activity is considered a positive religious activity (a mitzvah)—a good deed. As Professor Irving Breitowitz stated in a recent article on preembryos:

AIH [artificial insemination of the husband’s sperm] is generally regarded as a halakhically permissible procedure through which paternity can be established and the mitzvah of *peru u-revu* [“be fruitful and multiply,” the biblical obligation to have children] or at least *la-shevet* [“to be inhabited,” the rabbinic obligation to have children] can be fulfilled. By and large most *posekim* [decisors of Jewish law] have assimilated IVF [in vitro fertilization] to AIH and have permitted its utilization . . . Virtually all contemporary *posekim* have concluded, first, that the egg and sperm providers do have a parental relationship with an IVF-generated offspring; second, that the procedure, if undertaken for procreation by an otherwise infertile couple, does not violate the prohibition against *hashḥatat zera* [wasting sperm/seed]; third, that one may fulfill, through any resulting offspring, either the mitzvah of *peru u-revu* [the biblical obligation to have children], or at the very least, the “lesser” mitzvah of *la-shevet* [the rabbinic obligation to have children].²⁸

The next sentence of Breitowitz’s article states, “These will be the assumptions on which this article is predicated,” and I too will predicate this chapter on these assumptions.²⁹

Thus, in summary, it is relatively clear that Jewish law would be inclined to view the gestational mother in a case of cloning as, at the very least, likely to be the mother. This is no different than a surrogate mother who bears no genetic relationship to the child and yet is considered, at the very least, likely to be the mother, such that the child would be prohibited to marry any of the relatives of the surrogate mother who carried the child to term.³⁰

It seems logical, in this author’s opinion, that when the genetic donor is a man, he would have the status of the father and would fulfill the duty to have children, either its biblical or rabbinic component.³¹ If the genetic

donor is a woman, perhaps one could claim that the gene donor is also the mother in accordance with the logic of Rabbi Bleich found above or in accordance with those authorities who label the egg donor the mother according to Jewish law in cases of surrogacy.³² There is little doubt that the genetic donor would be at least classified as the mother as a stricture based on doubt, prohibiting sexual relationships with her relatives or with her (if the child is male). This might also be the case for the egg/ovum donor who is the contributor of the mitochondrial DNA, whose effect on the clone has yet to be fully elaborated on by the scientific community.³³

This leads us to one of the anomalies found within the area of establishment of maternity and paternity according to Jewish law. Given the fact that for the foreseeable future there will always be a birth (surrogate) mother with no genetic relationship to the child who has a tenable claim as the “real” mother of the child (absent the acceptance of the logic which recognizes that a person can have two mothers), it will be markedly harder for a woman to be considered the mother of her cloned progeny than it would be for a man to be considered the father of his cloned progeny.³⁴ The rationale for this distinction is relatively clear: since there are no other possible candidates for paternity, the man who donates sperm—or in the case of cloning, the whole genetic material—becomes the father according to Jewish law. The egg/ovum-donating woman (or the gene-donating woman in the case of cloning) who donates the exact same thing as the man does in a case of surrogate motherhood—half the genetic material—has a harder time demonstrating her status as mother according to Jewish law, as there is another woman claiming that position—the gestational mother, who has a very strong claim in Jewish law.

This observation—that the man who provides half the genetic material is always the father, but the woman who provides half the genetic material is not always the mother, and might never be—leads to the realization that we appear to have established a normative rule of Jewish law: when establishing the identity of the mother and father, Jewish law insists that only men can be the father and only women can be the mother. This seems consistent with the normative values found within Jewish law. While little textual proof can be found supporting this assertion—as the classical decisors never considered the possibility of any other rule—this seems logical.

A number of individuals have suggested that in the case of a woman donating genetic material to be cloned, since the child clearly would lack a father according to Jewish law and the gestational mother is the “mother” according to Jewish law, perhaps the provider of the genetic material should be the “father” whether that person is a man or a woman, as providing half

the genetic material seems to be sufficient according to most halakhic authorities to label one the “father,” even absent intercourse. The possibility that motherhood and fatherhood can be defined independently of the mother or father’s gender is explicitly discussed by Rabbi Joseph Babad in the case of an androgynous male who fathers a male child and then has a (homo)sexual relationship with that male child.³⁵ Rabbi Babad speculates that if the male child has a homosexual relationship with his father, both are liable for incest as well as homosexual activity. However, if the sexual relationship is with his father’s female sexual organs (after all, he is androgynous), Rabbi Babad speculates that “the son should be liable for sexual relations with his mother, perhaps.” Rabbi Babad continues this line of reasoning—limiting it with modifiers such as “perhaps” and “maybe”—which inclines one to think that the sexual identification of one’s mother and father is not crucial to the definition, but rather maternity and paternity are almost interchangeable with each other (i.e., a man who fathers a child could be called a mother in some circumstances).

Notwithstanding the presence of this very tentative analysis, there is little or no precedent for such an approach. The classical Jewish law codes leave little room for this discussion, as they seek to define motherhood and fatherhood in reference to the gender of the parents and thus dependent on gender.³⁶ Indeed, even Rabbi Babad’s analysis seems to uncouple gender from parental status only in the case of one whose gender status is uncertain (even though he fathered a child); no such ambiguity is normally present.

The Identical Twins Issue

Some have informally suggested that the relationship between the clone and the clonor is that of siblings and not of parents. While this argument seems to have a genetic basis, as the relationship between the clone and the clonor most closely resembles the relationship between identical twins (although in most cases the mitochondrial DNA will be different), it would appear that there are significant problems with this analysis according to Jewish law. The definition of siblings found in Jewish law is having either a common mother or a common father or both. As the Babylonian Talmud notes, one could imagine a situation in which two individuals have no legally cognizable sibling (genetic) relationship but nonetheless are considered siblings because they shared a uterus with a common mother. Consider the following case:

Twin brothers who were converts, or, similarly, [twin] emancipated slaves, may neither participate in *halitsah* [levirate separation] nor in a levirate marriage, nor are they punishable for marrying their

brother's wife [as converts lose their legal relationship with their prior family]. If, however, they were not conceived in holiness [their mother was a non-Jew when they were conceived] but were born into holiness [had converted to Judaism before their birth] they may neither participate in *halitsah* nor in a levirate marriage, but are guilty of a punishable offense if they marry their brother's wife.³⁷

Rabbi Shlomo b. Isaac (Rashi), commenting on the final words of this talmudic passage, states that the two brothers in the latter case are prohibited from marrying each other's wives since they were born to the same Jewish mother and are thus related to each other as half brothers—they have a legally recognized mother in common.³⁸ It is critically important to realize that Jewish law only recognizes the mother as such because she gave birth to these children; her genetic relationship with the children has been legally severed by her conversion, as is the case of any convert who, on conversion, loses all previously established genetic relationships.³⁹

Given this insistent definition for the purpose of declaring one a sibling according to Jewish law—that individuals are required to have either a common mother or a common father (or both) to be siblings—it would be difficult to establish the Jewish law relationship between the clonor and the clone as a sibling type of relationship, given the complete absence of a common parent.⁴⁰

The assertion that all individuals who are genetically identical are legally considered siblings can be readily disproved. Consider the case of natural identical twins who clone themselves, producing clones who are identical genetically not only to themselves but also to the clonor's identical sibling. Surely the two clones are not siblings to each other, or to their clonor's identical brother—although they are all genetically identical. Rather, each clone is the child of his respective clonor. Each clone is the nephew to the clonor's identical brother, and the two clones are first cousins. The presence or absence of a “mother” in common reinforces this categorization.

The argument that analogizes cloning of an adult to the splitting of a fertilized egg appears incorrect.⁴¹ It is true that when a fertilized egg divides into two separate embryos, both of those children (who are identical twins) are considered children of the couple that fertilized the initial egg—and not that the second egg is a “child” of the first. However, this type of case is different precisely because the process of fertilization and division occurs in an embryonic state, such that it is clear who the mother of these children is, and thus who is the father. To rule that the provider of the initial genetic material is not the father in a case of cloning—but rather that the father of the

provider of the genetic material is the father—seems far removed from logic, as that person is completely uninvolved in the reproductive process. The one who fertilized the egg, either by providing half the normal chromosomes in the case of regular fertilization, or all the chromosomes in the case of cloning, should be considered the parent.

