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OVUM DONATIONS: A RABBINIC CONCEPTUAL MODEL OF MATERNITY

A

The new reproductive technologies introduced by modern medicine offer bold new approaches to medical problems associated with infertility. Rather than treating the couple to cure infertility, they circumvent the problem by utilizing other people—other ovaries, wombs, or testes—to replace the malfunction of the couple. These techniques bring with them a host of moral and halakhic problems. For example, in the procedure known as IVF, a donated ovum can be fertilized in vitro and implanted in a woman who did not contribute the egg. In such a case, who is the mother, the genetic donor or the woman who carried the fetus and gave birth to it?

In a recent review of the halakhic literature on this subject[1] Rabbi J. David Bleich comes to the conclusion that "the preponderance of evidence adduced from rabbinic sources demonstrates that parturition, in and of itself, serves to establish a maternal relationship." He concedes that there are other opinions, and suggests that indeed there might be room to rule that the genetic mother is *also* the halakhic mother. He basically dismisses the position that it is the donor alone who is the halakhic mother (or that there is no halakhic mother at all).

While I do not necessarily take issue with all of his specific conclusions, I believe that the whole issue demands a different conceptual approach. Essentially, this question is not susceptible to the classical halakhic approach of analogy with an existent halakhic ruling. Not only does a "preponderance" of halachic sources not exist in favor of parturition as the maternal determinant, practically speaking, no halachic sources exist for this or any competing candidate for the determinant. A different approach must therefore be attempted. Before showing how that might be done, I must, however, first explain why the methodology exhibited by R. Bleich fails to adequately solve the problem.

The major proof cited by R. Bleich that birth is the determinant of maternity is from the Gemara in *Yevamot* (97b), which states that twins born to a woman who converted during pregnancy are considered brothers. Since the twins are considered to have converted in the womb (see *Yevamot* 78a), and conversion annuls all preexisting familial relationships

("*ger she-nitgayer ki-tinok she-nolad dami*" [a convert has the status of a newborn baby"]), their relationship to each other and to their mother must have been created subsequent to conception and the conversion in utero. The proof assumes that halakhically this case is analogous to the implantation of a fetus in a woman.

Were this proof to be valid, it would represent a legitimate use of conventional halakhic methodology and I would have nothing to add. However, the conclusion is not supported by this source. This can be shown in several ways. Firstly, the analogy of a convert mother to a transplant mother is flawed. Perusal of the footnotes to R. Bleich's article shows that he agrees that the source is compatible with the possibility that both parturition and conception are independent determinants of maternity. In fact, he appears to favor this conclusion. He further mentions an opinion that takes for granted that dual motherhood of one child is an impossibility, an assumption that appears to me to be eminently logical. The conjunction of these two opinions gives rise to the conclusion that although in the case of the pregnant convert (where the determinant of conception has been annulled by conversion) maternity is determined by birth, in our case, maternity will be determined immediately at conception in favor of the genetic mother, and any subsequent determination by birth is therefore precluded.

Secondly, the principle that a convert has the status of a new-born only serves to eliminate previous familial relations, but not to erase historical facts. That the children born to a pregnant proselyte are brothers only indicates that the relationship between them and their mother is established at the *time* of birth, but not that birth is the cause of the determination. It is possible that ovum donation determines maternity, but the relationship is established only when the child is born. If that is true, conversion during pregnancy would not prevent the establishment of maternity at the time of birth based on the pre-conversion ovum donation.

Indeed, the cogency of this proof begs the solution to the question. If ovum donation determines maternity, that would suggest that the meaning of motherhood depends on the genetic origin. Therefore, one might argue that although conversion erases the relationship established by ovum donation, the relationship that is ultimately established at birth must be based on the reality of genetic motherhood and can be effected only if in fact the child and the mother are genetically related. This would be true in the case of the pregnant convert, but not in the case of ovum donation. Even if birth alone determines maternity, it might be argued that genetic continuity is a necessary condition for such determination. Bleich rejects this possibility as unsupported. However, the same consideration that underlies the argument that ovum donation is an independent determinant of motherhood—that to the modern scientific mind genetic continuity seems to be a basic component of the concept "parenthood"—raises the possibility that any other determinant (such as birth) should include genetic continuity as a nec-

essary condition. According to this possibility, a child born to a woman who had received a donor ovum would either have the donor as a mother, or have no mother at all.

Bleich himself (footnote 13), in a different context, allows that birth could be merely the time of maternity determination. He points out that sperm donation is undoubtedly the determinant of paternity, yet the time of the actual determination is only at the end of the first trimester.[2] A similar deferral could be true of the mother, with the time of determination postponed to the birth. This extended deferral could be due to a number of reasons. Rav Yosef Engel, cited by Bleich in support of his position, explicitly states that maternity is determined at birth because "*ubar yerakh immo* (the embryo is a limb of its mother)"; in other words, the determination must be delayed as a woman cannot be the mother of a part of herself. Birth, then, is not the determinant of maternity, but merely the removal of the impediment to its establishment by some previous factor, presumably the woman's role in conception, parallel to that of the male. Another reason could be that the entire pregnancy is the parallel to the male's role; that is, conception (rather than ovum donation) is the determinant. Birth would then be not an event which determines maternity; it would be simply the conclusion of the extended determinant. Accordingly, a woman who did not conceive could not be a mother, even if she did "give birth."

