

Survey of Recent Halakhic Periodical Literature

STEM CELL RESEARCH

I. THE PROBLEM

Other than the ongoing debate concerning the moral legitimacy of abortion, the heated controversy that erupted during the summer of 2001 regarding government funding of embryonic stem cell research is without parallel in bioethical discourse. The vehemence of the debate is such that each side accuses the other of gross insensitivity to the value of human life. Those who favor such research point to the potential for developing cures for diabetes, Parkinson's disease, senility and other life-threatening maladies and accuse their opponents of crass disregard for the lives that might be saved. Those who oppose research upon developing embryos assert that snuffing out nascent human life is as immoral as harvesting organs from terminally ill patients. By their lights, such research involves destroying some human lives in order to preserve others.

It should be emphasized that the controversy is limited to research involving utilization of stem cells derived from human embryos. Ongoing research involving stem cells obtained from the placenta or from adult cells does not pose a moral dilemma and may ultimately prove to be more fruitful than embryonic stem cell research.¹ However, many scientists believe that use of embryonic stem cells is crucial and is more likely to yield beneficial results.²

The moral issue is reducible to precisely the same set of issues upon which, for society at large, the abortion debate revolves. Is or is not a fetus or an embryo a human being? If yes, at what stage of gestation does it acquire that status? If the fetus or the embryo is indeed a human entity, rare is the ethicist who would sanction the overt destruction of a human being for any purpose, no matter how laudatory. If it is not a human entity, it is argued, no countervailing argument can prevail against the compelling moral value inherent in the preservation of human life.

Elsewhere,³ this writer had examined in detail the diverse views of various rabbinic scholars with regard to feticide. To put the matter as succinctly as possible, destruction of a fetus by a non-Jew bound by the Noahide Code is a capital crime. For Jews, feticide is a form of non-capital homicide, at least according to Rambam; other authorities regard destruction of a fetus as an infraction of Jewish law but regard it as constituting a less serious transgression. For Rambam, an abortion can be considered only for the purpose of preserving the life of the mother from a threat posed by the fetus; for other authorities, an abortion may be performed for somewhat less compelling reasons as well.⁴

II. SCIENTIFIC RESEARCH

Stem cell research is certainly of no benefit to the mother, i.e., the donor of the ovum, whose life is not endangered. Hence, if feticide is a form of homicide, preservation of life can not be invoked as a justification. Lesser prohibitions are suspended only in situations in which there is an identifiable danger as well as a direct cause and effect relationship between the otherwise forbidden act and the life-saving effect. The classic examples are those offered by R. Ezekiel Landau, *Teshuvot Noda bi-Yehudah, Yoreh De'ah, Mahadura Tinyana*, no. 210. If such is the medically prescribed therapy, a mother may—indeed must—build a fire and heat milk on the Sabbath on behalf of a seriously ill infant. But she may not make a fire or boil milk simply in order to be prepared for the unlikely eventuality that the child may become seriously ill during the course of the Sabbath day. An autopsy may be performed in the anticipation of obtaining information that may be useful in the life-saving treatment of an already ill, similarly afflicted patient but may not be performed with the hope that some item of information will be obtained that may be of benefit at some time in the future. Moreover, halakhic restrictions are suspended in anticipation of preserving life only in the case of a *refu'ah bedukah*, i.e., a therapeutic procedure known to be efficacious or with regard to which there is cogent reason to presume it to be efficacious.⁵ Thus, the very nature of virtually all scientific research is such that Sabbath restrictions, for example, may not be disregarded in order to enhance the likelihood of success in such endeavors. Despite the fact that it may be predicted with certainty that a successful outcome of a research endeavor will save lives and hence the situation may be tantamount to that of a *holeh be-faneinu*, nevertheless, at the research

stage the endeavor almost by definition involves a *refu'ah she-einah bedukah*.⁶ Hence no rabbinic authority has argued that a scientist may engage in activities prohibited on *Shabbat* in the course of conducting research on stem cells just as no one has argued that Sabbath restrictions are suspended for purposes of cancer investigation or the like. By the same token, no other prohibition may be ignored in order to engage in such research. Accordingly, stem cell research can be sanctioned by Halakhah only if it involves no infraction associated with the destruction of a fetus.⁷

Moral responsibility is readily perceived in the context of direct, proximate causal relationships. Obligations in less proximate situations are not at all obvious. For example, is a person obligated to develop life-saving skills so that he can succor others in time of need? Certainly, acquisition of such skills should be encouraged and is surely deserving of approbation. But is it incumbent upon any individual to acquire such skills? Society as a whole may well be obligated to train lifeguards and to post them at public beaches, but no individual need necessarily feel obligated to make this profession his life vocation. Similarly, the training and deployment of policemen, firemen, lifeguards, etc. in anticipation of potential emergencies is a social rather than a personal obligation.

A similar distinction may be employed in resolving dilemmas arising from conflicting moral duties. May a person on his way to a class in first-aid instruction ignore the plight of a dying man on the plea that he must perfect his skills which may enable him to rescue a greater number of persons at some future time? One's instinctive response is a clear-cut negative. No person may plead that engaging in an activity designed to advance future societal benefits provides justification for ignoring an immediate responsibility. Immediate needs create immediate obligations. Anticipated needs do not generate immediate, compelling obligations. The "here and now" test is a general rule of thumb which may be applied to most situations requiring an ordering of priorities.

The obligation of society at large is, however, much broader. This enhanced obligation is reflected in a statement of the Gemara, *Bava Batra* 7b, which is cited as definitive by *Shulhan Arukh, Hoshen Mishpat* 163:1. Jewish law provides that the inhabitants of a city can compel one another to contribute the funds necessary for the erection of a wall around the city and for a door in the wall, as well as for bolts to secure the doors. Construction of the wall is designed to fortify the city against armed attack. Since the wall is constructed in order to preserve the lives of the inhabitants, all the townspeople may be compelled to contribute

equally because all individuals derive equal benefit from the fortifications.

Were this an ordinary case involving an immediate danger to human life, each person would be required to do all in his power to erect the requisite fortifications. At best, he would have a cause of action against his fellow townspeople for reimbursement of funds expended on their behalf—but each person capable of doing so would be required to act on his own initiative and to act without delay. Such an individual obligation does not exist because, in the case in question, there is no imminent danger. Fortifications are erected, not to protect against present danger, but in anticipation of future contingencies.

Precaution against future dangers is not an individual obligation but a societal obligation. The obligations of society are not only greater than those of an individual but are qualitatively different as well. An individual must respond to an immediate danger. While every individual aware of the danger and capable of alleviating that danger is obligated to respond, such individuals, no matter how large their number may be, respond as individuals rather than as members of a society. However, no person is obligated to respond to an as yet non-existent danger. The individual's responsibility to act is limited to a danger which is clear and imminent.

Society as a whole must see to it that there are lifeguards, physicians, and firemen trained to perform their functions and must provide facilities and incentives for the training of physicians. Any member of society may demand that a wall be built or that locks and bolts be provided. The individual who expresses a legitimate concern with regard to possible danger which may be alleviated and a legitimate way of doing so must be heard and his demands fulfilled. His demand is not for fulfillment of the duty of *pikuah nefesh*, which is personal in nature, but for fulfillment of a societal obligation flowing from its social context. Individuals form societies in order to benefit from social amenities that they would experience extreme difficulty providing for themselves as individuals. Prevention of future danger is certainly such an amenity.

Development of therapeutic agents is no different from erection of fortifications; both are designed to forestall future loss of life. So long as a *refu'ah bedukah*, i.e., a tried and tested therapy, does not exist there is no obligation to attempt a cure. Nevertheless, pharmaceutical research designed to develop what will become a *refu'ah bedukah* is no less of a social amenity than construction of thoroughfares and plazas and is quite properly the responsibility of society at large.

Elimination of health hazards, development of pharmaceutical agents and research designed to prevent and cure disease are entitle-

ments that may justly be demanded by members of the body politic. Societies are established for the purpose of fulfilling such needs no less so than for the provision of social and recreational amenities. Such needs must be met by society by virtue of the reciprocal obligations into which its members have entered. But fulfillment of such obligations is not mandated by the *mizvah* of *pikuah nefesh*. The differing nature of those diverse obligations is manifest in one striking manner: As noted earlier, halakhic strictures are suspended for purposes of *pikuah nefesh*; they are not suspended for purposes of avoiding a future danger or for an activity that is not known to be causally connected to elimination of sickness. Thus, even on *Shabbat*, the physician may do whatever is necessary for the treatment of a seriously ill patient, but on *Shabbat* neither the patient nor the physician may engage in activities forbidden on the day of rest even in hopeful anticipation of hastening a discovery that may ultimately save countless lives.