An elaboration of this analysis is needed. The splitting of a fertilized egg is perhaps the simplest form of cloning, the argument goes, and just as that case produces sibling relationships and not a parent–child relationship, so too a clone from an adult should be classified as a sibling and not as a child. This analysis appears to be incorrect. What makes the identical twins siblings in the case of fertilized eggs is the definition of siblings discussed above: a common mother and father. The fact that these children share a uterus and a common egg and thus a mother inclines one to think that they also share a father who provided the sperm that immediately created the first one of them, and thus they are siblings.⁴² Clonor(s) and clone(s) do not share a mother (egg donor or gene provider) or a father (provider of genetic material) and thus are not siblings.⁴³

Absence of Paternity and Religious Identity

One other possibility worth considering is that there is no familial relationship between the clonor and the clonee according to Jewish law. Jewish law would consider these people as categorically unrelated. There is ample precedent in Jewish law that a mere genetic relationship does not establish a legal relationship in the eyes of Jewish law.⁴⁴ Nonetheless, once there is a clear establishment of maternity on the part of the gestational mother, as there is in the case of cloning (see above), it seems logical that the provider of the genetic material has the status of the other parent, assuming that this parent is a man, thus enabling him to fit into the category of father. It is illogical to identify a man who contributes sperm to an in vitro fertilization to be the father according to Jewish law, and yet consider the one who contributes all the genetic material not to be the father. When the genetic provider is a woman, one returns to the discussion about two women competing to be the mother in the case of surrogacy.⁴⁵

The question of the mother's identity is seminal in determining the status of the child as to its religious identity. Jewish law insists that the child of a Jewish mother is Jewish, independent of the religious identity of the father, and the child of a non-Jewish woman is likewise a non-Jew, independent of the religious status of the father. Indeed, in the case of intermarriage, regardless of the father's religion, Jewish law never recognizes the father as having

any rights or obligations with respect to the child; he is not the legal father. Were one to determine that the gestational mother is the mother, Jewish law would assign the child Jewish identity and would limit paternity to those cases where the provider of the genetic material—the clonor—is also Jewish. In those circumstances, where the donor of the genetic material is a Jewish woman and the gestational mother is a non-Jewish woman, or the other way around, the determination of religious identity would depend on who one labels the mother. Rabbi J. David Bleich quotes an unpublished responsum from the late Rabbi Shlomo Zalman Auerbach to the effect that in those circumstances, the Jewish status of such a child is subject to doubt, and he or she should be converted.⁴⁶

The Artificial Anthropoid (Golem) and Cloning

Unaddressed until this point is the discussion of the legends about golems, artificial anthropoids created by mystical means according to the Jewish tradition. These stories tell of figures made from dirt brought to life by reciting one of the names of the Divine or by placing a piece of parchment with God's name or the word *emet* (truth) on its forehead. The Talmud recounts:

Rava created a man and sent him to R. Zeira; the rabbi spoke to him, but he did not answer; R. Zeira exclaimed, "You are artificial: return to dust". . . . R. Hanina and R. Ohaya would sit every Sabbath eve and study the book of creation and create a calf one-third the size of a full calf, and eat it.⁴⁷

So too in the past six hundred years there have been a number of accounts of golems created to assist the Jewish community in its various times of need.⁴⁸ As Rabbi Chaim Steinmetz notes, "whether or not these legends are fictional is irrelevant; what we are interested in is how man's ability to artificially create life is viewed by Jewish thinkers."⁴⁹

The responsa literature contains a clear discussion of whether an artificially created person (a golem) is human or not, may it be killed, does it count in a minyan (religious quorum), can it ritually slaughter, and so on. It is important to recognize that Jewish law prohibited the killing of a deaf-mute, a lunatic, or an infant. Humanness—being created in the image of God (*tselem elokim*)—is not dependent on intelligence.⁵⁰ Rather, as the *Encyclopedia Talmudit* states: "A person who is born from another person—in the womb of a woman—is prohibited to be killed." It adds: "One who is

humanness and is to be considered human. Indeed, the definition of humanness found in the *Encyclopedia Talmudit* should be enough to “prove” that a cloned human is human when it is born to a human mother.⁵⁷

To the extent that the mystical stories have something to contribute to the approach of Jewish law to this topic—itsself a matter of significant dispute as noted by Rabbi Samuel Adels, Maharsha, above—that discussion will have to wait for the invention of a full human incubator, thus allowing a child to be born without any implantation into any human.⁵⁸

Miscellaneous Issues Related to Cloning

A host of miscellaneous issues raised by this analysis can only be dealt with in a preliminary way. The first is the famous discussion generated by a series of responsa (*teshuvot*) by Rabbi Saul Yisraeli and others as to whether a dead man can legally father a child according to Jewish law and the related question of who owns the genetic material of the deceased person which will subsequently be used for reproductive purposes.⁵⁹ Presumably, those who hold that a dead man cannot legally reproduce, so as to have a paternal relationship or fulfill a mitzvah, would rule that one whose cells are cloned after death is not the father according to Jewish law. Those who disagree would seem to take a similar position in the case of cloning as well.⁶⁰

There is little doubt that soon on the horizon there will be yet another (modified) form of cloning that would allow for the taking of nucleic genetic material from a variety of sources and not incorporate the genetic material of just one person. How exactly Jewish law would view the parental, familial, or maternal status of one who has various pieces of genetic material from a variety of sources is an issue which is little addressed. If one accepts the analysis of Rabbi Bleich that it is plausible for a child to have more than one legal mother or father—based on the fact that Jewish agricultural laws allow for a plant to have more than two legal parents—one would be inclined to view the contributors of the genetic material as the parents of those children in addition to the gestational mother.⁶¹ Presumably, those who disagree with that analysis would argue that the gestational mother is the “real” mother according to Jewish law. In a case where there is no gestational mother, this approach would argue that there is no mother according to Jewish law, or perhaps this approach would label the primary donor as the mother or father, or consider them all doubtful (*safek*) parents.⁶² Indeed, such is exactly the dilemma in the current cloning technology when the egg/ovum donor is not the same person as the contributor of the nucleic genetic material, as that clone has genetic mater-

ial from two different sources: nucleic genetic material from the clonor, and mitochondrial genetic material from the egg donor.

IS CLONING PERMISSIBLE, PROHIBITED, OR A GOOD DEED?

The previous section's analysis was limited to the ramifications of cloning without any discussion of whether Jewish law views such conduct as a good deed, a bad deed, or merely a permissible activity. Five distinctly different categories can be advanced in the area of reproductive activity.

1. Activity that is obligatory (*mitzvah hiyyuvi*). For example, the requirement for a man to procreate by having a minimum of two children—a boy and a girl—is obligatory according to Jewish law. At least as a matter of theory, a Jewish law court can compel one to marry and have children.⁶³
2. Activity that is commendable but not obligatory (*mitzvah kiyumi*). For example, various authorities rule that procreation beyond the obligation to have one boy and one girl is a discretionary activity that is a *mitzvah*. According to this approach, such conduct fulfills a *mitzvah* but is not legally prescribed.⁶⁴
3. Activity that is permissible (*mutar*).⁶⁵ For example, Rabbi Moses Feinstein is of the opinion that it is permissible, but not mandatory, for a woman to engage in artificial insemination with sperm other than her husband's, with her husband's consent, in order that she may have a child, in a situation in which the sperm donor is a non-Jew.⁶⁶
4. Activity that is discouraged but not prohibited (*bittul mitzvah*). For example, various Jewish law authorities rule having many children a discretionary *mitzvah* (see category 2 above and note 64) and deem the decision to stop having children after one has the minimum number required as a nullification of an optional *mitzvah*. According to this approach, one who avoids fulfilling this commandment has forsaken the opportunity to do a good deed (*mitzvah*)—but such conduct is not definitionally prohibited.
5. Activity that is prohibited (*asur*). For example, an abortion for a reason unacceptable to Jewish law is prohibited.⁶⁷