Thirdly, the proof is based on two assumed premises not explicitly stated in the source: first, that the embryos are considered to have converted; second, that hence all pre-conversion relationships are annulled. Rashi (Yevamot 97b), however, studiously refuses to apply the principle that a convert is like a new-born to a conversion in utero. He uses this principle (in order to annul relationship with the mother) only where the conversion was after birth. In the case of the twins whose mother converts, Rashi states that they are not related to the father because of a different principle, one which applies only to paternity. Accordingly, this source is completely compatible with the assumption that maternity is established by, and even at the time of, conception. The *Zera Yitzhak* (4) denies the first assumption, stating that there is no such thing as conversion in utero. A child born to a woman who converted during pregnancy is Jewish by virtue of the birth. This does not imply that the child is *her* child by virtue of the birth, and in the absence of a conversion of the child, the proof, based on the principle that a convert is like a new-born, evaporates.

There exist two sources which explicitly deny that birth alone is the determinant of maternity, although without conclusively demonstrating what the determinant is. The Talmud (*Hullin* 70a) asks: "What is the law [regarding the sanctity of a first-born animal] if two wombs were affixed and [the fetus] went out of one and entered the other? *Its own womb* is exempted [from future status of a first-born, as this was its first-born], the one not its own is not exempted, or perhaps the one not its own is also exempted."

The very term "its own womb" indicates that conception creates a relationship between the mother and the embryo; the question of the Talmud is whether the laws of the first-born, which are dependent on "that which opens the womb (*peter rehem*), could apply to a womb of an animal that was not the mother ("not its own"). The Rambam is even more explicit—"If two wombs were affixed . . . or is (the second) not exempted as its womb was not opened *by its child*" (*Hil. Bekhorot* 4:18).[3]

At the very least, this source demonstrates that in a case of embryo transfer, where an embryo is removed from a woman who conceived it, she is considered the mother. This could, however, be due to the fact that the removal from the first woman is in fact a birth, although the term, "its own womb" does not support this interpretation.[4]

Bleich quotes the aggada that Dina was originally conceived by Rachel and subsequently transferred to the womb of Leah. Since the Torah refers to Dina as the daughter of Leah, it could be argued that this proves that birth, and birth alone, determines maternity. Bleich correctly points out that an aggada cannot serve as a source of a halakhic ruling, but there is a further difficulty in relying on this source.

The aggada does not state that Dina is the legal daughter of Leah. The proof rests on the assumption that the narrative description of Dina as the daughter of Leah should be understood halakhically. Yet it is possible that the verse refers to Dina as Leah's daughter only because she was generally considered so, especially since no one knew about the switch. In fact, one medieval commentator, referring to this aggada, discloses his *halakhic* assumption that birth is not a determinant of maternity. The Tur, in his commentary to the Torah (Gen. 46:10), asks how Shimon was permitted to marry Dina, since even non-Jews are forbidden to marry a sister of the same mother. He answers that since Dina was conceived in Rachel's womb, she was in actuality Rachel's daughter; hence, Shimon and Dina did not have a common mother.

This source was introduced into the literature concerning parenthood over thirty years ago by Rav Yisrael Zev Minzberg[5] and subsequently ignored. Rav Minzberg assumes that the aggada states that Rachel's ovum was transferred to Leah prior to fertilization. Since the Tur states that the ovum-donor is the legal mother, he inferred analogously that the sperm-donor in artificial insemination is the legal father. If this were correct, it would also be an explicit source that ovum-donation determines maternity in in vitro fertilization.

However, the aggada actually states that the embryo which was Dina was transferred from Rachel to Leah. Hence, it is possible that the assumption of Rachel's motherhood is based on her having conceived the child and not merely donated the ovum. This same aggada is used to explain why Dina's birth is described without the customary introduction "and Leah conceived . . ." (Gen. 30,21); that is, according to the aggada, Leah had not

conceived Dina, although she did give birth to her. We may therefore conclude that according to the Tur, birth is not the determinant of maternity. Some earlier connection, as exemplified by the relationship of Rachel to Dina, is the maternal determinant. This is, to the best of my knowledge, the only classical halakhic source relevant to the question.[6]

The other proofs offered by Bleich are striking by reason of their a priori inappropriateness. In the absence of a persuasive analogy from a case of maternity, various authors attempt to produce a proof by analogy—the conventional method of halakhic reasoning—with vegetative relationships. This seems to be a desperate attempt to maintain conventional halakhic reasoning procedures. It is however, totally invalid. There is no reason that the halakhic age of a grafted branch, for example, should bear any relationship with the concept of maternity. Aside from the obvious difference between plants and animals, our topic is identity—who you are—and not age. The fact that in our case there is also a father (i.e., a child is the result of sexual reproduction) is a further difference. In fact, I think it is pointless to list differences. The question is why should there be even a prima facie basis for imagining that the two concepts are analogous.

If conventional halakhic method fails, the result should not be desperate attempts to preserve a semblance of halakhic reasoning. There may be questions to which conventional halakhic methodology provides no sources, no solutions. The question is whether there is an alternative halakhic methodology available. The rest of this article will be devoted to that question.

B

If we come to the conclusion that there exists no clear indisputable halakhic source for our question of motherhood, how do we go about analyzing the problem? The first step is to formulate the conceptual question involved. I would like to suggest the following approach.

At first glance, it seems axiomatic that the concept of parenthood is basically the same for mothers and fathers. Under normal circumstances, we know that the parents are the people who conceived the baby. The question then is, how does the Halakha understand the act of conception? Only by answering that can we determine what is the role of each parent.