Scientific endeavors designed for purposes similar to those of stem cell research are certainly laudable. Members of society may not only urge but may rightfully demand that the cost of such research be defrayed by the public treasury. But because they do not fall within the parameters of *pikuah nefesh* no halakhic violation can be sanctioned even for the purpose of furthering those noble goals.

It is thus readily apparent that the prohibition against feticide would serve to prohibit destruction of a fetus even for purposes of scientific research. Accordingly, that consideration would appear to preclude the legitimacy of experimentation utilizing embryonic stem cells. Nevertheless, a number of considerations have been advanced which, if germane, would serve to establish that the procedures involved in embryonic stem cell research do not represent an infraction of the prohibition against feticide.

III. FETICIDE DURING EARLY PERIODS OF GESTATION

A. WITHIN THE FIRST FORTY DAYS

There is a significant difference of opinion among rabbinic authorities with regard to whether the prohibition against destroying a fetus is applicable within the first forty days of gestation.⁸ There is at least one talmudic text which, upon first reading, seems to provide strong support for the permissive ruling. The Gemara, *Yevamot* 69b, records a declaration of Rav Hisda to the effect that the daughter of a *kohen* who

becomes widowed shortly after marriage to an Israelite may partake of *terumah* during the first forty days following consummation of her marriage. Permission to eat *terumah* is a privilege accorded to an unmarried daughter of a *kohen* and to a widowed daughter who has born no children to her Israelite husband. The concern in the case presented to Rav Hisda is that the widow, unknown to herself, may be pregnant with child, in which case *terumah* would be forbidden to her. Rav Hisda argues that, whether or not she is pregnant, the widow may certainly be permitted to eat *terumah* during the initial forty day period. If the widow is not pregnant there is no impediment to her partaking of *terumah*; if she is pregnant the embryo is considered to be "mere water" until after the fortieth day of pregnancy. Accordingly, the widow may continue to eat *terumah* for a full forty days following her marriage. Rav Hisda's ruling appears to indicate that, in the eyes of Halakhah, fetal development within the initial forty days of gestation is insufficient to warrant according the fetus independent standing.⁹

Another source for this distinction is the Mishnah, *Niddah* 30a, which declares that a fetus aborted less than forty days following cohabitation does not engender the impurity of childbirth ordained by Leviticus 12:25.¹⁰ Similarly, according to *Mishneh le-Melekh, Hilkhot Tumat Met* 2:1, the defilement associated with a dead body is not attendant upon an embryo expelled during the first forty days of gestation. Furthermore, in the opinion of many authorities, a fetus cannot acquire property prior to the fortieth day of development.¹¹

There are, however, sources indicating that the prohibition against destroying the life of a fetus is applicable even during this early period. In his *Torat ha-Adam*, Ramban notes that, according to the opinion of *Ba'al Halakhot Gedolot*, the Sabbath may be violated even during this forty-day period in order to preserve the life of the fetus.¹² The author of *Havvot Ya'ir*, citing *Tosafot, Niddah* 44b, shows that the right to violate the Sabbath for the sake of saving a prenatal life is incompatible with permission to kill it deliberately.¹³ It follows that, according to *Ba'al Halakhot Gedolot*, inducement of abortion during this period is forbidden. Responding to a specific inquiry, R. Meir Dan Plocki, *Hemdat Yisra'el*, (Pietrkow, 5687), Indexes and Addenda, p. 17a, granted permission for termination of pregnancy within this forty-day period only when the life of the mother is threatened.

Drawing a parallel from the commandment against the kidnaping and subsequent sale of a person into involuntary servitude, R. Iser Yehudah Unterman, *No'am*, VI, 4f.,¹⁴ cites the opinion of Rashi,

Sanhedrin 85b, who maintains that this prohibition encompasses the sale of an unborn child as well. Although the fetus may not be considered a fully developed person, the kidnapper is culpable because he has stolen an animate creature whose status is conditioned by its potential development into a viable human being. Rabbi Unterman further notes that if the unborn fetus lacks human status it is excluded from the ambit of the injunction “And he [man] shall live by them” (Leviticus 18:5) which justifies violation of other precepts in order to preserve human life. Nevertheless, numerous authorities permit violation of the Sabbath in order to preserve fetal life. Rabbi Unterman views such permission as being predicated upon a similar rationale: anticipation of potential development and subsequent attainment of human status gives rise to certain privileges and obligations with regard to the undeveloped fetus. Consideration of future potential is clearly evidenced in the talmudic declaration, *Shabbat* 151b, “Better to violate a single Sabbath in order to observe many Sabbaths.” Rabbi Unterman concludes that reasoning in these terms precludes any distinction that might otherwise be drawn with regard to the various stages of fetal development.

Surprisingly, there is one source that appears to rule that destruction of the fetus by Noahides, at least under some circumstances, does not constitute a moral offense. R. Isaac di Trani, *Teshuvot Maharit*, I, no. 99, writes: “I remember having seen in a responsum of the Rashba that he bears witness that Ramban rendered medical aid to a gentile woman in return for compensation in order that she might conceive and aided her in aborting the fruit of her womb.”¹⁵ It is of course inconceivable that an individual of Ramban’s piety and erudition would have violated the injunction “Thou shalt not place a stumbling block before a blind person” (Leviticus 19:4) or that he would have actively assisted transgressors. Applying the line of reasoning adduced above, Rabbi Unterman draws the conclusion that there is a fundamental distinction between Jewish law and Noahide law with regard to the assessment of potential life. According to many authorities, Noahides are under no obligation to preserve the lives of their fellows, to “be fruitful and multiply” or to refrain from wasting the male seed.¹⁶ They are forbidden to commit homicide and to take the life of “a man within a man” but bear no responsibility for the safeguarding and preservation of nascent life. It would appear, then, that Halakhah holds them accountable only for *actual*, in contradistinction to *potential*, life.¹⁷ Accordingly, there is no objection to Noahides aborting, or to a Jew giving advice and rendering indirect assistance to Noahides in aborting,

a fetus within the first forty days of gestation. Since during this initial period the embryo has not as yet developed distinctly recognizable organs or an independent circulatory system, argues Rabbi Unterman, it cannot be considered “a man within a man” and hence its destruction does not constitute murder under the Noahide dispensation. Ramban, Rabbi Unterman avers, sanctioned the performance of abortions by Noahides only within this forty-day period.¹⁸

Rabbi Unterman’s distinction between Jews and Noahides with regard to termination of pregnancy within the first forty days following conception was anticipated by an earlier authority. In his *Hemdat Yisra’el*, Part I, p. 89b, Rabbi Plocki marshals evidence demonstrating that an embryo may be destroyed with impunity during the first forty days of its development based upon Rabbenu Tam’s interpretation of the talmudic dispute recorded in *Yevamot* 12a concerning the “three [categories of] women” who may resort to contraceptive devices in order to prevent conception. Rabbenu Tam explains that the dispute concerns the insertion of a tampon *after* cohabitation. The *Tanna*, R. Meir, rules that the use of contraceptive devices by these women is mandatory since pregnancy would place their lives in jeopardy; the Sages assert that such action is not incumbent upon these women stating that the verse “The Lord preserves the simple” (Psalms 116:6) permits reliance upon divine providence to avert tragic consequences. However, according to Rabbenu Tam, the Sages *permit* the use of contraceptives after cohabitation reasoning that women are not commanded to refrain from “destroying the seed.” *Hemdat Yisra’el* points out that fertilization most frequently takes place immediately following cohabitation. Contraception following cohabitation is then, in effect, not destruction of the seed but abortion of a fertilized ovum.¹⁹ If abortion is forbidden even in the earliest stages of gestation, how then can Rabbenu Tam permit the use of contraceptive devices following cohabitation? *Hemdat Yisra’el* concludes that destruction of the embryo during the first forty days following conception does not constitute an act of feticide; rather, destruction of a fetus during that early period falls under the category of “destroying the seed.” Since the opinion of those authorities who rule that women are also bound by the prohibition against “destroying the seed” is regarded as normative, *Hemdat Yisra’el*’s reasoning (as evidenced by his own remarks) finds practical application only with regard to Noahides. According to those authorities who maintain that the ban against destroying the seed does not apply to Noahides, the latter may be permitted to interrupt pregnancy during the first forty days of gestation.