Thus the primary discussion about the halakhic permissibility of cloning focuses on whether the obligation to be fruitful and multiply or its rabbinic analog has been fulfilled by the cloning activity. This question seems to be without clear precedent in Jewish law. One could argue that the activity which

defines the obligation to be fruitful and multiply solely involves a man giving genetic material to produce a child who lives. Such a child is produced in this case. There is at least one mother (gestational mother) and in most circumstances there will be a father/second parent. Why then should no mitzvah be fulfilled, or at least a child born that exempts one from the future obligation to procreate? On the other hand, one could argue that the intrinsic definition of the obligation to be fruitful and multiply or its rabbinic cognate involves the combination of the genetic materials of a man and a woman—whether through a sexual act or in a petri dish—and absent the combination of genetic material from a man and a woman, there is no fulfillment of the obligation to be fruitful and multiply.⁶⁸ Indeed, this could be inferred from the comments of Nahmanides on Leviticus 18:6, which per-

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created through a mystical process or through a mixing of divine letters, [if that person is killed,] the one who kills him does not violate the prohibition to murder (*lo tirtsah*).⁵¹ Yet other halakhic authorities focus on whether the origins of these artificially created “people” (golems) are nonhuman or are specifically divinely created, or both specifically divinely created and deaf-mute.⁵² Indeed, Rabbi Samuel Adels⁵³ could easily be understood as ruling that a golem that can speak and appears human is, in fact, human—a result that appears very intuitive to this writer.⁵⁴ Indeed, support for the proposition that “humanness” is determined by human function in cases where apparent definition of humanness—birth from a human mother—does not apply can be found in an explicit discussion of humanness in the Jerusalem Talmud. That source states:

Rabbi Yasa states in the name of Rabbi Yochanan: “if [a creature] has a human body but its face is of an animal, it is not human; if [a creature] has an animal body, but its face is human, it is human.”⁵⁵

This would indicate that when the simple definition does not apply, one examines the creature for “human” features. However, the Talmud continues:

Yet suppose it is entirely human, but its face is animal-like, and it is learning Torah? Can one say to it “come and be slaughtered”? [Rather one cannot.] Or consider if it is entirely animal-like, but its face human, and it is plowing the field [acting like an animal] do we come and say to it, “come and perform levirate marriage [*yibbum*] and divorce [*halitsah*]”? [Rather, one cannot.]

The talmudic conclusion seems to be simple. When dealing with a “creature” that does not conform to the simple definition of humanness—born from a human mother—one examines context to determine if it is human. Does it study Torah (differential equations would do fine for this purpose too) or is it at the pulling end of a plow? By that measure, a clone, even one fully incubated artificially, would be human, as it would have human intellectual ability, and human attributes.⁵⁶

However, it appears to me that these stories about fully artificial people are of no relevance in cases of artificial insemination (AIH/D), in vitro fertilization (IVF), or cloning since the fertilized egg is implanted in the uterus of a woman, who gives birth to a child and who is the legal mother. Thus a clone, no less than any other “born” child, meets the *prima facie* test for

that Jewish law would prohibit one from assaulting another to get body cells to clone.⁷⁹ (If that were done—notwithstanding the violation—the resulting child who was cloned would still be a human being, entitled to all protections granted all people, just as a child conceived through rape is a human with no stigma.)

However, the right to control one's own genetic information absent a physical intrusion is much harder to justify exactly in the halakhic tradition. It would seem to me that taking a person's genetic information through a scan or from cells naturally shed from a person while they function is not much different from taking a person's literary accomplishments without permission (but with attribution). The question of whether one can copy another's invention, book, insight, quote, Torah ruling, or genetic code would seem to be the same issue. The vast majority of halakhic authorities accept that Jewish law has some notion of patent and copyright that prevent one from taking ideas created by another, even if nothing is physically taken. However, where this prohibition precisely comes from and what it is based on differs significantly among decisors and is based on such diverse concepts as excommunication (*herem*), theft, implied conditions, limited sales, secular law, common commercial custom, and other commercial law concepts.⁸⁰ The implications of this dispute with regard to cloning are worthy of careful future investigation and analysis.

THE SLIPPERY SLOPE AND THE DENIGRATION OF HUMAN BEINGS

Many have argued that the problems with cloning have nothing to do with technical issues; rather, it is feared that the individuals produced through cloning will not be considered human by society and will lead to a number of gross violations of normative (Jewish) laws and ethics, such as the harvesting of organs from these people, their use for human experimentation, slavery, or other prohibited activities.⁸¹ The correctness or incorrectness of this assertion of prospective ethical violation of the clones' rights as humans is difficult to evaluate in the Jewish tradition. There is no doubt that a person produced through cloning and born of a mother is a full human being according to Jewish law and tradition and is entitled to be treated—must be treated—as such by all. Each person is created “in the image of God” and must be treated as such. Indeed, just as identical twins—*two* people with identical genetic codes—are *two* unique individuals, similar in some ways and different in others, and are to be treated as two separate, unique

hibition against cloning.⁷⁵ One would be hard-pressed to define the taking of the cells necessary to genetically reproduce the person as a prohibited form of wounding (*havalah*), since the cells can be extracted without any apparent violation of Jewish law. Indeed, in that regard, cloning lacks many of the serious halakhic problems associated with artificial insemination, in vitro fertilization, and surrogate motherhood, all of which have serious halakhic issues raised in terms of the fertilization of the egg by the sperm, and other related issues. Cloning—precisely because it does not involve any reproductive technology other than implantation—seems to be free of these issues.

However, this analysis does indicate that in the case where the donor of the genetic material is a woman, the best that one can categorize this activity as is permissible activity (*mutar*), as no mitzvah is fulfilled. Indeed, in a case where the proposed gestational mother is married, the fact that the clonor is a woman (and fulfilling no mitzvah) might, alone, be enough of a reason to prohibit such activity, since a number of Jewish law authorities prohibit a married woman from functioning as a gestational mother for any child other than one whose father is her husband.⁷⁶ A plausible claim could be made that one should be strict for this approach absent a mitzvah being performed, which is not the case when the clonor is a woman. Certainly this is true absent permission from the husband.

In sum, I am essentially unaware of any substantive violation of Jewish law that definitionally occurs when one clones nuclear material from one human being into the egg/ovum of another and implants that fertilized egg into a gestational mother.⁷⁷ Thus, in those circumstances where the clonor is a man faced with the obligation to be fruitful and multiply or its rabbinic cognate and he cannot fulfill the obligation otherwise (including through AID/H or IVF), cloning can be classified as a good deed (*mitzvah kiyumi*). In those circumstances where the clonor is a woman, cloning can be classified as religiously neutral, neither prohibited nor a mitzvah, simply permissible, depending on the desires of the parties.⁷⁸

Permission to Clone

The question of property right ownership in one's own DNA sequence needs to be addressed, as scientifically there is no reason why a person needs to consent to being cloned. Cells could be extracted without a person's consent, or a person could even be DNA sequenced such that one could duplicate his or her genetic code without extracting anything from the body. It would appear to me that a person's right to physical integrity is sufficiently well established in Jewish law and tradition that there is no need to demonstrate

that Jewish law would prohibit one from assaulting another to get body cells to clone.⁷⁹ (If that were done—notwithstanding the violation—the resulting child who was cloned would still be a human being, entitled to all protections granted all people, just as a child conceived through rape is a human with no stigma.)

However, the right to control one's own genetic information absent a physical intrusion is much harder to justify exactly in the halakhic tradition. It would seem to me that taking a person's genetic information through a scan or from cells naturally shed from a person while they function is not much different from taking a person's literary accomplishments without permission (but with attribution). The question of whether one can copy another's invention, book, insight, quote, Torah ruling, or genetic code would seem to be the same issue. The vast majority of halakhic authorities accept that Jewish law has some notion of patent and copyright that prevent one from taking ideas created by another, even if nothing is physically taken. However, where this prohibition precisely comes from and what it is based on differs significantly among decisors and is based on such diverse concepts as excommunication (*herem*), theft, implied conditions, limited sales, secular law, common commercial custom, and other commercial law concepts.⁸⁰ The implications of this dispute with regard to cloning are worthy of careful future investigation and analysis.