I believe that there are two possibilities. The first is parallel to the biological explanation of sexual reproduction. A new human being is conceived when genetic material from two donors is combined. Accordingly, the father and the mother are the two donors of the genetic material. In artificial insemination, the sperm donor is the father, and in in vitro fertilization (IVF), the ovum donor would be the mother.[7] This, in light of modern medical knowledge, is the simplist solution to our problem.

There is, however, no clear source in rabbinic literature which suggests that a woman has ova. Inasmuch as the rabbis certainly had a concept of motherhood, such a concept must be definable without reference to the ovum. This in and of itself might argue for birth as the sole determining factor for motherhood.

However, there is another conceptual model of parenthood, one based on the model of fertilization rather than donation and combination. This model perceives the role of father and mother as essentially parallel to what takes place in agriculture, where a seed is placed in a fertile environment. A man fertilizes a woman by placing his seed in her. The man is the donor of the seed, the woman the recipient. Accordingly, paternity may be determined by sperm donation, but maternity is determined by becoming pregnant, by producing life through the act of receiving the male seed. The roles of the mother and the father are complementary rather than identical. The analogy is to planting a seed in the ground rather than to mixing ingredients in a laboratory.

Of course, this "agricultural" model is not based on the accepted modern scientific understanding of what takes place in fertilization. It is therefore important to point out that this should not be a factor in rejecting it as a halakhic model. This is not a case of basing a halakhic conclusion on incorrect information. If halakhic maternity were based on the transfer of genetic material and the Sages believed that this transfer took place in a manner inconsistent with scientific belief and consequently determined maternity in accordance with that manner, there would be a problem of whether to revise the halakhic conclusion to agree with our new knowledge. But here the question is what is the *principle* for determining maternity, not which facts fulfill that principle. There is no dispute as to the facts, but only as to which facts are relevant.

I mentioned before that the Sages were apparently unaware of the existence of human ova. Therefore, in determining maternity they did not have a model which was an exact parallel to the male role. It is quite possible that they saw the female role as complement (rather than the parallel) of the male role, as receiving what the male donates and converting or being affected by it. In that case, even if we could construct a new model based on our different scientific knowledge, there would be no reason to do so, as there exists a valid halakhic model that historically was accepted and developed without in any way having been rendered obsolete.

In both the biological and agricultural models, the basic assumption is that parenthood is determined by fulfilling the male and female roles in conception. The question is how we are to view those two parallel roles; as two donors combining their respective contributions, or as a male donation to a female receptor, who in turn produces life.

It would not necessarily follow from acceptance of the agricultural model that only the moment of fertilization is relevant for maternity. It is not

the physical reception of the seed that constitutes the woman's role but rather the production of life as a result. Hence it is possible that the entire period of gestation is the determinant of maternity, as that is the process whereby the woman turns the seed into life. Accordingly, the actual moment of determination may be birth, when the seed bursts out of the "ground."

The "biological" model would seemingly imply that the sperm donor is the father in artificial insemination. In fact, many of the arguments advanced to deny paternity in cases of artificial insemination assume that sperm donation should in principle determine paternity, but claim that some further reason abrogates the natural connection between the donor and the child.

The "agricultural" model permits the argument that paternity is dependent on an act of impregnating a woman, and in artificial insemination, the male has not done this even though his sperm was used. On the other hand, it is fully consistent with this model to claim that donation of the sperm is the determinant of paternity, as it is the sperm that constitutes the seed which gives rise to life in the woman. In effect, by donating sperm, the male is the (material) cause of the woman's impregnation.

In a case of in vitro fertilization, the "biological" model would presumably recognize the two donors as the respective parents of the child. Under the "agricultural" model, at the time of fertilization, there is no determinant of either paternity or maternity, as the woman (as opposed to the ovum) has not been inseminated ("planted"). However, it might be argued that implanting the fertilized zygote in the woman's uterus constitutes her insemination. She receives a seed and turns it into life. Since this model does not recognize the existence of the donor's ovum, and in any event does not consider it to be a determinant of maternity, it would not matter that the "seed" that is planted in the recipient has an ovum constituent as well as a sperm constituent. Hence, the recipient could be the mother—not because she gives birth to the child, but because she is considered to have conceived it. Before returning to the first question, let me briefly address this latter point.

For implantation to be considered insemination, I think we must agree that the zygote not be considered a live human being. The determinant of maternity is being the source of life, the ground from which it springs. If a fertilized ovum is a live human being, the woman has not received a seed as the ground does, but has only been the home for a developing human being. Our model defines the woman's role not as nurturing a baby, not gestation per se, which is not parallel to the role of the father, but as producing a human being through the act of reception of something that does not have that status. Hence, if the zygote is already a baby, no subsequent action can establish a ground for the production of life.

One way to guarantee this conclusion would be to accept the forty day limit as a halakhic definition of human life. Those who permit abortion

before this point, at least in relation to the prohibition of murder, would surely agree. However, even if the forty day limit is not used in questions of abortion, and the phrase "mere water" is not taken literally, it may be possible to rely on the halakhic requirement of forty days which appears in the laws relating to birth-*tum'a* (ritual defilement). If a woman who aborts spontaneously before forty days is not *tamei* and her subsequent child is considered a first-born, it is reasonable to conclude that she has not given birth. One might reason that this is because, lacking "the form of a human," the embryo is not considered a human being. Alternatively, one might conclude that prior to forty days, a woman is not pregnant, and, according to this model, that is because human life has not flowered within her. There may indeed be a prohibition in abortion before forty days, even if the embryo is considered no more than potential life. However, for our purposes, an implanted embryo may be considered to be generated in the womb where it grows from the fortieth day on. Before that date, there was no baby.

