

J. David Bleich - Contemporary Halachic Problems, Vol. III (Ktav, New York, 1989).

Chapter VIII

Artificial Heart Implantation

And I have given unto you a new heart and a new spirit will I put within you. . . .

EZEKIEL 36:26

Implantation of a mechanical heart presents society with a wide array of ethical questions. These issues notwithstanding, one can only applaud the advances in medical technology which have made implantation of an artificial heart a reality. From the Jewish point of view this development is all the more welcome because, in the past, rabbinic decisors have been constrained to decry cadaver heart transplants. That position was based primarily upon the consideration that it is medically feasible to accomplish a successful heart transplant only by relying upon neurological criteria of death in salvaging the donor's heart.

At the time of the performance of the first successful heart transplants, a number of leading halakhic authorities pronounced such procedures to be in violation of Jewish law. Some claimed that each heart transplant procedure entails two acts of homicide, viz., the immediate demise of the terminally ill donor from whom the healthy heart is removed and the premature death of the recipient.¹ In order to salvage the heart of the donor for transplant purposes, the heart must be removed before the onset of tissue degeneration. Were the physician to wait until the patient could be pronounced dead on the basis of the halakhic, and heretofore commonly accepted, criteria of death, use of the heart for purposes of transplantation would be precluded. Hence, physicians contemplating removal of the heart must perforce rely upon brain death criteria in

1. See R. Moses Feinstein, *Ha-Pardes*, Adar-Nisan 5729, p. 4; and *idem*, *Iggerot Mosheh*, *Yoreh De'ah*, II, no. 174.

pronouncing the death of the donor. However, brain death criteria are halakhically unacceptable as a means of determining that death has indeed occurred. The overwhelming consensus of authoritative rabbinic opinion is that, for all legal and moral purposes, death occurs only upon cessation of both cardiac and respiratory function.² Any act, either direct or indirect, which has the effect of hastening death, including withdrawal of life-support systems as well as actual removal of the heart itself, is forbidden by Jewish law. The situation with regard to the criteria used to pronounce the death of the donor in order to facilitate procurement of hearts for transplant procedures remains unchanged. Therefore, such procedures are in violation of Jewish law insofar as they require the removal of the heart from a donor who, in the eyes of Jewish law, is yet alive.

The question of whether the transplant procedure constitutes an act of homicide vis-à-vis the recipient is another matter entirely. During the initial period of heart transplantation surgery, at a time when such procedures were essentially experimental, it may perhaps have been the case that statistically anticipated longevity was decreased, rather than enhanced, as a result of the transplant procedure. Following the early transplant operations there was indeed a long hiatus during which few such procedures were performed because of the unacceptably high incidence of rejection of transplanted hearts by recipients. However, with the development of immuno-suppressive drugs, the fact-pattern has changed radically. In recent years, the twelve-month survival rate for recipients of heart transplants has been approximately 65%.³ Between 45% and 50% of all recipients survive for a period of at least five years following implantation.⁴ In contrast, in one study it was found that more than 90%

2. See sources cited in *Contemporary Halakhic Problems*, I, 377-93, reprinted in *Jewish Bioethics*, ed. Fred Rosner and J. David Bleich (New York, 1979), pp. 277-95; this writer's "Neurological Criteria of Death and Time of Death Statutes," *Jewish Bioethics*, pp. 303-16; and R. Aaron Soloveichik, "The Halakhic Definition of Death," *Jewish Bioethics*, pp. 296-302.

3. See P. E. Over, E. B. Stinson *et al.*, "Cardiac Transplantations: 1980," *Transplantation Proceedings*, vol. 13, no. 1 (March, 1981), p. 203. Some medical centers have, in several recent years, achieved a one-year survival rate of 75%. See Jack G. Copeland, Robert B. Mammana *et al.*, "Heart Transplantation: Four Years' Experience with Conventional Immunosuppression," *Journal of the American Medical Association*, vol. 251, no. 12 (March 23-30, 1984), p. 1563.