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humans, so too a human being who was cloned from another human is a separate and unique person, fully entitled to be treated as a unique human.

I am hard-pressed to find any rational Jewish law argument that could justify the categorization of a person produced through cloning as not human. Indeed, an examination of the rationales for explaining why a golem is not human indicates that the absence of a human parent does not necessarily make one nonhuman—and a clone (of current technology) clearly has a mother, at the very least.⁸² Even those halakhic authorities who insist that absent a sexual act, no mitzvah is fulfilled in situations such as IVF, have given not a scintilla's worth of indication that the individuals produced through such processes are not human.

Some fear that society will mislabel cloned individuals as something other than human and use them as organ sources, individuals to be experimented on, or forced labor. One could imagine a rabbinic authority, aware of the possibility of ethical lapses in our society, arguing that, as a temporary measure based on the exigencies of the times, cloning should not be performed until people are taught that clones are human beings entitled to be treated with full and complete human dignity.⁸³ However, this type of prophylactic rule which argues that permitted activity should be prohibited in light of the ethical failures of the times is not the same as asserting as a normative rule of Jewish law that such conduct is prohibited. Rather, it is a temporary measure to prohibit that which is intrinsically permissible.⁸⁴

The same is true about arguments against cloning grounded in efficiency. Some have argued that Jewish law should prohibit cloning because so much human reproductive material has to be expended to produce a single clone.⁸⁵ Whatever the merit of this argument, it is likely that the march of scientific progress will vastly reduce the inefficiency of this process. More significantly, normative Jewish law does not view the death of preembryos in the process of attempted implantation as violative of Jewish law.⁸⁶

It could be argued that cloning should be prohibited based on the various talmudic dicta that seem to praise the importance of genetic diversity.⁸⁷ This, however, paints with too broad a brush. Clearly the Jewish tradition views the natural process of reproduction as the ideal, for a variety of reasons, including allowance for genetic diversity, with all other methods to be used only when normal reproduction is unavailable. Cloning, for a variety of reasons, falls far short of the ideal. However, to claim that a single case of cloning as an alternative to infertility should be prohibited based on this analysis is no more persuasive than to claim that Jewish law should forbid artificial insemination or IVF since it is less than ideal. The correct response

should be that these less-than-ideal methods should be used only in circumstances where the ideal method does not or cannot work. The talmudic dicta about genetic diversity stand for the proposition that wholesale cloning should be discouraged, and nothing more.

More generally, Jewish law denies the authority of posttalmudic rabbis to make prophylactic decrees permanently prohibiting that which is permissible on these types of grounds.⁸⁸ This is even more true when such a decree (*taqqanah*) would permanently prohibit an activity which is, in some circumstances, the only way a person can fulfill the obligation to reproduce and which could, in a variety of circumstances, have overtly positive results.

The Jewish tradition would not look askance on the use of cloning to produce individuals because these reproduced individuals can be of specific assistance to others in need of help. Consider the case of an individual dying of leukemia in need of a bone transplant who agrees to clone himself with the hopes of producing another like him or her who, in suitable time, can be used to donate bone marrow and save the life of a person (and even more so, the clonor). The simple fact is that Jewish law and tradition view the donation of bone marrow as a morally commendable activity and perhaps even morally obligatory, such that one could compel it even from a child.⁸⁹ Jewish law and ethics see nothing wrong with having children for a multiplicity of motives other than one's desire to "be fruitful and multiply." The Jewish tradition recognizes that people have children to help them in their old age, and accepts this as a valid motive.⁹⁰ It recognizes a variety of motives for people to have children; there is no reason to assert that one who has a child because this child will save the life of another is doing anything other than two good deeds—having a child and saving the life of another.⁹¹ The same thing is true for a couple who conceives a child with the hopes that the child will be a bone marrow match for their daughter who is dying of leukemia and is in need of bone marrow from a relative. While the popular press condemns this conduct as improper, the Jewish tradition would be quite resolute in labeling this activity as morally appropriate. Having a child is a blessed activity; having the child to save the life of another child is an even more blessed activity. Such conduct should be encouraged rather than discouraged.

I suspect that to the extent that human cloning does become an available medical procedure, it will be for the treatment of profound infertility, such as in the case of a soldier who was fully castrated after stepping on a land mine, and not for any of the more controversial purposes. There was great concern over how frequently and for what purposes artificial insemination would be used, and after twenty years of data we see that it is used nearly

exclusively to treat infertility. I suspect that such will be the case here too. This vastly diminishes the public policy issues associated with cloning.

CONCLUSION

In sum, Jewish law views cloning as far less than the ideal way to reproduce people; however, when no other method is available, it would appear that Jewish law accepts that having children through cloning is a mitzvah in a number of circumstances and is morally neutral in a number of other circumstances. Clones, of course, are fully human, and are to be treated with the full dignity of any human being. Clones are not robots, slaves, or semihumans, and any attempt to classify them as such must be vigorously combated.

In addition, the relationship between the male clonor and the clone is that of father and child, and the relationship between the gestational mother and the child that she bears is one of mother and child.⁹² Where the clonor is a woman, there is a natural tension between her status as a mother and the status of the gestational mother as a mother.⁹³ While I am inclined to think that the gestational mother is the “real mother” according to Jewish law, there is some halakhic discussion that argues that the gestational mother is not the real mother, and the genetic mother is, thus making the clonor the mother. In addition, there is the extremely thoughtful opinion by Rabbi Bleich arguing that both can be the mother. Certainly the woman clonor is to be considered, at the very least, a possible mother (a *safek* mother), such that it would be prohibited for the clone to have a sexual relationship with any of the members of the family of the genetic donor as well as the surrogate mother.⁹⁴

Finally, one recognizes that while cloning science will proceed, some caution is advised. In the face of uncertainty, particularly in matters of progeny and offspring, the Jewish tradition adopts a policy of reducing the risk and minimizing the scope of potential Jewish law violations.⁹⁵ Consistent with this approach, I suggest three safeguards that ought to be followed:

1. In circumstances where a man wishes to clone himself, it would be preferable if his wife carried the child to term. If she cannot carry the child to term, the gestational mother should be either an unmarried Jewish woman or a non-Jew, in that order. In the latter case, a conversion, either *me-`iqar ha-din* or *mi-safek* depending on who is considered the “real” mother, would be needed, and the “mitzvah-ness” of the activity would be vastly diminished.⁹⁶

2. In cases where a woman wishes to clone herself, ideally her egg should be used and she should carry the child to term herself. If she cannot provide the eggs, it is preferable that she carry the child to term. If that is not possible, her eggs should be used, and the gestational mother should be either a non-Jew or an unmarried Jewish woman, in that order. In the former case, a conversion, either *me-`iq ha-din* or *mi-safek*, depending on who is considered the "real" mother would be needed; since there is no mitzvah anyway, a strong claim can be made that it is better to resolve the certainty of parenthood by eliminating the non-Jew's claim to motherhood as a matter of Jewish law through conversion—than create a situation where there are many possible parents, lest one marry one's relatives. Thus the order of the last clause is reversed.
3. In circumstances where persons wishing to clone themselves are not Jewish, Jews should avoid being either the gestational mother or the egg/ovum donor, so as to avoid providing a debatable Jewish identity to one who will not be raised Jewish.

There is a natural tendency to prohibit that which is unknown, and this tendency is itself a morally commendable virtue lest one engage in activities that are prohibited because their consequences are not understood. However, permanently prohibiting that which one does not understand is a regrettable state of affairs. The Jewish tradition imposes a duty on those capable of resolving such matters to do so. This preliminary analysis is submitted in the hope that others will comment and critique it, and Jewish law will develop an established policy concerning a variety of issues relating to cloning.