Distinctions pertaining to the early period of gestation are echoed by numerous other authorities. R. Chaim Ozer Grodzinski, *Teshuvot Ahi'ezer*, III, no. 65, sec. 14, writes, "It appears that a Noahide is not put to death for this and perhaps even with regard to an Israelite there is no biblical prohibition." *Torat Hesed, Even ha-Ezer*, no. 42, sec. 33, states explicitly that the prohibition against destroying an embryo within the first forty days following conception is rabbinic in nature. R. Joseph Rosen, *Teshuvot Zofnat Pa'aneah* (New York, 5714), no. 59, comments, "Before the fortieth day there is not such a stringent prohibition according to many authorities." In an earlier collection of responsa, *Teshuvot Bet Shlomoh, Hoshen Mishpat*, no. 162, R. Solomon Drimer of Skole concludes that there is no prohibition against destroying an embryo less than forty days old and notes that in punishment for performing such a deed "even a Noahide is not put to death." Rabbi Weinberg, in his original responsum, *No'am* IX (5726), 213f., also concluded that it is permissible to induce abortion prior to the fortieth day of pregnancy, but later added in a note published in his *Seridei Esh*, III, no. 127, note 7,²⁰ that having read the contrary opinion expressed by Rabbi Unterman in *No'am* VI, 8f.,²¹ he reserves decision pending consultation with other halakhic authorities. The late Rabbi Moses Jonah Zweig of Antwerp, *No'am* VII (5724), 48, concurs in the view that forbids abortions even during the first forty days of pregnancy other than on medical grounds.²²

R. Moshe Feinstein, *Iggerot Mosheh, Hoshen Mishpat*, II, no. 69, sec. 3, cites *Havvot Ya'ir* in stating emphatically that, for Jews, destroying a fetus is forbidden even within the first forty days of gestation. *Iggerot Mosheh* finds Maharit's report to the effect that Ramban assisted gentile women in aborting their fetuses troubling in the extreme and, accordingly, finds Rabbi Unterman's assessment to be the only plausible explanation for such conduct. Acceptance of that explanation would necessarily lead to endorsement of Rabbi Unterman's distinction between Jews and gentiles with regard to abortion during the first forty days of gestation.

However, *Iggerot Mosheh* finds that distinction troublesome because he regards the prohibition against feticide to be subsumed within the prohibition against homicide. However, if a fetus within the first forty days is not yet a "man" within a man" according to the provisions of the Noahide Code, why should the fetus even during that early stage be regarded as a "man" for Jews?²³ In the same responsum *Iggerot Mosheh* points to other difficulties posed by Maharit's responsum, including what *Iggerot Mosheh* describes as a contradiction between Maharit's comments in the latter's responsa nos. 97 and 99. Accordingly, he dismisses

Maharit's latter responsum, and particularly the citation of the report that Ramban assisted in the abortion of non-Jewish fetuses, as a forgery interpolated in *Teshuvot Maharit* by an errant student. If it is indeed the case that there is no reliable evidence of Ramban's comportment in this regard, there is no evidence upon which to base a distinction between Jews and non-Jews insofar as destruction of a fetus within the first forty days of gestation is concerned. *Iggerot Mosheh* concludes his discussion with the comment that the matter requires further reflection.

B. SUBVISUAL ZYGOTES

Elsewhere,²⁴ this writer has argued that there may be grounds to permit destruction of a nascent embryo in the earliest stages of development even according to the many authorities who do not accept the permissive view with regard to destruction of a fetus within the initial forty day period. A distinction may be drawn that is analogous to a legal concept that is well-known in the common law tradition: *De minimis non curat lex*. The notion that the law does not concern itself with trifles finds expression in Jewish law as well. Although, in Jewish law, the concept has extremely limited application in matters of jurisprudence, a closely related concept is of paramount importance within the context of religious law.

For example, Jews are commanded not to eat creeping animals, including marine creatures that live in an aquatic environment. If one takes a small drop of water, places it on a slide and examines it under a microscope, one will observe the presence of literally thousands of creeping organisms. The phenomenon has been observed by countless students in performing laboratory assignments in conjunction with introductory courses in biology. Nevertheless, Judaism does not forbid the drinking of a glass of water. But on what basis can the concomitant imbibing of the forbidden creatures be sanctioned? The answer must lie in the recognition that, insofar as such prohibitions are concerned, Jewish law concerns itself only with gross phenomena. A physical phenomenon that is subvisual is of no consequence. An organism that can be seen only under a microscope or by means of a magnifying glass is an organism of which Jewish law takes no cognizance; for the purposes of the Jewish legal system, it is as if the organism does not exist.²⁵

Similarly, a broken letter in a Torah scroll, a *mezuzah* or in the biblical sections contained within *tefillin* renders such religious objects unfit for their ritual purpose. Yet, under high-power magnification it is immediately evident that all letters contain gaping chasms. The prob-

lem dissipates upon the recognition that a “break” in a letter is defined as a break that can be perceived with the naked eye by a person of normal eyesight.

If one applies this principle to the developing human organism, it yields the conclusion that legal cognizance can be taken of the organism only when it becomes visible to the naked eye. However, during its early stages of development, when the zygote is subvisual,²⁶ the law takes no cognizance of its existence. If so, it may well be argued that there is no prohibition associated with its destruction.

The application of the general principle regarding subvisual phenomena to stem cell research may be the subject of some disagreement. In a discussion of genetic manipulation of agricultural species, R. Shlomoh Zalman Auerbach, *Minhat Shlomoh*, II (Jerusalem, 5759), no. 97, sec. 27, declares that pollination of one species with pollen of another species does not result in a fruit that would be halakhically classified as a hybrid. Thus, although Rabbi Auerbach affirms that the fruit of an *etrog* tree produced as the result of grafting a lemon branch may not be used on *Sukkot* for the purpose of fulfilling the *mizvah* of the four species, he nevertheless regards pollination as an entirely different matter. Accordingly, rules Rabbi Auerbach, if an *etrog* is pollinated with the pollen of a lemon tree the resultant fruit is an *etrog* and may be used for fulfilling the *mizvah*. Rabbi Auerbach declares that the prohibition against hybridization of species applies only to the planting or grafting of vegetative material that might independently yield fruit or a growing seed capable of germinating independently. Pollen can never grow into fruit; hence, for purposes of Halakhah, introduction of foreign pollen does not affect species identity. Again, it is quite obvious that such pollination conducted artificially by humans is not prohibited. Similarly, it follows that introduction of a gene of a foreign species is not forbidden as a form of hybridization since an isolated gene can never develop into a tree or into a plant.

However, an apparently contradictory statement by Rabbi Auerbach appears in a different volume, *Minhat Shlomoh, Tinyana* (Jerusalem, 5760), no. 100, sec. 7. In that work Rabbi Auerbach writes that hybridization of trees is forbidden “even if the hybridization is [performed] only by means of injection of sap that, if planted in the ground, would not at all sprout.” In context, Rabbi Auerbach’s statement in *Minhat Shlomoh, Tinyana* seems to be offered in order to establish a negative view regarding genetic manipulation of agricultural species.

In the latter discussion Rabbi Auerbach himself addresses the issue

raised by the fact that genetic engineering involves manipulation of material that is not visible to the naked eye and dismisses that consideration with the remark that “since people engage themselves (*metaplim*) with these particles and transfer them from one species to another, this must be considered as visible to the eyes and not at all comparable to worms that are invisible.” Put somewhat differently, it may be argued that Halakhah disregards subclinical phenomena only when they are freestanding. A microorganism will never be more than a microorganism; a subvisual break in a letter will never become anything other than a subvisual break in the letter. However, when such subvisual phenomena serve as causal factors yielding readily perceived effects, cognizance must be taken of such phenomena, he asserts, because they are, in effect, recognizable in their effects.^{26a} If that position is regarded as correct, it might well be argued that a developing, albeit subvisual, zygote is regarded as a fetus for purposes of Halakhah from the moment of conception because of its potential for development into a viable human being.

Be this as it may, the principle *de minimus non curat lex*, even if accepted in this context, is currently of little avail in addressing the issue of stem cell research. According to reports published in the media, destruction of the embryo in the course of such research takes place as late as on the fifth day of pregnancy when the embryo has grown in size to over 120 cells.