4. Over, "Cardiac Transplantation," p. 203; Bruce A. Reitz and Edward B. Stinson, "Cardiac Transplantation—1982," *Journal of the American Medical Association*, vol. 248, no. 10 (Sept. 10, 1982), p. 1225; and Arthur L. Caplan,

57

of patients who presented clinical profiles identical to those of individuals chosen to receive cadaver transplants, but who did not receive heart transplants because appropriate donor organs could not be found, succumbed to death from heart disease within a three-month period.⁵

Quite obviously, since artificial heart implantation involves no human donor, the problem of foreshortening the donor's life is not at all germane. As to the prospect of enhanced longevity for the recipient, it is too early for any meaningful judgment to be made. Since, at the time of this writing, only a small number of artificial heart implantations have been attempted in human subjects, assessment of the success rate and evaluation of the potential for enhanced or diminished longevity are premature. It is nevertheless clear, at least after the fact, that the implantation of an artificial heart in the first instance in which it was undertaken was entirely warranted in terms of enhanced longevity. Given Dr. Barney Clark's clinical profile, the decision to replace his diseased heart with a mechanical device was entirely prudent. Without the operation, Dr. Clark faced imminent death as evidenced by the fact that his physicians performed the operation a day earlier than scheduled because they were convinced that he would otherwise not survive the night. Since the patient did survive for a period of 112 days subsequent to the implantation there is no question that the procedure did succeed in prolonging his life.⁶

This is not to say that implantation surgery does not pose a significant philosophical question regarding the essential characteristics of humanhood. Indeed, some have questioned whether the recipient of a mechanical heart may, properly speaking, be termed a human being.

Whether the recipient of an artificial heart is or is not a human being in the legal sense of the term is probably of greater moment to Jews than to others. To be sure, were such a person subsequently to become a victim of homicide, the perpetrator might formulate a defense based on the plea that human life came to an end with the surgical removal of the natural heart. But there is nothing to prevent society from conceding the semantic argument while at the same time recognizing that the recipient should not be regarded as a mere robot. Society might then, through appropriate legislation and otherwise, proceed to treat the recipient of a mechanical heart as a human being for all legal and moral purposes.

⁵ "Ethical and Policy Issues in the Procurement of Cadaver Organs for Transplantation," *The New England Journal of Medicine*, vol. 311, no. 15 (Oct. 11, 1984), p. 981.

⁶ Over, "Cardiac Transplantation," p. 203.

⁷ See *The New York Times*, March 24, 1983, p. 1, col. 5.

Jewish law, however, is much more formalistic in nature. Since Halakha does not enjoy the luxury of formulating new categories it cannot beg the question. There are a number of practical corollaries to the theoretical question of whether or not the recipient of a mechanical heart is deemed to be a human being: (1) May the recipient's wife remarry without benefit of a *get* (religious divorce)? (2) Do his heirs immediately succeed to his estate? (3) If the recipient is not a human being, is he then a corpse requiring immediate burial? (4) Must the family immediately observe *shiv'ah* and recite *kaddish*? To be sure, these questions constitute a *reductio ad absurdum* and evoke the intuitive reaction that the recipient is indeed a human being. Nevertheless, our intuitive response requires reasoned analysis and substantiation.

The question in only a slightly different guise was raised by theologians and moralists in the early days of transplant surgery. Subsequent to receiving a transplanted heart, does the patient retain his previous identity or does he acquire the *persona* of the donor? If it is assumed that the heart is the *sine qua non* of personal identity, *a fortiori*, it must be presumed to constitute a necessary condition of humanhood. This, it seems to this writer, is not a view espoused by Judaism. Although cardiac activity is the crucial indicator of the presence of life, the heart is not the hallmark of personhood.