POSTSCRIPT

The words of Rabbi Judah Loewe (Maharal from Prague) speak eloquently about the power of human creativity to reshape the universe, and how that power was given to humanity at the time of creation. He states:

The creativity of people is greater than nature. When God created in the six days of creation the laws of nature, the simple and complex, and finished creating the world, there remained additional power to create anew, just like people can create new animal species through interspecies breeding. . . . People bring to fruition things that are not found in nature; nonetheless, since these are activities that occur through nature, it is as if it entered the world to be created.⁹⁷

Maharal's point is that human creativity is part of the creation of the world, and this creativity changes the world, which is proper. The fulfillment of the biblical mandate to conquer the earth (*ve-khivshuha*) is understood in the Jewish tradition as permitting people to modify—conquer—nature to make it more amenable to its inhabitants, people. Cloning is but one example of that conquest, which when used to advance humanity, is without theological problem in the Jewish tradition.⁹⁸

NOTES

1. See, for example, J. David Bleich, "Moral Debate and Semantic Sleight of Hand," *Suffolk University Law Review* 27 (1995): 1173.

2. For more on this, see Moses Maimonides, *Mishneh Torah*, Laws of Prohibited Sexual Relations (Hilkhot Issurei Bi'ah), chaps. 1–2.

3. Particularly in light of the call for a moratorium on human cloning and research by the eminent National Bioethics Advisory Commission—which was supported by neither of the Jewish law authorities who testified before the commission—it is vital to develop and explain why Jewish law would not support such an approach. For more on the commission's report, see *Cloning Human Beings: Report and Recommendations of the National Bioethics Advisory Commission* (Rockville, Md., 1997), 107–10.

4. A discussion of the status of individuals produced by cloning in relationship to other members of their "family" is vital in Jewish law whether cloning is permissible, prohibited, or morally neutral. Is a clone a legal child of the clonor? Is a clone a legal sibling of the clonor? Is a clone human? All of these status determinations have nothing to do with the question of whether such conduct is prohibited or permissible or even a good deed that fulfills religious obligation. In every Jewish law discussion, it is not sufficient to address whether such conduct is permitted, prohibited, discouraged, encouraged, or neutral; one must discuss the results of such conduct in all circumstances, even if a violation of the law ensues. Indeed, status determinations are generally unrelated to violations of Jewish law (even as they seem to go hand in hand). Thus one classified as a lunatic (*shoteh*) who has sexual relations with a sibling who is also a legal lunatic produces a child who is a *mamzer* (illegitimate), even as there is no sin.

5. See Maimonides, Laws of Rebellion (Hilkhot Mamrim), 2:1–9.

6. Because of the nature of the Jewish law discourse, the third and fourth sections appear to be in reverse order, as it would appear more logical to discuss permissibility before consequences. However, since in Jewish law the permissibility of any activity frequently depends on the consequences, this order is adopted.

7. See Robert Langreth, "Calf Is Cloned by Wisconsin Cattle Breeder," *Wall Street Journal*, August 7, 1997.

8. See, for example, Mona S. Amer, "Breaking the Mold: Human Embryo Cloning and Its Implications for a Right to Individuality," *UCLA Law Review* 43 (1996): 1659.

9. See Axel Kahn, "Clone Mammals . . . Clone Man," *Nature*, March 13, 1997, 119. See also Langreth, "Calf Is Cloned." As Kahn notes, this is not cloning in the common use of the term but a form of neocloning.

The genetic transmission of mitochondrial disorders (especially the variable expression of disease and exclusively maternal inheritance—a seeming violation of Mendelian principles) is explained by mtDNA coming solely from the egg; see Kenneth R. Miller, "The Fire Within: The Unfolding Story of Human Mitochondrial DNA" (1997), <http://biocrs.biomed.brown.edu/Books/Chapters/Ch%207/Mitos/Mito-Genes.html>. For a more recent review article cataloging various mitochondrial disorders, see Massimo Zeviani and Stefano Di Donato, "Mitochondrial Disorders," *Brain* 127, no. 10 (2004): 2153–72. Though paternal mitochondria are usually eliminated in the early stages of embryonic development, there is increased evidence of nonmaternal mtDNA remaining in the cells (heteroplasmy) as a result of cloning processes (both nuclear transfer and ooplasm transfer), sometimes resulting in severe medical issues; see Carol A. Brenner, H. Michael Kubisch, and Kenneth E. Pierce, "Role of the Mitochondrial Genome in Assisted Reproductive Technologies and Embryonic Stem Cell-Based Therapeutic Cloning," *Reproduction, Fertility, and Development* 16, no. 7 (2004): 743–51.

10. All children of the same woman have the same mitochondrial DNA, which has a higher mutation rate than nucleic DNA. See Kahn, "Clone Mammals."

11. Both the nucleic and the nonnucleic DNA are the same. See Kahn, "Clone Mammals."

12. Such identical twins can be artificially induced by blastomere separation. The propriety of such separations, while widely debated in the popular press, would seem uncontroversial in Jewish law, if done for the sake of procreation and as a last alternative when other egg sources are not available. See Kahn, "Clone Mammals."

13. The exact role of nonnucleic DNA in character formation is unknown at this time, and how close the phenotypical resemblance will be is uncertain; however, the current state of technology indicates that the vast amount of one's genetic characteristics are determined by one's nucleic DNA.

14. In theory the gene donor, egg donor, and gestational mother could all be the same person, if the clonor is a woman. Obviously a man can only be a nucleic DNA donor.

15. This is not the same as asserting that the gestational mother has no impact on the development of the child. Without a doubt the gestational mother has a significant impact on the development of the fetus through her hormonal releases and other environmental factors through the placenta.

16. Or perhaps the two women who donated the nuclear DNA and mitochondrial DNA.

17. This is not quite true when the genes are implanted in the egg of another, as the nonnucleic DNA would be different.

18. See note 19 and accompanying text.

19. This issue is discussed at great length in Michael J. Broyde, "The Establishment of Maternity and Paternity in Jewish and American Law," *National Jewish Law*

Review 3 (1988): 117–52 (comparing the response to artificial insemination, surrogate motherhood, adoption, and transsexual surgery by Jewish law, American law, and classical common law).

An extraordinarily thoughtful and detailed study of how the various assisted reproductive methods are viewed by both Jewish and American law has been conducted by Dr. Chaim Povarsky, professor of law and director of the Institute of Jewish Law at Touro Law Center, entitled “Regulating Advanced Reproductive Technologies: A Comparative Analysis of Jewish and American Law,” *University of Toledo Law Review* 29 (1998): 409. This article surveys many of the issues that are preliminary steps toward a discussion of cloning, such as AIH/D, IVF, surrogacy, and other assisted reproductive techniques.

20. See Broyde, “Establishment of Maternity and Paternity,” 139–40.

21. See Rabbi J. David Bleich, “In Vitro Fertilization: Questions of Maternal Identity and Conversion,” *Tradition: A Journal of Orthodox Jewish Thought*, 25, no. 4 (1991), 82–102, esp. 86–88.

22. See Rabbi Ezra Bick, “Ovum Donations: A Rabbinic Conception of Maternity,” *Tradition*, 28, no. 1 (1993), 28–45. Rabbi Bleich responded in “Maternal Identity Revisited,” *Tradition*, 28, no. 4 (1994), 52–56. See also Abraham S. Abraham, *Nishmat Avraham* (Jerusalem, 1995), *Even ha-Ezer* 22:2, p. 186 in appendix volume.

23. See notes 18–21 and accompanying text.

24. See, for example, Rabbi Eliezer Waldenberg, *Tsits Eliezer* 15:45.

25. Gen. 1:28, 9:1, 35:11.

26. See Isa. 45:18.

27. This is analogous to the sexual relationship between a Jew and a non-Jew, which Jewish law maintains produces no legal relationship between the father and the child. Whether the father be Jewish and the mother not, or the reverse, the Jewish legal tradition denies paternity can be halakhically established in such cases.

28. Rabbi Yitzchok A. Breitowitz, “Halakhic Approaches to the Resolution of Disputes Concerning the Disposition of Preembryos,” *Tradition* 31, no. 1 (1996): 64–92, esp. 65–66 (notes omitted). In fact, there are five techniques to assist in reproduction: (1) in vitro fertilization (IVF); (2) gamete intrafallopian transfer (GIFT); (3) intrauterine insemination (IUI); (4) zygote intrafallopian transfer (ZIFT); and (5) intracytoplasmic sperm injection (ICSI). From a halakhic perspective, if IVF fulfills the mitzvah of being fruitful (or its rabbinic cognate) and establishes paternity, then the remaining ones also logically must, as IVF involves the most activity outside the human body, in that fertilization occurs in a petri dish.