IV. STEM CELLS DERIVED FROM PARTHENOTES OR CHIMERIC EMBRYOS

There is, however, one form of embryonic stem cell research that may pose no moral quandary. In an article published in the February, 2002 issue of *Science* magazine, scientists associated with Advanced Cell Technologies Inc. report some success with embryonic cells obtained in a novel manner.²⁷ The researchers claim to have taken oocytes, i.e., unfertilized eggs, from a monkey and exposed them to chemicals that induced the cells to divide and to develop into fledgling embryos. Cell division usually occurs only when the ovum is fertilized by a sperm. Science has long known that cell division can also be asexually induced by means of electrical or chemical stimulation. That phenomenon is known as parthenogenesis. The company claims that it has begun development of the same procedure utilizing human oocytes with encouraging results.²⁸

Unlike embryos created from the fertilization of an ovum by sperm, on the basis of experiments performed on mice and other animals, it is believed parthenogenic embryos will not survive even if returned to the mother's womb for gestation. If the parthenogenic embryo is not viable from the moment of its inception, destruction of such an embryo in the course of research may not constitute the destruction of a fetus or of potential human life.²⁹

In a subsequent development, researchers at the Institute for Reproductive Medicine and Science, a fertility clinic associated with St. Barnabas Medical Center in West Orange, New Jersey, have proposed a novel method for obtaining embryonic stem cells from nonviable embryos. Fertility clinics routinely discard large numbers of embryos fertilized in vitro because they manifest abnormalities rendering it highly unlikely that they would survive if transferred to a women's uterus. In a paper published in the July-August, 2002 issue of *Reproductive Biomedicine Online*³⁰ titled "Human Blastocysts from Aggregated Mono-Nucleated Cells of Two or More Non-Viable Zygote-Derived Embryos," Mina Alikani and Dr. Steen M. Willadsen report that they extracted cells from 107 such defective embryos and combined those cells to make thirty-six chimeric embryos, i.e., embryos that could not possibly survive for an extended period of time. Twelve of those embryos survived five or six days by which time a cluster of stem cells had already developed. It is anticipated that those stem cells can be isolated and grown in a laboratory.

The claim that the discarded embryos from which such hybrids are derived are uniformly nonviable has been challenged by some scientists engaged in fertility research.³¹ However, if the claim can be substantiated with regard to at least some aberrant embryos, the potential for deriving stem cells from hybridized nonviable chimeric embryos clearly exists and, as is the case with regard to parthenogenic embryos, destruction of such chimeric embryos may not constitute the destruction of a fetus or of a potential human life.

There is strong evidence suggesting that a *nefel*, a nonviable neonate, i.e., an infant suffering a congenital, physiological or anatomical anomaly that will cause it to die within the first thirty days of life is not deemed to be a human being. The Gemara, *Shabbat* 136a, addresses the case of a *safek nefel*, i.e., an infant whose status as a viable neonate is a matter of doubt. If the infant is known to be nonviable there is no obligation to circumcise the child. Nevertheless, the Gemara declares that a "doubtful" *nefel* should be circumcised even on *Shabbat*

despite the consideration that circumcision involves an act of bloodletting that is prohibited on *Shabbat* other than in conjunction with fulfillment of the commandment regarding circumcision. The Gemara justifies that pronouncement with the statement that if the infant is indeed a *nefel*, and hence no *mizvah* is fulfilled, the very fact that it is a *nefel* means that the act of circumcision is “merely [an act] of cutting flesh,” i.e., the status of the *nefel* is equated with that of a cadaver. Since “wounding” or bloodletting on *Shabbat* is prohibited only with regard to a living organism, no such prohibition is attendant upon the circumcision of a *nefel*. In addition, the Gemara, *Shabbat* 135a, *Yevamot* 80a and *Bava Batra* 20a, compares an infant that cannot survive for a period of thirty days to an inanimate stone and declares that it may not be moved on *Shabbat*.

It would thus follow that just as a nonviable neonate is not considered to be a living person, a nonviable fetus or zygote is similarly not a developing human being.³² It should further follow that there can be no violation of the prohibition against homicide or feticide in the destruction of an organism whose status is depicted as “mere flesh.” It may also be noted in this context that the prohibition against bloodletting on *Shabbat* is a derivative of the prohibition against “slaughter.” It is thus logical to assume that if circumcising the flesh of a *nefel* is not an act of “wounding” or bloodletting its destruction is similarly not an act of “slaughter.” Accordingly, R. Moshe Sternbuch, *Be-Shevilei ha-Refu’ah*, no. 8 (Kislev 5747); R. Zalman Nechemiah Goldberg, *Tehumin*, V (5744), 250; and Abraham S. Abraham, *Nishmat Avraham, Hoshen Mishpat* 425:1, assert that there is no prohibition against the destruction of a nonviable fetus.

It must, however, be noted that a disciple of *Noda bi-Yehudah*, R. Eleazer Fleckles, *Teshuvah me-Ahavah*, I, no.53, who was consulted with regard to the destruction of a nonviable monster-like creature, ruled that the destruction of such life is biblically prohibited and is punishable by death at the hands of Heaven. It is quite possible that *Teshuvah me-Ahavah* would regard destruction of even a nonviable fetus as similarly interdicted. The weight that should be assigned to the opinion of *Teshuvah me-Ahavah*, particularly since it seems to stand in contradiction to the earlier-cited declarations of the Gemara requires careful determination. Unfortunately, *Teshuvah me-Ahavah*’s statement has neither been analyzed nor cited by contemporary scholars.

V. DESTRUCTION OF A FETUS EX-UTERO

Another argument in support of the permissibility of stem cell research involving destruction of a developing zygote is based upon the fact that the research is performed on nascent embryos that have been fertilized outside the mother's womb. The issue that must be analyzed is whether there is a prohibition attendant upon destruction of an embryo conceived and gestated in vitro, i.e., in a petri dish rather than in the uterus. The issue more commonly arises in the context of disposal of surplus conceptuses obtained in the course of in vitro fertilization. A normal, fertile woman is endowed from birth with an extremely high number of Graafian follicles. Typically, each month, beginning at puberty and continuing until menopause, a single Graafian follicle develops and becomes a mature ovum. When in vitro procedures are employed because of inability to conceive naturally, the infertile woman is treated with hormones in order to stimulate superovulation. For reasons that are not fully understood, the percentage of zygotes resulting from in vitro fertilization that successfully implant in the uterine wall is low. In order to enhance the likelihood of at least a single successful implantation, it is deemed advisable to introduce multiple fertilized ova into the uterus. At present, in order to avoid the possibility of an excessive number of fetuses, the usual practice is to implant three fertilized ova. However, superovulation usually yields more than that number of ova. Surplus fertilized ova are either frozen for later possible use,³³ donated to women whose fertility problem arises from lack of ovulation,³⁴ used for scientific purposes such as stem cell research³⁵ or discarded and destroyed.³⁶

Several rabbinic scholars have adopted the position that there is no prohibition attendant upon destruction of a fetus conceived in a petri dish and gestating *ex utero*. The most prominent of those authorities is Rabbi Moshe Sternbuch, author of *Mo'adim u-Zemanim*. In an article that appeared in *Be-Shevilei ha-Refu'ah*, no. 8 (Kislev 5747), published by the Laniado Hospital in Netanya, Rabbi Sternbuch writes, ". . . the prohibition against abortion is [limited to destruction of the embryo] in the woman's uterus, for the [embryo] has the potential to develop and become complete in her womb and it is destroyed. But here, outside the womb, an additional procedure is required to implant [the embryo] in the woman's uterus and without that [procedure] it will . . . perish of its own accord and not reach completion. . . ." Rabbi Sternbuch cites no sources in support of the view that an embryo developing outside of the womb may be destroyed with impunity. A similar view is

advanced without elaboration or citation of sources by R. Chaim David Halevy, *Assia*, vol. XII, no. 3-4 (Kislev 5750).

Ostensibly, one source that might be cited in support of such a conclusion is *Teshuvot Hakham Zevi*, no. 93. The Gemara, *Sanhedrin* 65b, reports that Rabbi Zeira commanded a *golem* created by utilization of incantations derived from *Sefer Yezirah* to return to dust. It is thus quite obvious that destruction of a *golem* does not constitute an act of homicide. *Hakham Zevi* suggests that a *golem* might indeed enjoy human status but that its destruction might nevertheless not constitute an act of homicide for an entirely different reason. Rabbinic exegesis presented by the Gemara, *Sanhedrin* 57b, renders Genesis 9:6 as "Whosoever sheds the blood of a man within a man, his blood shall be shed." The Gemara immediately queries, "Who is a 'man within a man'?" and responds, "It is a fetus within its mother's internal organs." Accordingly, argues *Hakham Zevi*, destruction of a *golem* does not constitute a prohibited form of homicide because the gestation of a *golem* is not in the mode of "a man within a man." Similarly, it might be argued, an embryo conceived in a petri dish and not yet implanted in a human uterus is also not "a man within a man" and hence its destruction involves no transgression.