Implantation in in vitro fertilization is performed far earlier. The zygote is microscopic at that point,[8] and, as Rabbi Bleich has pointed out elsewhere, "an organism that can be seen only by means of a magnifying glass or under a microscope is an organism of which Jewish law takes no notice. . . . [Hence] when the developing [human] organism is still sub-visual, the law takes no cognizance of its existence."[9] Essentially, a fluid without any particular components is being injected into the woman. (This would not necessarily imply that abortion could be performed in the first few days of pregnancy, as the prevention of the development of life may also be prohibited under the rubric of destroying seed.)

Furthermore, the fact that the zygote has no mother while in vitro would itself be a reason to deny it personal identity. This, in turn, might allow us to view the implantation into a human womb as the equivalent of organ transplant, where the transplanted material loses its original identity and becomes part of the host. If this takes place in the recipient womb, the subsequent development of the embryo is the equivalent of giving forth life from the ground of the recipient mother.

The implication of being without a mother in the stage before implantation may be quite radical. If a fertilized egg were incubated artificially and consequently had no mother, it is not clear that the resulting child would be halakhically human. In animals, species is determined solely by descent—the offspring of a cow is a cow (Hullin 79a). The fact that an animal looks like a pig in no way determines that it is one. If it were born by a cow, it is a cow, though somewhat deformed. If we applied the same conclusion to in vitro fertilization and incubation, such a baby, though produced from human cells, might be the halakhic equivalent of a *golem*. The question is whether birth determines species identity, or origin—for our purposes, genetic origin. It could be claimed that if cell donation is not considered descent, then this baby has been manufactured, rather than conceived.

Of course, the implications of not being human are extreme. The Talmud (*Yevamot.* 65b) states that Rav Zeira killed a *golem* sent to him by Rava. Hakham Zvi (no. 93) concluded from this that the life of the *golem* was of no significance. He also claims that even if the *golem* is human, the prohibition of murder extends only to humans who were born in pregnancy, based on the verse, "He who sheds the blood of a man, by a man shall his blood be shed (Gen. 9:6)," reading "He who sheds the blood of a *man in a man*, his blood shall be shed" (cf. Sanhedrin 57b). This leads to the conclusion that fertilized eggs not needed could be discarded prior to implantation in the mother.[10] For our purposes, this would be another reason to conclude that implantation of the fertilized ovum in a woman would therefore be its conception, as it had not previously achieved the status of a human being.

Hence, it seems to me logical to conclude that according to the "agricultural" model, where the fertilization was in vitro, no one other than the recipient woman could be considered the mother. This would not necessarily be true if a fertilized embryo was transferred from one womb to another. Here, the previous determination of maternity in favor of the donor would prevent subsequent determination. Transfer following uterine lavage might occur early enough to deny the conceiving women maternal status. Determining the exact cut-off time is beyond our consideration here.

(The equivalent conclusion for paternity is not as clear. Even assuming that in artificial insemination the sperm donor is the father, that is because he was the sole source of the "seed" which impregnated the woman. In our case, the woman is inseminated by a fertilized zygote, for which the father is not the sole source. It might be claimed that if the ovum does not exist halakhically, then the only material being injected in to the woman derives from the male. However, the sperm has been changed from its original state and hence the father is not the sole cause of the woman's impregnation. Of course, if the sperm donor is not the father in artificial insemination, he is surely not the father in in vitro fertilization. Hence, it is possible that the host woman is the mother, but there is no father at all.)

There is however one possible objection to this argument. This model ignores the scientific understanding of the role of the ovum. This, as I stated above, is acceptable when constructing the model. However, it is not as clear that we can ignore the difference between insemination and zygote implantation when deciding whether the model is appropriate for the latter. Our knowledge today indicates that there is a radical difference between them, relative to the agricultural model. In the case of insemination, life is being produced within the host woman. With zygote implantation, life *appears* to develop in utero, but we know that in fact a major step—fertilization—has taken place elsewhere, without the woman's participation. The argument that halakhically the ovum does not exist carries less weight here. The process of implantation is still significantly different from that of insemi-

nation precisely in that area relevant to the model. The existence of the ovum will not entail a revision in the halakhic model, but it well may be relevant to deciding whether a particular case meets the model.

In other words, one can have a valid concept of motherhood without specific knowledge of the existence of the ovum; however, it is not clear that one can apply that concept to a case where knowledge of the role of the ovum would contradict the model. Since ova are invisible, it may make sense, for that reason or others, to define a process on the basis of the visible phenomena. The definition of maternity then is the production of life, rather than the donation of ova. However, this is not the same as saying that invisible objects do not exist, are never taken into account, and hence we are interested only in outward appearances. It might be argued that in zygote transplantation, life is not in fact produced by the host woman at all, whether that is apparent to an outward observor or not; in other words, the model constructed without reference to ova is not being fulfilled. I am not sure that modern scientific knowledge should not prevent us from blithely ignoring the difference between insemination and implantation. Accepting this distinction will lead to the conclusion that since only the production of life determines maternity, neither the ovum-donor nor the host is halakhically the mother. The child would have no mother at all.