29. This stands in sharp contrast to the approach of canon (Catholic) law, which is succinctly stated by the well-known (late) Catholic theologian, John Cardinal O’Connor of New York. He writes:

Is cloning human beings morally permissible? Categorically no . . . I offer three, not exhaustive, basic reasons for my belief:

Cloning is a drastic invasion of human parenthood. By design, a clone technically has no human parents, hence creating a clone violates the dignity

of human procreation, the conjugal union (marriage) and the right to be conceived and born within and from marriage. A clone is a product made, not a person begotten.

The Scottish cloned sheep, Dolly, came into being on the 300th attempt. The first 299 attempts essentially fell apart. Switch to human beings . . . How many human beings will be destroyed before whose ideal is achieved? Who does the cloning? Who owns the clones? Are they to be marketed? Is the idea of clone-slaves, or clones created to meet particular needs of warfare, ridiculous? I think not . . .

Cloning will never be a poor people's campaign. Could it become an entitlement requiring public subsidy? Of itself it cures no pathology. Thus we are not doctoring the patient but the race. ("Will Cloning Beget Disaster?" *Wall Street Journal*, Friday, May 2, 1997, A1.)

30. See notes 19–29 and accompanying text.

31. The duty is to reproduce (literally, "be fruitful"; in Heb., *peru u-revu*), or its rabbinic analog (literally, "to inhabit"; Heb., *la-shevet*). The argument, advanced by many, is that *la-shevet* is fulfilled even when *peru u-revu* is not, as *la-shevet* is a result-oriented mitzvah, whereas *peru u-revu* is an action-oriented mitzvah with a specific process.

32. See Rabbi Aaron Soloveitchik, "Test Tube Babies," *Or ha-Mizrah* 29 (1980): 128.

33. Mitochondrial DNA contains the encoded information for a variety of proteins or protein portions. How changes in one person's mitochondrial DNA would subtly affect that person's characteristics is quite unknown.

34. See Bleich, "In Vitro Fertilization."

35. Rabbi Joseph Babad (1800–1874), *Minḥat Hinukh* 189(1).

36. See *Encyclopedia Talmudit*, s.v. *Av*, 1:5–18; and *Em*, 2:21–26.

37. BT *Yevamot* 97b.

38. See Rashi to *Yevamot* 97b, s.v. *teomim*.

39. See *Shulḥan `Arukh*, *Yoreh De`ah* 269:1.

40. See *Shulḥan `Arukh*, *Even ha`Ezer* 15:10.

41. Fertilized eggs that have been split (blastomeres) produce induced identical twins.

42. See *Yevamot* 97b.

43. This is a significant issue in Jewish law, since it has ramifications as to whether the production of clones is a fulfillment of the mitzvah to "be fruitful and multiply" and whether a clone can marry a natural daughter of the clonor.

44. Indeed the concluding paragraphs of the previous section, discussing clones of identical twins, makes this clear.

45. Consider the case of the egg of a Jewish woman fertilized by the sperm of a non-Jewish man and then implanted into the uterus of another Jewish woman. Jewish law would assign paternity to no one and face a question of maternity similar to the case of surrogate motherhood described in the first part of section 3. The fact that there is no father cognizable according to Jewish law would affect in no way,

shape, or form the Jewish law disagreement between the two women as to who the mother is.

46. Perhaps only as a stricture (*le-humra*); see Bleich, "In Vitro Fertilization," 93–95, 102 n. 43. This doubt is likely to continue even when the clonor is Jewish and the egg donor is a non-Jew, as the egg donor's religious identity is also relevant, at least once one considers the possibility of multiple mothers.

47. BT Sanhedrin 65b.

48. For more on golems in the Jewish tradition, see Moshe Idel, *Golem: Jewish Magical and Mystical Traditions on the Artificial Anthropoid* (Albany, N.Y., 1990), 213–32.

49. Rabbi Chaim Steinmetz, "Genetic Engineering: Some Halachic and Theological Reflections" (manuscript on file with the author, 1995). My thanks to Rabbi Steinmetz for sharing his article with me.

50. For an elaboration on this, see Eleazar Fleckeles, *Teshuvotme-'Ahavah* 53, who discusses whether a significantly deformed child is human and concludes that obviously the child is. For a tentative contrary assertion, see Ya'akov H̄agiz, *Halakhot Ketanot* 37–38, which is responded to in Israel Meir Kagen, *Mishnah Berurah* 329, s.v. *ela*.

51. *Encyclopedia Talmudit*, "Adam," 1:165. See also Rabbi Tsvi Ashkenazi, *Hakham Tsvi* 94. Rabbi Jacob Emden, *She'elat Ya'avets* 2:82, quotes others who compare such a creature to an animal—it is alive but not human.

52. Compare Rabbi Tsvi Hirsh Shapira, *Darkhei Teshuvah* (on Yoreh De'ah 6:11), and Rabbi Samuel Adels, *Maharsha* (commenting on Sanhedrin 65a), with Gershon H̄anokh Henikh, *Sidre Tohorot, Ohalot* 5a, and Rabbi Joseph Rosen, *Tsafnat Pa'neah* 2:7.

53. See Rabbi Adels, *Maharsha*, commenting on Sanhedrin 65a.

54. For more on this, see Azriel Rosenfeld, "Human Identity: Halachic Issues," *Tradition*, 16, no. 3 (1977), 58–74; and Azriel Rosenfeld, "Religion and the Robot," *Tradition*, 8, no. 3 (1966), 15–26.

55. Y Niddah 3:2.

56. This might, however, indicate that a fully incapacitated clone might not be human. See Rabbi Moshe Hershler, "Genetics and Test Tube Babies," in *Halakhah u-Refuah* (Jerusalem, 1980), 4:90–95.

Consider two talmudic discussions. There seems to be a talmudic discussion about mermaids, and whether they are human or kosher in Bekhorot 8a, where Rashi (s.v. *benei yama*), who has a slightly different version of the text, states that the Talmud is referring to "fish in the sea who have half human and half fish features, called 'sirens' in old French." Rashi's version seems to claim that these mermaids can be impregnated by humans and might have the legal status of humans. Rabbi Daniel Eidensohn writes to this author that "the legends of mermaids were common in Rashi's time in the Legends of Charlemagne. They were also discussed by Plato. There is also a principle that 'whatever is found on land there is a corresponding creature in the sea except the *hulda* (weasel)'; BT H̄ullin 127a, JT Shabbat 14a." However, both the Tosefta and the Talmud, in the versions we have, seem to understand the discussion as being about how long dolphins carry their young to term, with no reference to mermaids, pseudohumans, or interspecies pregnancies. If

Rashi's version is the proper one, one could claim from the Talmud that mermaids are not classified as human but as nonkosher fish. A further investigation of mythology and mermaids would be needed to determine whether this has any relevance.

So too there seems to be a Mishnaic discussion of the humanness of orangutans (in Hebrew, *adnei ha-sadeh*) in Kil'ayim 8:5. Both Rabbi Israel Lipschitz (Tiferet Yisrael commentary) and Maimonides (Commentary to the Mishnah) appear to grant these creatures human status with regard to certain issues. This is seconded by the famous remarks of Rabbi Akiva Eiger concerning gorillas, where he indicates genuine doubt as to whether such animals are human or not; see glosses of R. Akiva Eiger on *Shulḥan `Arukh*, Yoreh De`ah 2, s.v. *kof*.

57. See *Encyclopedia Talmudit*, no. 51.

58. A fairly clear proof that the golems were not considered human is the fact that they were destroyed in the golem tales without any thought, when their function was finished; in that sense they were not considered human, were not governed by Jewish law, and could be treated as inanimate objects.