Hakham Zevi's suggestion was rebutted by R. Gershon Leiner, popularly known as the *Radzyner Rebbe*, in his *Sidrei Toharot, Oholot* 5a, on the basis of what he considered to be a *reductio ad absurdum*. If *Hakham Zevi's* criterion of "a man within a man", i.e., of issuance from a womb, is consistently applied, it would lead to the conclusion that a person who might have murdered Adam would not have been guilty of homicide since Adam had no mother.

More significantly, the exegetical interpretation of Genesis 9:6 cited by *Hakham Zevi* serves to establish a provision limited to the Noahide Code. That rendition of Genesis 9:6 as "a man within a man" serves to establish feticide as a form of capital homicide in the Noahide Code. However, feticide is certainly not a capital transgression in the Sinaitic Code. Presumably, the prohibition against feticide for Jews as a non-capital form of homicide according to Rambam and those who concur in his view, flows from the general prohibition "Thou shalt not murder" Exodus 20:13).^{36a} Accordingly, there might be grounds for assuming that a Noahide does not incur capital punishment for destruction of an embryo fertilized in vitro but not for support of the position that a person born of in vitro fertilization may be destroyed with impunity by a Jew or for the position that there is no halakhic consideration forbid-

ding a Jew to destroy a developing embryo while it is yet outside the human body.

Moreover, absent evidence to the contrary, there is no reason to assume that the exegetical interpretation “a man within a man” is designed to impose a limiting condition serving to exclude from the denotation of the verse what would otherwise be an act of culpable homicide. Rather, the exegetical interpretation should be understood as supplementary in nature, *viz.*, as adding to the ambit of the verse an act that would otherwise not be connoted by the literal meaning of the verse, i.e., the killing of a fetus who is “a man within a man.” Accordingly, it is not *only* the killing of “a man within a man” that constitutes homicide but *also* the killing of “a man within a man” that constitutes homicide.

In any event, *Hakham Zevi*’s discussion cannot serve as a basis for distinguishing between a fetus *in utero* and a fetus *ex utero* because *Hakham Zevi* concludes that a *golem* lacks status as a Jew or as a human being for other purposes as well.³⁷ Accordingly, even for *Hakham Zevi*, there is a more fundamental explanation for Rabbi Zeira’s lack of reticence in destroying the *golem* and no evidence that *Hakham Zevi* accepted his tentative justification of R. Zeira’s act as a normative thesis.

Acceptance of a distinction between *in utero* and *ex utero* gestation would lead to the conclusion that were the scenario depicted in Huxley’s *Brave New World* not to remain within the realm of science fiction but to become a reality, a human being conceived *in vitro* and allowed to develop in a laboratory incubator for the full nine month period of gestation might be killed with impunity at any stage of his life. Such a conclusion is certainly counterintuitive.

It should also be noted that if, as discussed earlier, destruction of a developing fetus within the first forty days of gestation entails a violation of the prohibition against “destroying the seed,” that prohibition applies with equal force to destruction of an ovum fertilized *ex utero*. The concept of “a man within a man” applied only to the prohibition against homicide but not to other relevant transgressions.

Moreover, there are sources indicating that active measures must be taken to preserve fetal life during all stages of pregnancy. The Gemara, *Yoma* 82a, describes in great detail the procedure to be followed in instances in which a pregnant woman manifests symptoms of great craving for a particular food. If she cannot otherwise be assuaged, she may be given the food she craves lest she suffer a miscarriage. Some medieval commentators regard the danger to be obviated to be danger to the life

of the mother. Miscarriage, they assert, is tantamount to parturition and childbirth is statutorily defined as a life-threatening event. Despite the fact that a pregnant woman will sooner or later experience the danger of parturition, they maintain that the obligation to refrain from food on *Yom Kippur* is suspended in order to avoid unnatural preponing of that danger.

However, Ramban, cited by Ran, *Yoma* 82a, and Rosh, *Yoma* 8:13, maintains that the requirement to fast on *Yom Kippur* is suspended entirely for the purpose of preserving the life of the fetus. Ramban's position clearly reflects the view that there is an obligation to preserve fetal life. There is no obvious basis for assuming that nascent human life need not be preserved and may be destroyed with impunity simply because it is not sheltered in its natural habitat, i.e., because its development takes place outside the mother's womb.³⁸

Among contemporary decisors, that view appears to be reflected in a ruling by R. Samuel ha-Levi Woszner, *Teshuvot Shevet ha-Levi*, V, no. 47. Rabbi Woszner expresses the opinion that Sabbath restrictions may not be breached for the sake of preserving the viability of a zygote that is the product of in vitro fertilization and that has as yet not been implanted in the uterus of the gestational mother. He does not argue that the status of a human life generated outside the mother's body is in any sense inferior to that conceived *in utero*. Rather, he argues that the vast majority of such zygotes are not viable and that Sabbath restrictions are not suspended to prolong the life of a nonviable fetus. Rabbi Woszner carefully adds the cautionary note that the empirical situation may change and that with advances in the development of reproductive knowledge and techniques any future halakhic ruling would reflect the changed reality. If so, it would appear that, even at present, overt destruction of a possibly viable zygote cannot be sanctioned. Nevertheless, in a letter appended by R. Abraham Friedlander to his *Hasdei Avraham*, II (Brooklyn, 5759), 317, Rabbi Woszner permits the destruction of surplus zygotes.

VI. PUBLIC POLICY AND STEM CELL RESEARCH

As noted in the introductory comments, federal funding of stem cell research has become a matter of passionate debate. The question of what position, if any, the Jewish community should adopt with regard to this issue has also become a matter of discussion. There are, however, a number of considerations that should inform public policy decisions that, in this writer's opinion, have not been sufficiently addressed.

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The National Bioethics Advisory Commission was charged with making recommendations regarding governmental policy vis-a-vis stem cell research. *Ethical Lessons in Human Stem Cell Research*, the report and recommendations of the Advisory Commission, issued in January, 2000, does not really constitute the formulation of an ethical position and resultant recommendations. Indeed, it is certainly arguable that adjudication of ethical norms is no more the province of the federal government than is resolution of theological disputes. Rather, the report addresses matters of public policy that cannot and dare not be formulated in a moral vacuum.

In conjunction with its deliberations, the Advisory Commission appropriately solicited the testimony of both ethicists and theologians. Not quite as appropriately, some of the experts consulted raised the shibboleth of separation of church and state, thereby betraying their own lack of understanding of the anti-Establishment Clause and/or the nature of government involvement in stem cell research. The issue is not—and never was—a proposed governmental ban on stem cell research akin to a governmental ban on abortion. Imposition of such a ban would indeed give rise to the question of whether or not such a policy, in effect, “establishes” a particular religious or moral belief. The issue confronting the Advisory Commission was not proscription of a certain avenue of research; the issue addressed was government encouragement and participation in such research in the form of federal funding. And that is a horse of a quite different constitutional color!

In public policy, no less so than in medicine, the fundamental principle must be: *Primum non nocere*—“First, do no harm.” The Founding Fathers erected a wall of separation between Church and State in order to preserve the independence and integrity of religious institutions. The purpose was to shield religion from the pernicious and corroding influence of government. The notion of government funding designed to undermine the religious or moral convictions of even a portion of the populace would have been unthinkable.

The issue posed by stem cell research, in very blunt terms, is whether it is appropriate to use tax dollars in a manner that offends the religious sensibilities of some citizens. Deference to religious sensibilities in the form of non-involvement is not at all a constitutionally prohibited form of establishmentarianism; quite to the contrary, it is mandated by the spirit, if not the letter, of the First Amendment.

No ethicist would gainsay the moral value reflected in research designed to save human life. But, at the same time, no ethicist has called

for federal funding of *every* project designed to preserve human life. Policymakers begin with the axiological principle that only a finite amount of sociological resources can be dedicated to such projects with the result that selection of projects to be funded must be determined on the basis of competing scientific, pragmatic, and—yes—moral considerations. Triage decisions are oftimes made in light of moral considerations.