An attempt has been made to demonstrate, on the basis of halakhic dialectic, that the significance of cardiac activity lies, not in the ontological status of the heart itself, but rather in its function in causing blood to course through the body.⁷ Hence, a patient whose circulatory system is sustained by a mechanical heart is deemed to be endowed with life. Since cardiac activity, even minus the *kardia*, is a sufficient condition of life, it follows that cardiac activity within a human organism equals a living human being. The various halakhic issues attendant upon artificial heart implantation have been discussed by this writer in *Torah she-be-'al Peh*, vol. XXV (5744).

I

Prior to undertaking an analysis of the status of the recipient of a mechanical heart, attention should be drawn to a significant problem which applies with equal force to the implantation of both cadaver and artificial hearts. At the time that the early cadaver transplants were

⁷ See J. David Bleich, "Simanei Mitah," *Ha-Pardes*, Tevet 5737, pp. 15-18.

undertaken, some scholars contended that the transplant procedure constitutes an act of homicide insofar as the recipient is concerned, not because of an attendant diminution of life expectancy, but because the removal of the diseased heart, in and of itself, constitutes an act of homicide.⁸ The identical question arises with regard to the removal of a diseased heart for purposes of facilitating implantation of an artificial organ.

Assuming, *arguendo*, that in the eyes of Jewish law, the patient is deemed to be dead upon removal of the natural heart, it would follow logically that a patient who successfully undergoes an implant procedure and becomes reanimated would be categorized as a person who has risen from the dead. Thus, a successful implant procedure would constitute a form of resurrection of the dead. The question that must be posed is, then, whether an act of homicide, when performed by one who has the intent and ability to restore his "victim" to life, constitutes a proscribed act of murder in the event that the victim is indeed actually resurrected. For example, may a prophet, who is certain that he possesses the power to resurrect the dead, kill another person and then restore him to life? Or is the prophet forbidden to kill a person even under such circumstances since the act of killing constitutes an act of murder? To transpose the question to its medical context: Assuming that the removal of a diseased heart constitutes an act of homicide, may a physician remove the heart of his patient if he is confident that the patient will be reanimated subsequent to implantation of an artificial heart? Or is the surgeon forbidden to perform an act which is technically an overt act of murder even though he does so for the purpose of restoring the patient to life and healing the latter's malady?

The Gemara, *Megillah 7b*, relates:

Rabbah and R. Zeira celebrated a Purim repast together. They became intoxicated. Rabbah arose and slit R. Zeira's throat. On the next day he prayed on his behalf and restored him to life. Next year he said, "Come and we will conduct the Purim repast together." He [R. Zeira] replied, "A miracle does not occur at every moment."

As related in this narrative, R. Zeira expressed the fear that the miracle of the previous year would not be repeated and that Rabbah might not

8. See R. Judah Gershuni, *Or ha-Mizrah*, Nisan 5729, p. 133, reprinted in *idem*, *Kol Zofayikh* (Jerusalem, 5740), p. 373; and R. Menachem Kasher, *Teshuvot Divrei Menahem*, I, *Hoshen Mishpat*, no. 27.

succeed in restoring him to life. R. Zeira does not appear to be concerned that, even if Rabbah would be successful in performing an identical miracle a second time, he would yet have transgressed the prohibition against murder. Hence, it might be inferred that, when restoration of the victim to life is indeed a certainty, the act of killing does not entail transgression of the prohibition against homicide.