59. See Breitowitz, "Halakhic Approaches to . . . Preembryos," 69–80.

60. For more on this, see Breitowitz, "Halakhic Approaches to . . . Preembryos," 69–80.

61. See Bleich, "In Vitro Fertilization," 93–95.

62. Such is currently science fiction and not fact.

63. See *Shulḥan `Arukh*, Even ha-`Ezer 1:3. While this has not been done for five hundred years, the rationale for not engaging in compulsion relating to the obligation to be fruitful and multiply has nothing to do with the fact that this obligation is not as a matter of theory compellable in Jewish law. See Rabbi Moses Isserles, Rama, commenting on Jewish law compelling one to marry and have children.

64. Thus, according to this approach, a person who has already fulfilled the obligation to be fruitful and multiply and is not married is under no obligation to remarry one who can have more children. Such conduct, however, is a discretionary mitzvah and should be done when possible. This explains the rulings of Rabbis Karo (Mehaber) and Isserles (Rama), *Shulḥan `Arukh*, Even ha-`Ezer 1:8, both of whom permit marrying a woman who cannot have children in a variety of situations, including, Isserles writes, to avoid disputes. Certainly Rama would not permit one to avoid having the minimum required number of children to avoid confrontation; see comments of Rabbi Elijah of Vilna (Gra), *Biur ha-Gra*, Even ha-`Ezer 1:22, who notes this. For a contrary view, see Maimonides, Laws of Marriage (Hilkhot Ishut) 15:16. For a lengthy discussion of this, see Rabbi Yehuda Henkin, *Benai Banim* 1:31, 2:38.

This discussion does not address issues related to methods of contraception, which is a completely different topic. However, marriage to one unable to have children—a method of contraception at some level—is permitted in certain circumstances after one has fulfilled the *mitzvah hiyyuvi*. For more on contraception and Jewish law, see David M. Feldman, *Birth Control in Jewish Law*, 3d ed. (New York, 1995).

65. This is not to be confused with a reproductive technology that has some aspects of prohibition (*issur*) and some aspects of prescription (*mitzvah*), such as artificial insemination of the husband's sperm. That type of activity involves a bal-

ance of whether the aspect that is proscribed is outweighed by the fulfillment of the mitzvah that is prescribed.

Consider AIH or IVF/H. Since the vast majority of halakhic authorities accept that one does fulfill the obligation to "be fruitful and multiply" by having children through artificial insemination and also accept that, at the very least, artificial insemination is a breach of the rules of modesty found in the Jewish tradition and perhaps much more, the halakhic discussion of artificial insemination of the husband's sperm entails whether the balance between the violation on the one hand of the rules of modesty and perhaps the prohibition of masturbation is outweighed by the fulfillment of the mitzvah to be fruitful and multiply. As noted above, most halakhic authorities are in favor of engaging in such artificial insemination with the husband's sperm. Not surprisingly, those who think that the husband fulfills no mitzvah when producing children other than through sexual relations are also of the opinion that such conduct is morally prohibited because the ethical balance—the halakhic balance—is skewed in favor of prohibition, since no mitzvah is fulfilled.

66. See Rabbi Moses Feinstein, *Igrot Mosheh*, Even ha-`Ezer 1:10, 71; Even ha-`Ezer 2:11; Even ha-`Ezer 3:11. For reasons beyond the scope of this chapter, it is proper that the sperm donor be a non-Jew. Many argue with the approach of Rabbi Feinstein, although this is not the place for a discussion of this issue, which is cited merely as an example of such conduct. For a detailed discussion of this issue and a review of the various approaches, see Bleich, "In Vitro Fertilization," and the exchange between Rabbis Bick and Bleich cited in note 22.

67. See Rabbi J. David Bleich, "Abortion in Halakhic Literature," in *Contemporary Halakhic Problems* (New York, 1977) 1:325–71.

68. One could, in addition, argue that to fulfill the mitzvah of *peru u-revu* or *la-shevet*, one must engage in a sexual act, and absent a sexual act, no mitzvah is fulfilled. However, as noted above in the first part of section 3, that approach has been rejected by most decisors, and is no more (and no less) coherent in the case of cloning than in the case of IVF.

69. See Nahmanides (commenting on Lev. 18:6) and the notes written by Rabbi Chavel, who quotes an authority who adopted this view; Charles Ber Chavel, *Nahmanides' Commentary on the Torah* (Jerusalem, 1960) (in Hebrew). On the general issue of using Nahmanides' commentary on the Bible to frame these issues, see Rabbi Moses Feinstein, *Dibrot Mosheh*, Ketubot (New York, 1993), 2:238–45.

70. Whether Jewish law would view this case differently in a circumstance where a fully cloned child went from petri dish to incubator to feeding tube without being implanted in the body of another is a vastly more complex question; perhaps indicating that in circumstances in which there is no mother and there is no father, there can be no fulfillment of the obligation to be fruitful and multiply.

71. See *Shulhan `Arukh*, Even ha-`Ezer 1:7. As explained in *Ba'er Heitev* (commenting on Even ha-`Ezer 1:11), the converted non-Jew in this case is exempt from the obligation to be fruitful and multiply, even though he has not—according to Jewish law—yet fulfilled this obligation at all. Rather, because he has children who are "called after his name," he is exempt from fulfilling the obligation to procreate. A clone could be such a case exactly. Producing a clone could be sufficient fulfillment

of the obligation to procreate so that—even though one has not actually fulfilled the mitzvah—one has exempted oneself from ever having to fulfill the obligation. (Such logic was first suggested to me by Rabbi J. David Bleich.)

72. There is a dispute about this issue; compare Rabbi Moses ben Isaac Lema of Krakow, *Ḥelqat Meḥoqeq*, with Rabbi David Halevi, *Turei Zahav* (Taz), and Rabbi Samuel ben Uri Shraga Feibusch, *Beit Shmu'el* (all commenting on Even ha-`Ezer 1:7).

73. See *Shulḥan `Arukh*, Even ha-`Ezer 1:13. This line of reasoning provides an argument that the Jewish tradition does not insist on the combination of genetic material from two people—with each side providing half the genetic material as a sine qua non for fulfilling the mitzvah to reproduce—as the mitzvah is only obligatory on one of the two parties. The woman's contribution is necessary, but not a mitzvah. Consider the science fiction case of a drug that permitted a sperm cell to self-replicate to the diploid number thus giving it a full complement of forty-six chromosomes, and the sperm cell was capable of replicating in a way that allowed it to fertilize an egg naturally. Would there be any doubt that the man who produced that sperm and fathered a child (which is not a clone at all) has fulfilled the mitzvah of *peru u-revu*?

74. Let me rephrase. It is markedly easier to argue that conduct is prohibited according to Jewish law in cases where the scale weighing its positive and negative components clearly contains nothing on the positive side of the scale.

75. By the term "generic prohibition," I mean an activity that definitionally violates Jewish law, such as the prohibition to kill, the prohibition to waste seed, the prohibition of adultery, or other specific prohibitions.

76. See Rabbi Jacob Breish, *Ḥelqat Ya`akov* 3:45–48. Similarly, see Rabbi Yeḥiel Ya`akov Weinberg, *Sridei Eish* 3:5.

77. One writer recently suggested that there was a problem with killing the nuclear material in the unfertilized egg, as this is a type of abortion. This seems to be mistaken, as the egg/ovum is removed from the egg donor prior to fertilization. As ably demonstrated by Rabbi Breitowitz, there might be serious halakhic problems associated with destroying eggs after they are fertilized, but not before they are fertilized; Breitowitz, "Halakhic Approaches to . . . Preembryos," 67.

78. The fact that this activity is a mitzvah if the genetic donor—the clonor—is a man does not indicate that such cloning must or should be done according to Jewish law. There is a wealth of literature indicating that a man is under no religious duty to engage in any reproductive technique other than that found in the course of normal marital relations. Just as artificial insemination using the husband's sperm is not halakhically obligatory, so too cloning would certainly not be obligatory in the Jewish tradition. The most that could be said is that cloning is encouraged in the Jewish tradition when it is the only way for a man to reproduce. This differs from the obligation to procreate through marital relations with one's spouse, which is a duty—an obligation according to Jewish law.