No ethicist, at least to this writer's knowledge, is opposed to stem cell research *per se*. The opposition that has been voiced is to research that requires destruction of human life and is predicated on the position that human life begins at the moment of conception. Some ethicists regard any benefit derived from an evil or immoral action as itself immoral. Some are concerned that advancement of science may be regarded as exculpatory in nature and, thereby, in the popular mind, diminish the odium associated with the destruction of the conceptus. Some are concerned that awareness of the potential benefit to humanity may impact upon the abortion decision of a vacillating woman confronted by conflicting emotional and moral vector forces. Nascent human life, they argue, dare not be sacrificed even for the noble purpose of preserving other human life.

Regardless of one's personal faith commitment or moral viewpoint, one must recognize that the social contract that is the cornerstone of American democracy demands that proper deference be paid to opposing views in formulation of public policy and, in particular, in expenditure of public revenue collected from all citizens.

The recommendations of the Advisory Commission certainly reflect sensitivity to the challenge with which it was confronted. Thus, the Commission strongly recommended that research involving embryos specifically created for research purposes not be funded. For the same reason the Commission recommended that federal funds not be allocated for research involving transfer of a somatic cell nucleus into an oocyte since the procedure, in effect, results in the creation of a human organism.

At the same time, the Commission found no objection to federal funding of projects involving cadaveric fetal tissue, including fetal tissue obtained as a result of non-therapeutic abortions. It does, however, insist upon establishment of procedures to prevent fetal tissue donation from influencing the abortion decision. The Commission also endorses funding of research that will utilize embryos remaining after infertility treatment is completed provided that the donors have already decided to have those embryos discarded instead of donating them to an infertile couple or storing them. The Commission justified this recommendation with the comment, "If the decision to discard the

embryos preceded the decision to donate them for research purposes then the research determines only how their destruction will occur, not whether it occurs.”

The Commission has certainly endeavored to create a wall of separation between the scientific benefits of stem cell research and the morally contested actions that make the research possible. If effective safeguards are actually in place, it is certainly possible that the issue is entirely analogous to the question of whether it is morally acceptable to derive benefit from research upon the body of a homicide victim assuming, of course, that society assures itself that no homicide will ever be carried out in contemplation of such research. Certainly, Judaism posits no principle akin to a Miranda principle³⁹ that would categorically repudiate any scientific benefit derived from an antecedent immoral act.⁴⁰

Commendably, the recommendations attempted to establish procedures designed to preclude the possibility that the research itself provide a motive or impetus for destruction of a fetus or embryo. Although the Commission’s attempt to prevent research benefits from becoming a motivational consideration is salutary, the proposed procedures are only partially effective. The primary safeguard consists of divorcing consent to use the abortus from the decision to abort by refraining from soliciting such consent until the decision to abort has already been made. However, the decision to abort is not final until the deed is done. Not only is the decision morally and legally revocable, but there is significant evidence pointing to the phenomenon of vacillation and actual abandonment of plans to abort on the part of pregnant mothers. Intervening consent to use of the abortus for research designed to save human lives is as much of a concern with regard to a decision not to rescind consent as it is with regard to the original abortion decision. Only by delaying mention of possible research upon the abortus and solicitation of consent for such purposes until after the abortion is actually a *fait accompli* can this concern be assuaged.⁴¹

Use of surplus embryos obtained in attempts to overcome infertility presents an apparently insurmountable moral problem. Research is not performed upon already inanimate embryos. It is the research itself that causes destruction of the embryo. The argument that the embryos are in any event destined for destruction carries little moral weight. No ethicist would sanction the conduct of a transplant surgeon who plucks out the heart of a person already destined to be killed by a hired assassin. The fact that the putative victim faces imminent death does not vitiate an act of homicide. Morally, research upon the body of a homicide

victim is light years removed from lethal research upon a living subject already marked for death. The excess embryos may indeed be destined for destruction whether or not the research is allowed to go forward, but they will not be destroyed with government funding. When the public coffers are used for such purposes society becomes implicated in the act of destroying nascent human life.

The present administration has endeavored to resolve the moral dilemma by limiting government spending to research utilizing cell lines already in existence at the time that approval of such research was announced, *viz.*, 9:00 p.m., August 9, 2001. Some cell lines are already in existence; others will no doubt become available without government funding or encouragement. The United States government, fearful that potential use in conjunction with federally funded research might encourage privately-funded development of additional cell lines by means that would entail destruction of embryos, refused to authorize use of newly-developed cell lines in federally-funded research. Limitation of government involvement to research using existing cell lines not only removes the government from implication in destruction of nascent life but also eliminates a federal imprimatur implying that society has bestowed its blessing upon the procedure. The fear that such a perception may become a self-fulfilling prophecy is probably the most serious ethical issue in the current debate. Limiting government funding to research employing only existing cell lines serves to vitiate that concern.

In light of both the absence of a halakhic imperative to engage in stem cell research as well as the grave halakhic issues posed by destruction of even nascent embryos, the present policy of the United States government would merit, at the very minimum, the tacit support of the Jewish community. The inevitable association of the issue of stem cell research with the broader abortion controversy serves as an additional consideration auguring in favor of support of that policy.

Rambam, in a censored portion of chapter eleven of *Hilkhot Melakhim*,⁴² questions why divine providence makes it possible for Christianity and Islam to flourish and capture the minds and hearts of so many devotees. Rambam asserts that those religions play a role in the divine blueprint for human history in promulgating and keeping alive the notion of the coming of the Messiah. Were Rambam writing today, he might well conclude that the function of preservation of belief in the coming of the Messiah has been assumed by the Chabad movement and find that the Catholic church now uniquely fulfills a different role in the transcendental divine plan, i.e., it tenaciously promulgates the notion of

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the sanctity of fetal life and the teaching that abortion constitutes homicide. Non-Jews who engage in that endeavor do so with divine approbation. Non-Jews engaged in fulfilling a sacred mission are surely deserving of commendation, applause and support.

NOTES

1. A team of American scientists has presented compelling evidence of success in isolating a stem cell from adult human bone marrow that can produce all tissue types, including blood, muscle and nerve tissue. They also isolated stem cells from adult mice and injected descendants of those cells into mouse embryos. The injected cells were found to be present in almost every tissue, including blood, brain, muscle, lung and liver. See Catherine M. Verfaillie *et al.*, "Pluripotency of Mesenchymal Stem Cells Derived from Adult Marrow," *Nature*, 417, published online 20 June, 2002; doi:10.1038/nature 00870; www.nature.com/cgi-taf/DynaPage.taf?fil.../nature00870_r.html&filetype=&dynoptions.
2. Published in the same issue of the earlier cited online journal is an article reporting success in reversing the symptoms of Parkinson's disease in rats using embryonic stem cells derived from mice. See Ron McKay *et al.*, "Dopamine Neurons Derived from Embryonic Stem Cells Function in an Animal Model of Parkinson's Disease," *Nature*, 417, published online 20, June 2002; doi:10.1038/nature 00900; www.nature.com/cgi-taf/DynaPage.taf?fil.../nature00900_r.html&filetype=&dynoptions.
3. "Abortion in Halakhic Literature," *Contemporary Halakhic Problems*, I (New York, 1977), 325-371 and *Jewish Bioethics*, augmented edition, ed. Fred Rosner and J. David Bleich (Hoboken, N.J., 2000), pp. 155-196.
4. See *Contemporary Halakhic Problems*, I, 347-356 and *Jewish Bioethics*, pp. 167-174.
5. See this writer's "Experimental Procedures: The Concept of *Refu'ah Bedukah*," *Contemporary Halakhic Problems*, IV (New York, 1995), 203-217. For a critique of reliance upon these views see R. Moshe Feinstein, *Iggerot Mosheh, Hoshen Mishpat*, II, no. 69 and this writer's "Tay-Sachs Re-examined," *Contemporary Halakhic Problems*, I, 112-115 and *Jewish Bioethics*, p. 194, note 97.
6. For an analysis of the halakhic category of a *holeh be-faneinu* see this writer's *Bioethical Dilemmas: A Jewish Perspective* (Hoboken, N.J., 1998), pp. 154-156.
7. Stem cell research may present no problem according to R. Jacob Emden who regards abortion as permissible in the face of any "grave need" or according to those who understand Maharit's view to be that abortion is prohibited because it represents "wounding" the mother rather than the fetus. Destruction of the developing embryo cannot be regarded as devoid of problems according to *Havvot Ya'ir* who regards the prohibition against feticide to be rooted in the ban against destruction of the male seed but