This objection is potentially valid only against the line of reasoning which viewed implantation as equivalent to insemination, but not against the argument which viewed it as equivalent to organ transplantation.

A finer distinction may be required here. Is the definition of motherhood in the agricultural model the ground from which life springs, or the source of that life? In other words, is it sufficient that a live human being appear out of a ground where none existed before, or is it necessary that the woman be considered to have produced, created the child, from within herself. If the first, I believe the arguments presented will be sufficient to demonstrate that the zygote was not a live human being before implantation, and hence, the host mother was the ground from which the human being emerged. According to the latter definition, I am doubtful if the condition of maternity is met in a case where the essential ingredient, the ovum, is donated by another woman. Although the analogy with the earth in agriculture would suggest the former definition, it is far from clear that the latter definition is not closer to the truth. Of course, if we seriously suggest that invisible objects have no halakhic existence at all, there will be no problem. I am not sure what would be the basis for such an assertion.

The preceding discussion referred to the original method of IVF, where a fertilized zygote was implanted into the host mother. An increasingly popular alternate method is called GIFT, gamete intra-fallopian transfer, where the ovum and sperm are injected as a mixture into the fallopian tube of the host-mother before the ovum has been fertilized. In this case, it is clear that there is no human being before the transfer, as fertilization

takes place in the body of the host mother. Furthermore, the last objection is significantly deflected as well, as it is far easier to utilize the argument of organ transplant in relation to an unfertilized ovum than for a fertilized zygote; and as we have seen, this objection is not valid against the argument from organ transplant. Even without the analogy to organ transplant, the fact that fertilization takes place in the host mother makes it easier to see her as not merely the ground from which the child emerges, but as the cause of the emergence of life. It would appear that, given the agricultural model, one would be justified in concluding that in cases of GIFT, the host mother is the halakhic mother.

C

Returning to the major question of the halakhic model of conception, is there any halakhic source sufficient to resolve it? The answer is no. I propose instead to attempt to discover the general conceptual framework of the Sages concerning conception, on the assumption that, in the absence of negative evidence, the proper legal definition of conception in regard to the determination of parenthood will be congruent with that general framework.

In support of the "agricultural" model, I claimed that the Sages were not aware of the existence of the human ovum. The Talmud (*Nidda* 31a) states: "If the woman is *mazria* first, she will bear a male child; if the man is *mazria* first, she will bear a female child." The phrase "*mazria,*" applied to the male, clearly means ejaculating, i.e., producing sperm. Applied to the female, the term would seem to mean ovulation, i.e., producing her seed, an ovum. The statement of the Talmud would accordingly mean that if ovulation precedes intercourse, a male child will be born. This, however, is not the generally accepted explanation. The Talmud continues (op.cit.): "Is it in a man's power to increase his sons and grandsons? Rather [the verse refers] to their custom of holding back [from ejaculating (Rashi)] so that their wives should be *mazria* first and their children would be male...." It is apparent that *mazria* is something that takes place during intercourse. The Talmud continues: "Rava said: One who wishes to ensure that all his children be male should have intercourse twice. (Rashi: As a result of sexual passion, she will be *mazria*, and ... her *hazra'a* will precede the second intercourse)."[11] *Mazria* is therefore associated with the heightening of passion during intercourse. Clearly, the *biblical* term *mazria* does not refer to ovulation, as the verse (Lev. 12:12) states: "If a woman is *mazria* and bears a male child", without mentioning explicitly the need for male impregnation. The reference here is to receiving (fruitfully) the seed of the man.

Ramban (Lev. 12:12) comments on this verse:

> It is not the Sages' intention to imply that a child develops from the seed of a woman, for even though a woman has "eggs" similar to those of a male (i.e., testicles), either they do not produce any seed or the seed is inert and has no affect on the embryo. The term *mazria* refers to the blood of the womb, which is gathered at the conclusion of intercourse and is conjoined with the seed of the male, for the Sages believe that the baby is formed from the blood of the female and the white of the male and both are called "seed."

Ramban here states his own belief that no female ovum is involved in conception, and explains the term in the Talmudic statement as referring to the development of the lining of the uterus prior to conception. This could be translated into modern terms in one of two ways. One might claim that the Sages agree that the mother donates a substance which combines with a male donation to form a child. Based on scientific discovery, we have substituted ova for blood. Substituting ova for blood, however, does not permit translation of the statement of the Gemara in *Nidda*. A translation that does not involve loss of meaning would suggest that the term *mazri'a* means producing the necessary environment for the reception of the seed. This implies that the female role in determining the sex of the offspring is associated with her being the receptor of the male seed. This would parallel the claim that her role as a receptor is the determinant of maternity. This statement of the Sages is not only not a refutation of the "agricultural" model, it lends a certain measure of support to it.

Ramban continues:

> In the opinion of the Greek philosophers, the body of the embryo is totally derived from the blood of the woman, and the man only provides the power called in their language *hyle*, which gives form to the matter, as there is no difference between a fertilized chicken egg and an unfertilized one; yet one produces a chick and the other does not, as it lacks the essential heat which is its *hyle*. Accordingly, the word *tazria* (in the biblical verse) means "growing its (received) seed." This is how Onkelos translated it: `A woman who becomes pregnant. . . .'