79. See *Shulḥan `Arukh*, Hoshen Mishpat 420:1–3.

80. For a survey of these issues in the context of patenting a nonhuman life form, see Arie P. Katz, "Patentability of Living within Traditional Jewish Law: Is the Harvard Mouse Kosher?" *American Intellectual Property Law Association Quarterly*

Journal 21 (1993): 117, which reviews many different theories of Jewish patent and copyright law and the patentability of life forms.

81. Consider the case of a woman who suggested conceiving a child in order to abort it and obtain fetal brain tissue to help treat her father, who has Parkinson's disease.

82. See the fourth part of section 3, "The Artificial Anthropoid."

83. It has been reported to me that such is the position of Rabbi Meir Lau, the current chief rabbi of Israel, although I have been unable to verify these reports. News reports state that "Israeli Chief Rabbi Meir Lau said the cloning of living creatures is prohibited by Jewish religious law. 'The use of genetic engineering to create life is totally prohibited,' the rabbi said during a conference at Tel Aviv's Bar-Ilan University" ("Chief Rabbi Says Animal Cloning Violates Jewish Law," *Agence France-Presse*, March 5, 1997). However, subsequent reports indicate that the "Chief Rabbinate doesn't reject genetic engineering in principle, but limits must be set, Chief Rabbis Eliahu Bakshi-Doron and Yisrael Lau told the Knesset Science and Technology Committee at Hechal Shlomo on Monday" (Judi Siegel, "News in Brief: Chief Rabbis Set Limits to Cloning," *Jerusalem Post*, April 2, 1997, 3).

84. *Hora'at sha`ah, le-esor dvar mutar.*

A recent article reported:

Rabbi Moshe Tendler, professor of medical ethics, talmudic law and biology at Yeshiva University in New York, sees other potential good use for human cloning. In theory, the Orthodox scholar might permit clone(d) children when a husband cannot produce sperm. But he believes that the danger of abusing the science is too great to allow its use. As a Jew, he lives in the historical shadow of the Nazi eugenics program, in which people with "undesirable" traits were weeded out of society, forbidden to have children and ultimately killed . . . "The Talmud says that man has to learn to sometimes say to the bee, 'Neither your honey nor your sting.' Are we good enough to handle this good technology? Of course we are, if we can set limits on it. And when we can train a generation of children not to murder or steal, we can prepare them not to use this technology to the detriment of mankind." (Ann Rogers-Melnick, "Cloning a Difficult Issue for Churches," *Pittsburgh Post Gazette*, March 1, 1997, A1.)

85. Robert Langreth stated:

In producing the first clone of an adult mammal, researchers plied a seemingly simple technique to achieve what many thought to be impossible. Here's how it worked:

- Researchers took mammary-gland cells culled from an adult sheep, put them into a test tube and forced the cells into an inactive state by limiting their intake of nutrients.
- Next, they took unfertilized eggs from female sheep and mechanically removed the DNA-containing nucleus from each egg.

- They then used standard lab techniques to insert 277 of the adult DNA cells into 277 eggs.
- Of these fused egg cells, only 29 survived for a few days and were surgically implanted into the wombs of 13 ewes.
- One of the 13 sheep became pregnant and gave birth to a lamb that was an exact genetic replica of the adult donor, carrying none of the mother's genes.

(Robert Langreth, "Cloning Has Fascinating, Disturbing Potential," *Wall Street Journal*, February 24, 1997, B1.)

The argument is that 276 fertilized eggs were wasted in the process of producing one live birth.

86. See Breitowitz, "Halakhic Approaches to . . . Preembryos," 69–70.

87. See BT Sanhedrin 38a and Berakhot 58a. Rabbi Judah Loewe (c. 1525–1609) also indicates that genetic diversity is part of the divine plan; see his *Derekh Hayyim* 4:204 and sources cited in note 97.

88. See Menachem Elon, *Jewish Law: History, Sources, Principles* (Philadelphia, 1994), 1103–1204.

89. See, generally, Rabbi J. David Bleich, "Survey of Recent Halakhic Periodical Literature: Compelling Tissue Donations," *Tradition*, Summer 1993, 59–89. The rationale is that such donations (which are not really donations according to Jewish law, as they can be compelled) are neither statistically harmful nor particularly painful. Thus one who engages in this activity fulfills the biblical obligation not to stand by while his neighbor's blood is shed. This activity is compulsory in the same way one must jump into the water to save another who is drowning if one knows how to swim and such activity poses no danger.

90. *Ta' anat ba' inah hutra le-yadah* (in the sense that the divorcing spouse wishes to have a child to "lean on" and one day bury her); see Yevamot 65b, *Shulhan `Arukh*, Even ha-`Ezer 154:6–7; and Rabbi Yehiel Mikhel Epstein, *Arukh ha-Shulhan*, Even ha-`Ezer 154:52–53.

91. The birth of the child is itself a fulfillment of the mitzvah to be fruitful and multiply, and the child's donating bone marrow or blood or other replenishable body fluids that can save the life of another—particularly a parent—is a second good deed.

92. The status of the egg/ovum donor is uncertain in this case, and perhaps would depend on how significant the contribution of mitochondrial DNA is in the development of a person. One could analogize the egg donor to the gestational mother, although most of the indicators of motherhood incline one not to do that. The most fluent analogy would be to the genetic donor (the clonor), but an open scientific question remains as to whether the egg/ovum donor is contributing something significant. If the scientific data indicates that the mitochondrial DNA is significant, then logic would analogize the egg donor to the genetic donor.

93. And the status of the egg/ovum donor as mother; see text following note 62.

94. Sexual relations with the egg donor would be prohibited as well, if it turns out that mitochondrial DNA is significant. Absent clarity as to the facts, a stricter policy concerning matters of incest and violations of sexual ethics would be better.

95. See *Shulhan `Arukh*, Yoreh De`ah 242:14.

Rabbi Moses Feinstein, in his insightful responsa (*teshuvot*) addressing artificial insemination, suggests that as a failsafe mechanism—to accommodate the concerns of others who understand the halakhah differently than he and not create illegitimacy even according to some authorities—semen from non-Jews should be used for the insemination, as that will eliminate the possibility of *mamzerut*, since the child of a married Jewish woman and a non-Jew is legitimate. He writes this even though he personally is quite convinced that no such *mamzerut* problem arises even with Jewish sperm. See Rabbi Moses Feinstein, *Igrot Mosheh*, Even ha`Ezer 1:10, 71; Even ha`Ezer 2:11; Even ha`Ezer 3:11. For another vigorous defense of his position, see also Rabbi Feinstein, *Dibrot Mosheh*, Ketubot 233–48. Such a policy—of halakhic risk reduction given uncertainty—is a wise one, and is worthy of imitation in these circumstances as well.

96. In this regard cloning is better than AIH, in that there is no problem of *hash-hatat zera`*, perhaps permitting this conduct even when the child is born a non-Jew.

97. Rabbi Judah Loewe of Prague, *Be'er ha-Golah* (Jerusalem, 1971), 38–39. He continued:

There are those who are aghast of the interbreeding of two species. Certainly, this is contrary to Torah which God gave the Jews, which prohibits inter-species mixing. Nonetheless, Adam (the First Person) did this. Indeed, the world was created with many species that are prohibited to be eaten. Inter-species breeding was not prohibited because of prohibited sexuality or immorality. . . . Rather it is because (Jews) should not combine the various species together, as this is the way of Torah. As we already noted, the ways of the Torah, and the (permissible) ways of the world are distinct . . . Just like the mule has within it to be created (but was not created by God) . . . but was left to people to create it.

Even forms of creativity that Jewish law prohibits for Jews are not definitionally bad. Some are simply prohibited to Jews. My thanks to Rabbi Yitzchok Adlerstein of Los Angeles for this reference.

98. Gen. 1:28. Lord Immanuel Jakobovits stated:

We can dismiss the common argument of “playing God” or “interfering with divine providence” [in reference to cloning]. Every medical intervention represents such interference. In the Jewish tradition this is expressly sanctioned in the biblical words: “And he [an attacker] shall surely cause him [his victim] to be healed” (Exod. 21:19). The Talmud states: “From here we see that the physician is given permission to heal.” But such “interference” is permitted only for therapy, not for eugenics—for correcting nature, not for improving it. (“Will Cloning Beget Disaster?” A14)