- does not expressly sanction such destruction in all instances of "grave need." Nor is destruction of the developing embryo nonproblematic according to those who understand Maharit's view to be that abortion is forbidden because it represents "wounding" of the fetus. Moreover, although R. Eliezer Waldenberg, *Ziv Eli'ezer*, XIII, no.102 and XIV, no. 100, was prepared to rely upon the rulings of Maharit, *Havvot Ya'ir* and R. Ya'akov Emden in permitting therapeutic abortion designed to eliminate anguish on the part of the mother, that view was sharply rejected by the late R. Moshe Feinstein, *Iggerot Mosheh, Hoshen Mishpat*, II, no. 69. See *Contemporary Halakhic Problems*, I, 112-115, 354-356, 336-337 and p. 339, note 24 and *Jewish Bioethics*, pp. 173-174 and p. 188, note 25.
8. For a detailed review of sources dealing with this issue see *Contemporary Halakhic Problems*, I, 339-347 and *Jewish Bioethics*, pp. 163-167.
 9. Those authorities who reject the distinction between the first forty-day period and subsequent stages of gestation presumably maintain that a fetus within the first forty days is not a "child" in the meaning of the verse "But if a priest's daughter be a widow or divorced and have no child" (Leviticus 22:13), i.e., the talmudic term "mere water" connotes only that during that early period the fetus is not sufficiently developed to be termed a "child" but does not define the fetus' ontological status for other halakhic purposes.
 10. It is of interest to note that Aristotle, *De Historia Animalium*, VII, 3, declares that the male fetus is endowed with a rational soul on the fortieth day of gestation and the female on the eightieth. This distinction corresponds not only to the respective periods of impurity prescribed by Leviticus but to the opinion of R. Ishmael in the Mishnah, *Niddah* 30a, who maintains that the prescribed periods of impurity correspond to the number of days required for the animation of the respective sexes and therefore declares that no impurity results from the miscarriage of a female embryo of less than eighty days. Aristotle's representation of animation as occurring on the fortieth or eightieth day, depending upon the sex of the fetus, was later incorporated in both Justinian and canon law. See Rabbi Immanuel Jakobovits, *Jewish Medical Ethics* (New York, 1959), p. 175.
 11. *Shakh, Hoshen Mishpat* 210:2; *Teshuvot Zofnat Pa'aneah*, (New York, 5714), no. 59; and R. Elchanan Wasserman, *Kovez Shi'urim*, II, no. 11, sec. 1.
 12. *Torat ha-Adam, Sha'ar ha-Sakanah*, ed. R. Bernard Chavel, *Kitvei Ramban* (Jerusalem, 5724), II, 29; also cited by Rosh and Ran in their respective commentaries on *Yoma* 82a. See also *Korban Netanel, Yoma, Perek Yom ha-Kippurim*, sec. 13:10.
 13. Reference by the late R. Moshe Yonah Zweig of Antwerp, *No'am*, VI (5723), 53, to an opinion by *Havvot Ya'ir*, to the effect that there is no prohibition against abortion during this period is erroneous. *Havvot Ya'ir*, in his introductory comments, calls attention to the fact that various stages of fetal development are recognized in different contexts, viz., forty days, three months and independent movement of the fetal limbs, but quickly adds that it is not his desire to render judgement on the basis of "inclination of the mind or reasoning of the stomach." On the contrary, *Havvot Ya'ir's* failure to note such distinctions in the course of developing his own thesis portends his rejection of such a distinction.

It may be of interest to note that this misconstrual of *Havvot Ya'ir* is legend. *Sedei Hemed* cites with perplexity conflicting positions attributed to *Havvot Ya'ir* with regard to this question by other sources and notes in resignation that he does not have access to the responsa of *Ha'avot Ya'ir* and hence cannot determine which quotation is correct. Upon reading these comments, R. Solomon Abraham Rezechte wrote to the author of *Sedei Hemed* that he had indeed seen the words of *Havvot Ya'ir* in the original and reported that the latter views the prohibition against feticide as binding during the early periods of pregnancy as well. See *Bikkurei Shlomoh* (Pietrkow, 5664), no. 10, sec. 35.

R. Weinberg's summary declaration in his *Seridei Esh*, III, no. 127, sec. 22 (p. 350), that such a prohibition does not exist even according to the *Ba'al Halakhot Gedolot*, who permits desecration of the Sabbath in order to save an embryo even within this forty-day period, is contradictory to the reasoning of *Havvot Ya'ir*, as indicated by R. Weinberg himself *ibid.*, sec. 5 (p. 339). R. Weinberg argues that *Havvot Ya'ir* fails to give consideration to the opinion of Ramban who maintains that, despite the law against feticide, the Sabbath may not be violated on behalf of an unborn child. This allegation is readily refutable since *Havvot Ya'ir* argues only that permission to violate the Sabbath in order to save a fetus logically entails a prohibition against destroying such a life, but not vice versa. It cannot be inferred from *Havvot Ya'ir's* comment that the absence of such permission necessarily entails license to destroy the fetus.

14. See also R. Iser Yehudah Unterman, *Shevet me-Yehudah*, I, 9f.
15. The authenticity of this quotation is highly questionable. R. Unterman, *No'am*, VI, 8, notes that he searched *Teshuvot ha-Rashba* in an unsuccessful attempt to locate this responsum. It seems probable that Maharit's quotation is culled from responsum no. 120 of vol. I in the published text (Bnei Brak, 5718). That responsum deals with the permissibility of rendering medical assistance to Noahide women so that they may be enabled to conceive. In language similar to that quoted by Maharit, mention is made of Ramban's actually having done so in return for financial compensation. However, no mention whatsoever is made of Ramban's having assisted in medical abortion. Maharit apparently had a variant textual version. Cf., also, R. Samuel Hubner, *Ha-Darom*, Tishri 5729, p. 33, who attempts to resolve the issue by suggesting an alternative punctuation of this quotation. R. Moshe Feinstein points to the absence of such a responsum in the works of Rashba as evidence that the responsum attributed to Maharit is itself a forgery. For other attempts to resolve the problems surrounding these two responsa see *Teshuvot Aryeh de-Bei Ila'i*, *Yoreh De'ah*, no. 19; R. Eliezer Waldenberg, *Ziv Eli'ezer*, IX, no. 51, chap. 3, sec. 1; and R. Ovadiah Yosef, *Yabi'a Omer*, IV, *Even ha-Ezer*, no. 1, sec. 7.
16. Regarding the question of whether Noahides are bound by the prohibition against onanism see *Tosafot*, *Sanhedrin* 59b; *Mishneh le-Melekh*, *Hilkhot Melakhim* 10:7; R. Naphtali Zevi Yehudah Berlin, *He'emek She'elah* 165:2; and *Teshuvot Zofnat Pa'aneah* (New York, 5714), I, no. 30.
17. Examination of the phraseology of *Hemdut Yisra'el*, Indexes and Addenda, p. 17a, indicates that Rabbi Plocki also had such a distinction in mind. In

cases of danger to the mother he permits abortion of embryos of less than forty days without further qualification and adds that there are grounds for permitting abortion at subsequent stages of development provided this procedure is performed by a Jewish physician. Rabbi Unterman fails, however, to note the comments of R. Jacob Zevi Jalish in his *Melo ha-Ro'im*, *Sanhedrin* 57b, who expresses a contrary view.

18. For a discussion of how this thesis may serve to explain the Septuagint's puzzling mistranslation of Exodus 21:22-23 see *Contemporary Halakhic Problems*, I, 344, note 40 and *Jewish Bioethics*, p. 190, note 43.
19. *Hemdut Yisra'el's* argument is predicated upon a faulty biological premise. Fertilization takes place in the Fallopian tube and subsequently the fertilized ovum descends into the uterus. A tampon inserted into the vagina does not penetrate beyond the cervical os. Contraception following cohabitation is designed to prevent sperm which have not already done so prior to insertion of the tampon from penetrating beyond the vagina. Thus there is no possibility of destroying an already fertilized ovum. Cf. *Teshuvot R. Akiva Eger*, no. 72.
20. Rabbi Weinberg's responsum discussing abortion of fetuses suffering congenital anomalies was originally published as an article in *No'am*, IX (5726), pp. 193-215, and was reprinted in the third volume of *Seridei Esh* with a number of added notes.
21. R. Unterman's opinion was actually expressed much earlier in his *Shevet me-Yehudah*, I, 50.
22. See also R. Samuel Engel, *Teshuvot Maharash Engel*, VII, no. 85, who, after drawing a distinction between the first forty days and the subsequent periods of pregnancy, concludes with the statement "but it is difficult to rely upon this."
23. *Iggerot Moshav's* perplexity stems from his presumption that the prohibition against feticide as applied to Jews is derived from the prohibition in the Noahide Code on the basis of the principle recorded in *Sanhedrin* 59a: "There is nothing forbidden to a Noahide that is permitted to a Jew." *Iggerot Moshav* also assumes that this presumption is inherent in the comments of *Tosafot*, *Sanhedrin* 59a, s.v. *lekka mid'am*.