This alternate understanding of the process of conception, which Ramban ascribes to the Greek philosophers and to the Targum, provides a model exactly equivalent to the "agricultural" model. A mother is she who physically provides the substance of the child's body out of herself, having been fertilized by the seed of a male.[12]

The first opinion of the Ramban, in terms of the agricultural model, perceives the woman as receiving and nurturing the seed of a man; the second opinion sees her as being transformed, fertilized, by it.

It is worth noting that the Hebrew word for parent is *hore*, which is derived from the verb meaning to be pregnant[13]. The female parent is one who is pregnant with child, and the male parent is the one who fulfills the

male role in that state. *Moshe Rabbenu* exclaims, "Have I *horiti* (conceived) all this people (Num. 11:12)," which Onkelos translates as, "Am I the father of all this people." To be a father and to impregnate are here seen as synonyms.[14]

It may appear strange to utilize an analogy to agriculture to illustrate the model described above, when it is clear to us that in fact the earth is merely the environment for the development of the seed, which is exactly the opposite of the relationship of the seed and the mother described by Ramban as the opinion of the Greeks. However, this in fact illustrates the difference between a halakhic model and a scientific one. Clearly, the Sages were aware that seeds develop into plants; after all, seeds develop roots and shoots without being planted at all, in water or even in the air. Nevertheless, the Sages consistently speak of the earth as bringing forth plants. An agricultural curse is addressed to the fruitfulness of the earth.[15] This derives, of course, from the language of the Torah itself, both in creation (Gen. 1:11-12; "Let the earth bring forth grass . . .") and in destruction (Gen.3:17-18; "cursed is the ground for your sake. . . . Thorns and thistles it shall bring forth to you. . . .").

Moreover, this conception of the plant being a product of the earth is apparently reflected halakhically as well, as the status of a plant or a fruit is dependent on the earth in which it is planted. If a plant grows not in earth but in water or in a closed pot, it is not considered a normal plant in many respects. The scientific picture of the earth as merely a conduit for water and nutrients fails to justify the important role the earth has in determining the "identity" of a plant or fruit. Clearly, the halakha views a plant as being the "fruit of the earth," of the particular earth in which it is grown. In an analogous manner, we can claim that the identity of a baby is dependent on the ground out of which it grows.

There are numerous references in rabbinic literature to the principle of the female as being identified with receptivity, as well as the relationship of the earth to the heaven (or to the rain) as being equivalent to that of a female being vitalized by a male activating principle. A striking example is the following:

> R. Levi said: the upper waters are male and the lower female. The one says to the other, "Receive us; you are God's creatures and we are His messengers." Immediately, they receive them, as is written (Isa. 45:8), "[Drop down, heavens, from above, and let the skies pour down righteousness,] let the earth open"—as a female opening herself to a male—"and be fruitful with salvation"—they procreate.[16]

We find here a clear aggadic picture of a woman receiving from a man and in that way becoming "fruitful." I am suggesting, in order to reach a halakhic conclusion, two additional steps. First, we accept this picture as defining halakhically the sexual roles in conception. Second, the sexual roles in conception define parental identity.

I think it important to note that what I have attempted to do in the previous section is totally different to the comparison offered in R. Bleich's article between maternity and plant identification in cases of grafting. As a normal halakhic proof, the analogy to vegetative reproduction is simply too loose to be convincing. For one thing, grafting is not reproduction at all. Secondly, we are investigating sexual reproduction, which is not necessarily the case in plants. The concept of parenthood, as understood in the animal world, has no exact halakhic parallel in the vegetative world. Specifically, we wish to determine if there is a difference between paternity and maternity, which is meaningless in plants. The end result is not the same either. The question in plants was the age of the branch grafted unto an older tree; the question for us is familial identity. Who you are and how old you are are not equivalent questions. No one doubts that animal age is measured from birth—even though paternity is determined by the donation of sperm. Finally, as pointed out in the first section, even if maternity is determined at birth, that does not conclusively imply that the mother is she who gives birth.

My comparison to vegetation, the "agricultural" model, would be even weaker were it offered as a proof by analogy; however, I had no intention of doing so. I merely offered it as a model, as a way of perceiving how the Sages may have viewed a similar process. The launching point for what I have done is the conclusion that no normal halakhic proof exists for deciding the question of maternity. Having accepted that as a starting point, I posited that it would be valid to use an entirely different method in order to reach a conclusion.

What does one do when there are no sources for a halakhic answer to a pressing question? Our usual answer is *"hafokh ba, hafokh ba"*—keep looking! There is always a source. But are there not dozens of halakhot and legal principles in the Talmud which have no apparent scriptural source? Are we to assume that there must have been a source, or that the Sages of the Talmud were granted a unique (prophetic?) ability to originate halakha? One would be hard-pressed to find a source for such a position. There are a limited number of specific instances where the Tosafot, for example, state that a particular talmudic halakha is based presumably on some scriptural text, although unknown.[17] That is because the halakha in question strikes Tosafot as not being particularly self- evident, or even logical. In numerous other cases, however, the only source of a halakha is Reason, although it does not represent, strictly speaking, the only logical possibility. The Sages have certain conceptions of law and understanding of various concepts which underlay halakhic conclusions. Our topic is in fact a perfect example. If it is true, as R. Bleich claims, that the Sages consider birth to be the determinant of motherhood, what is their source? If sperm donation determines paternity without intercourse, or vice-versa (the question of paternity in artificial insemination), what are the (pre-Talmudic) sources?