That presumption cannot be correct according to Rambam as his position is understood by the many scholars who maintain that Rambam rejects the principle of *mi ikka midi*. Those scholars must maintain that, for Rambam, the prohibition against feticide is subsumed in the commandment "Thou shall not murder" (Exodus 20:13) while capital punishment for feticide is excluded by the verse "And the person who smites any soul of man shall die" (Leviticus 24:17) on the grounds that a fetus is not a "soul" (*nefesh*) in the full sense of the term as is indeed the case with regard to a *tereifah*.

Thus, if there is validity to the position that a fetus within the first forty days of gestation is excluded from the Noahide prohibition, according to Rambam such exclusion must be based upon the premise that the term "man" (*adam*) in Genesis 9:6 refers only to a fetus that has acquired a "form" of a "man." Accordingly, the exclusion is limited to the Noahide prohibition derived from Genesis 9:6 but not to the prohibition addressed to

Jews, "Thou shalt not commit murder," in which no such exclusion occurs.

Since Rambam's position must be understood in this manner, there is no reason to postulate that *Tosafot* disagree. In invoking the principle of *mi ikka midi*, *Tosafot*, in context, may be understood not as declaring the source or basis of the governing prohibition, but as identifying the particular aspect of feticide that is the subject of *Tosafot's* discussion, i.e., prohibition of the destruction of the fetus even for the purpose of preserving the life of the mother. It is that particular application of the provision, rather than the fundamental prohibition against feticide, that *Tosafot* in their query assert should be transposed to the law and applied to Jews as well. Feticide itself, *Tosafot* might freely concede, is explicitly prohibited to Jews on the basis of Exodus 20:13 but a ban against sacrifice of the fetus even when it threatens to cause the death of the mother can be suggested only on the basis of *mi ikka midi*.

24. "Artificial Procreation," *Bioethical Dilemmas*, pp. 210-211.
25. See R. Israel Lipshutz, *Tiferet Yisra'el*, *Avodah Zarah* 2:6 and R. Yechiel Michal Epstein, *Arukh ha-Shulhan*, *Yoreh De'ah* 83:15 and 84:36. See also R. Abraham Danzig, *Hokhmat Adam* 38:8; *idem*, *Binat Adam*, sec. 34; R. Shlomoh Kluger, *Teshuvot Tuv Ta'am va-Da'at*, *Mahadurah Tinyanah*, *Kuntres Aharon*, no. 53; R. Zevi Hirsh Shapiro, *Darkei Teshuvah*, *Yoreh De'ah* 18:20; R. Eliezer Waldenberg, *Ziv Eli'ezer*, VIII, no. 15, chap 14, sec. 10; and R. Moshe Feinstein, *Iggerot Mosheh*, *Yoreh De'ah*, II, no. 146; *idem*, *Iggerot Mosheh*, *Even ha-Ezer*, III, no. 33; and R. Pesach Falk, *Teshuvot Mahazeh Eliyahu*, no. 91. Cf. also, R. Yom Tov Lipman Heller, *Ma'adanei Yom Tov*, *Halakhot Ketanot*, *Hilkhot Tefillin* 9:40; and R. Dov Berish Weidenfeld. *Teshuvot Dovev Meisharim*, I, no. 1. Cf., however, R. Iser Zalman Meltzer, *Hashkafah ve-He'arot*, appended to R. Yechiel Michal Tucatzinsky, *Sefer Bein ha-Shemashot*, p. 153; R. Betzalel Zolti, *Mishnat Ya'avez*, *Orah Hayyim*, no. 66; and R. Moshe Sternbuch, *Mo'adim u-Zemanim*, II, no. 124 and VIII, no. 124. See also R. Elyakim Dworkes, *Be-Shevilei ha-Halakhah*, II (Jerusalem, 5752), 50-62.
26. At the eight-cell stage the developing zygote is roughly half the size of a period that appears at the end of a sentence in the *New York Times*. I am not quite certain whether something of that size is to be characterized as an object that can be perceived by the naked eye. If it is not to be classified as something perceivable by the naked eye, it may well be the case that, at that stage of development, Halakhah takes no cognizance of the zygote and regards it as non-existent for purposes of the prohibition against destroying an embryo or of the prohibition against destroying the male seed.
- 26a. An analogous, but by no means identical, concept is reflected in the talmudic controversy regarding whether or not *yesh shevah ezim be-pat*, i.e., whether or not forbidden wood consumed as fuel is present and halakhically recognized in its enhancement of the dough in causing it to become baked.
27. See Jose B. Cibelli, Kathleen A. Grant, Karen B. Chapman *et al.*, "Parthenogenetic Stem Cells in Nonhuman Primates," *Science*, vol. 295, no. 5556 (February 1, 2002), p. 819. See also "Stem Cell Research:

- Primate Parthenotes Yield Stem Cells,” *ibid.*, pp. 779-780, and *New York Times*, February 1, 2002, p. A23.
28. See *Science*, p. 780.
 29. If a reliable method of deriving stem cells from human parthenotes is perfected, therapeutic cloning in which a potentially viable embryo is created would be unnecessary for the treatment of females having oocytes.
 30. *Reproductive Biomedicine Online*, vol. 5, no. 1 (July-August, 2002), pp. 56-58, at <http://www.rbmonline.com/Article/656>.
 31. See Gina Kolata, “Hybrid Embryo Mixture May Offer New Source of Stem Cells for Study,” *New York Times*, June 4, 2002, p. F3.
 32. Cf., *Teshuvot Radvaz*, II, no. 695, who rules that it is forbidden to hasten the death of a fetus whose mother has died in childbirth.
 33. Freezing fertilized ova even in perpetuity presents no halakhic problems. Even according to the authorities cited later in this text who maintain that an embryo may not be allowed to perish, there appears to be no halakhic impediment to maintaining an embryo in a state of suspended animation.
 34. Assuming there is a maternal-filial relationship between the genetic mother and the child, anonymous donation which entails suppression of maternal identity would serve to bar such donations. See this writer’s “Surrogate Motherhood,” *Bioethical Dilemmas*, pp. 253-254.
 35. In vitro fertilization presents other halakhic issues, particularly with regard to semen procurement. See *ibid.*, pp. 249-251.
 36. It is precisely because of a concern for destruction of fertilized ova that German federal law strictly regulates fertility clinics and prohibits physicians from fertilizing more ova than will be implanted at any one time.
 - 36a. See *supra*, note 23.
 37. See also R. Joseph Rosen, *Teshuvot Zofnat Pa’aneah* (Jerusalem, 5728), II, no. 7.
 38. This also appears to be the view of R. Mordecai Eliyahu, *Tehumin*, XI (5750), 272.
 39. In *Miranda v. Arizona*, 384 U.S. 43 (1966), the U.S. Supreme Court ruled that tainted evidence in the form of an improperly obtained confession may not be admitted as evidence in judicial proceedings.
 40. For a fuller discussion of this issue see this writer’s “Utilization of Scientific Data Obtained Through Immoral Experimentation,” *Contemporary Halakhic Problems*, IV, 218-236.
 41. For a fuller discussion of this issue see this writer’s “Fetal Tissue Research: Jewish Tradition and Public Policy,” *Contemporary Halakhic Problems*, IV, 171-202.
 42. Those passages have been restored in the more recently published *Rambam la-Am* (Jerusalem, 5715) and Frankel editions of the *Mishneh Torah* (Jerusalem-Bnei Brak, 5759), as well as in the single volume indexed edition edited by Zevi Preisler (Jerusalem, 5746). Those sections also appear in the Yale Judaica Series translation, *The Code of Maimonides: The Book of Judges*, translated by Abraham M. Herschman (New Haven, 1949).