Halakha is riddled with concepts that reflect the assumed conception of the Talmudic Sages on a particular topic. In our halakhic investigations, we attempt to base all our conclusions on the determination of the Talmudic concepts, because we accept implicitly the legal formulations of the Sages. Rarely does a contemporary halakhic discussion investigate the sources of Talmudic concepts.[18] It is simply accepted that certain basic assumptions underlie many halakhic formulations, and we accept those assumptions if they are evinced in Talmudic halakha.

What then do we do if there is no Talmudic halakha relevant to the assumptions needed for a decision in our question? It appears to me that we are justified in trying to determine the Talmudic assumptions, the base conceptions of the Talmudic world-view, from other sources. This is not the same as the oft-rejected aggadic source for halakhic conclusions. To derive a halakha from a single aggadic source is misleading, as we cannot be sure what the intent or precise factual meaning of the aggada is. To use the aggada to determine a general approach of the Sages to a question, in order to determine what halakha must necessarily arise from that approach, is, although risky and lacking the certitude we are accustomed to expect in halakhic discourse, in principle as valid as what the Sages would have done in the first place had they faced the question we are facing today. Were there to exist absolutely no Talmudic guidance for our question, neither in halakhic or aggadic sources, in principle we would have to formulate for ourselves the proper way to understand the necessary concepts, in the same way that the Talmudic scholars did. I cannot imagine any serious Torah scholar being happy with such a situation; we depend upon direct Talmudic sources as a fish depends on water. Nonetheless, I believe it is a valid way to derive halakha; indeed, it is one of the bases for Talmudic halakha itself.[19]

What is the difference between an "agricultural" model and a "biological" model? The latter either denies or at least attaches no importance to the differences between male and female. They both donate genetic material and together constitute the embryo. Maternity and paternity are identical; simply the different names we give to the same position when filled by members of the two sexes, like shepherd and shepherdess. A mother is a female father, at least at the level of the determining factors.

The former model, while positing parallel roles, so that it is only through the joint participation of the two that an embryo can be formed, nonetheless defines the roles in a radically different, almost opposite way. It seems to me that this dual model, an impregnator and the impregnated, the spark of life and the ground of life, form and matter, most closely corresponds with the metaphors the Sages associate with female and male. Although these metaphors have no halakhic validity, it is logical to conclude that they could underlie halakhic concepts based on male and female as well. We surely have the right to expect conceptual uniformity over the aggadic-halakhic divide.

If it is fair to derive philosophical concepts from the halakha, it must be because these underlying concepts are basic to the world-view of Torah and not only halakha in the strictly legal sense. There is a stricter level of logical rigor required in halakhic definition than in aggadic definition; hence it is risky going from less-well defined aggada to the strict domain of halakha, but it is not excluded in principle. If the Halakha has a world-view and a conceptual basis, which is the conceptual framework of the Sages, there may be cases where there is no other way to determine that conceptual basis other than to examine the wider framework as expressed in aggada.

This is completely different from trying to derive the halakha directly from an aggadic comment or story. Since the purpose of the aggada is not to decide halakha, the halakhic conclusion may be totally irrelevant and not necessarily accurate. However, the conceptual conclusion is not incidental to the aggada but directly implied by it, and if the same conceptual conclusion has halakhic ramifications, they are in principle valid. There are two problems here, first in determining the conceptual conclusion with the desired degree of precision, and then determining the halakhic ramification, which necessitates a further degree of specificity not always possible for philosophic concepts. The conclusion will be almost unavoidably tentative. In cases where direct legal analogy or derivation is non-existent, there may be no choice.

One of the basic endeavors of contemporary talmudic research is the attempt to uncover the conceptual models of halakhic conclusions. This consists not only in proposing a *svara* for a given halakha, but in formulating the second-layer conceptual assumption of the first-level *svara*. Unless this is a merely intellectual exercise, it implies that the underlying conceptual model has halakhic validity; i.e., that further halakhic conclusions may be derived from it. Students of modern talmudists—especially those of the Rav, Rabbi Joseph B. Soloveitchik, הל"מ—are familiar with this process; it is a daily exercise in advanced talmudic reasoning.

This then is our first assumption, that the halakha is based on conceptual models. Our second assumption is that the conceptual model is not in itself a halakhic statement. Hence, it is in principle not limited in operation only to the realm of halakha. One consequence of this assumption is that we could, on the basis of conceptions derived from the halakha, formulate a proper Jewish philosophy; i.e., derive aggada from the halakha. This, of course, was the basis for most of the Rav's philosophic endeavors, and in fact is, in his opinion, the most, perhaps only, valid way to discover the philosophy of Judaism. A second consequence is that in principle it would be possible to derive the conceptual model from the aggada. If the conceptual framework has applications in the halakha and the aggada, it may be derived, at least in principle, from either. Hence, eventually, in this way, we will reach halakhic conclusions based ultimately on aggadic source material.

NOTES

1. J. David Bleich, "In Vitro Fertilization: Questions of Maternal Identity and Conversion," *Tradition*, 25:4, Summer 1991, pp. 82-102.
2. Rav Bleich seems to imply that the Gemara in *Megilla* 13a states explicitly that paternity is established only at the end of the third trimester. Actually, this is not the case. On the contrary, Rav Yosef Engel (*Bet Otsar*, 4) considers the Gemara in *Megilla* to be a proof that paternity is established immediately. The assumption that paternity is established only at the end of the first trimester is based on Rashi (*Sanehdrin* 69a); cf. R. Yosef Engel, ad.loc.
3. Cf. Rav Zalman N. Goldberg, *Tehumin* 5:253 (in English, *Crossroads* 1:74), who arbitrarily limits this case to a full term embryo; cf. Bick, *Tehumin* 6:268 (*Crossroads* 1:82).
4. Bleich argues that surgical removal of the fetus is considered birth only if it is viable when removed from the first woman. Accordingly, he concludes that if a non-viable fetus were to be removed from a woman and placed in an artificial incubator "similar to that portrayed by Aldous Huxley in his *Brave New World,*" it might have no mother at all in the halakhic sense.

   But, of course, in every major hospital, non-viable babies in the fifth and six months of pregnancy are placed in incubators. There must be thousands of these "motherless" babies alive today, in our brave old world. There should be no reason to distinguish between natural delivery at any stage of development and surgical removal of the fetus. If caesarean section is considered birth for viable babies, and natural delivery is birth for non-viable babies, caesarean section or ovarian lavage should be considered birth for non-viable babies. A more logical division point might be removal before forty days. However, the halakhic significance of the forty day boundary is not clear, as Bleich himself points out. In any event, this source is not relevant to in vitro fertilization, where an unfertilized ovum is removed from the woman, so that if birth is indeed the determinant of maternity, the fertilized ovum in vitro will be without a mother.
5. Rav Yisrael Zev Mintzberg, "Artificial Insemination," *Noam*, vol. 1, 5718 (1958), p. 159.
6. The *Targum Yonatan* actually states that Dina, conceived by Rachel, and Yosef, conceived by Leah, were transposed. For non-halachic reasons, it is very difficult to claim that Yosef is not the legal son of Rachel. It should be noted however that the textual support for the aggada—the absence of the phrase, "she conceived" in reference to the birth of Dina to Leah, is absent in the case of Yosef. The *Meshekh Hokhma* (Gen. 46:22), however, discovered a textual reference to the conception of Yosef by Leah.
7. This approach could be alternatively defined not in terms of sperm and ova, but by the sex of the parents. Sexual reproduction is a process of combination of the genetic material from two donors; they are the parents. The male donor is the father, the female donor the mother; i.e., mother is merely the feminine form of the word father (like *hore* and *hora*—parent). The *Minhat Hinukh* (168) appears to maintain a variant of this position when he states that were a man to give birth, he would consequently be a father.
8. The human ovum is in fact barely visible to the unaided eye. Nonetheless, practically I do not believe that a dot without visible shape can be the object of a halakhic determination, and surely is not a human being.
9. J. David Bleich, "Ethical Concerns in Artificial Procreation: A Jewish Perspective," *Publications de l'Academie du Royaume du Maroc, vol. X: Problemes d'ethiques Engendres par les Nouvelles Maitrises de la Procreation Humaine* (Agadir, 1986), pp. 144f.
10. Reduction after implantation of multiple embryos would not be included in this conclusion. Cf. Richard V. Grazi and Joel B. Wolowelsky, "Multifetal Pregnancy Reduction and Disposal of Untransplanted Embryos in Contemporary Jewish Law and Ethic," *American Journal of Obstetrics and Gynecology*, Nov. 1991, v. 165, pp. 1268-71, where several halakhic authorities are quoted (without their arguments) as permitting both procedures.
11. There is some evidence that during the course of intercourse the vaginal passage becomes increeasingly alkaline, which seems to favor the Y-sperm.

12. Cf. *Tosafot, Nidda* 13a, s. v. "VeNashim" and other commentators ad. loc., where the issue is whether a woman is liable for "destruction of seed." Some of the commentators are referring explicitly to the destruction of the man's seed. From Rabeinu Hananel, it would appear that the discussion refers to the possibility of induced menstruation, which would not necessarily imply knowledge of the existence of the ovum. As we have seen, the Sages understood that the blood, i.e., the menstrual lining, is necessary for conception. Even those commentators, like the Rosh, who refer to the destruction of the woman's seed, are not necessarily referring to the ovum, but merely to the possibility that through some action of hers she will interfere with the possibility of her immediate fertilization; i.e., she will bring on her menses.
13. Most commentators derive the verb from *har*, meaning mountain describing the shape of the pregnant woman.
14. The possibility exists, of course, that Onkelos deliberately changed the metaphoric use of conception and pregnancy because he thought it inappropriate to use a distintly female verb in relation to Moshe.
15. Cf. *Bereshit Rabba* 5:9, "Why was the earth cursed? Because it transgressed the command. God said to it: 'Let the earth bring forth grass . . . and fruit trees bearing fruit'—the tree was to be as edible as the fruit—but it did not do so; rather: 'the earth brought forth grass . . . and trees bearing fruit'—the fruit was edible but not the tree." Because the earth was not fruitful enough, it was cursed that it would produce "thorns and thistles." The implication of both the Midrash and the verse is that the production of plants is inherent in the earth.
16. *Bereshit Rabba* 13:13.
17. Cf. Bava Kamma 22a, s.v. *"lav."*
18. The *Meshekh Hokhma* is a distinguished exception.
19. The different opinions concerning the use of electricity on Shabbat reflect such as process. Although the defintion of *boneh* (building) may be derived from the Talmud, the Hazon Ish's extension of it to electricity is based on a completely new conceptualization of the nature of an electric current, which obviously has no basis in the Tamud itself. The Hazon Ish has a model for electricity and tries to decide what the Talmudic sages would have said about it.