However, the incident reported in *Megillah 7b* is interpreted by some commentators in a manner which renders this conclusion nugatory. Maharsha explains that Rabbah did not actually slit the throat of R. Zeira; rather, explains Maharsha, Rabbah forced R. Zeira to drink an excessive amount of wine so that the latter became deathly ill and later Rabbah "restored him to life," i.e., Rabbah cured him by means of prayer. Similarly, Me'iri explains that Rabbah did not slaughter R. Zeira but "forced wine down his gullet." Moreover, Rabbah could not have been deemed culpable for his act since he had clearly reached the stage of the "drunkenness of Lot" and hence, for reason of mental incompetence, could not be held responsible for his actions.⁹

II

It may, however, be argued that the question regarding the permissibility of homicide in anticipation of subsequent restoration to life is based upon a contra-halakhic assumption. The question, as formulated, assumes that death and reanimation are two separate and discrete events. It may, however, be the case that, from the vantage point of Jewish law, when death is followed by resurrection, reanimation of the individual effectively nullifies the antecedent death and, for purposes of Halakhah, the individual is deemed never to have died. The litmus test is whether or

9. See *Eruvin 65a*. It should be noted that numerous rabbinic authorities rule that it is forbidden to place oneself in a situation in which one will be exempt from the fulfillment of commandments and exonerated from liability for transgression by reason of drunkenness or the like. Nevertheless, there may be no prohibition in circumstances such as are recorded in *Megillah 7b* in which there is no intention to transgress, and indeed in which it is far from certain that transgression will occur, particularly when the person is intent upon fulfilling a *mizvah*. R. Zevi Yechezkel Michelson, *Teshuvot Tirosh ve-Yizhar*, no. 127, citing Rashi, *Kiddushin 33a*, declares that inducing a state in which a person is exempt from fulfillment of commandments is forbidden only when accompanied by specific intent to secure such exemption. R. Malkiel Zevi Tennenbaum, *Teshuvot Divrei Malki'el*, V, no. 148, rules that such conduct is permissible in pursuit of a *mizvah*.

not a marital relationship survives the decease of one of the marriage partners and his or her subsequent restoration to life. Or, to phrase the same question somewhat differently, is a person who has died and has been resurrected required to enter into a new marriage ceremony with his own "widow" in order that they may be permitted to live together as man and wife? This question is posed by R. Chaim Joseph David Azulai in his commentary on *Shulhan Arukh, Birkei Yosef, Even ha-Ezer 17:1*, with regard to the marital status of the wife of R. Zeira. *Birkei Yosef* writes:

With regard to the wife of R. Zeira [it is the case that] when her husband was slain and died that her marriage was certainly dissolved and she became permitted to all others. And when R. Zeira was restored to life the next day it was necessary to contract a marriage with his wife anew for she was an unmarried woman, as is the case with regard to one who is reconciled with his divorced wife in which case a new marriage is required since the original marriage is no longer extant, having been dissolved by means of a *get*, and a new entity is now created. Similarly, in this case, in which the husband has died, his death renders her permissible [to others] and nullifies his matrimonial relationship, and when he comes alive it is a new matter. Or perhaps the provision that "a woman acquires herself with the death of the husband" (*Kiddushin 2a*) applies only when he dies and remains deceased, but if he is not buried and is restored to life by a prophet or a pious man it becomes manifest that such death was not death in the manner of the death of all men. And the original marriage is not nullified [with the result that she remains] a married woman and lacks legal capacity to contract a marriage with any other man while her husband, when he is restored in life, is permitted to her immediately as was the case prior to his death.

In resolving this question, *Birkei Yosef* cites a discussion presented in the Palestinian Talmud, *Gittin 7:3*. The Mishnah, *Gittin 76b*, declares, "[If a man says,] 'This is your *get* if I do not return within twelve months,' and he dies within twelve months, it is no *get*.'" In the course of the discussion in the Babylonian Talmud focusing upon this Mishnah, the Gemara, *Gittin 76b*, poses the following query:

R. Eleazar asked a certain elder: "When you permitted her to marry, did you permit her to do so immediately or after twelve months? Did you permit her to marry immediately since he cannot come, or did

you permit her to marry after twelve months when his condition was fulfilled?"

The consideration gives rise to this question is not immediately clear. Granted that the retroactive validity of the divorce is questionable, logically, the wife should nevertheless be permitted to marry immediately: If the *get* is valid retroactively she is a divorcée; if not, she is a widow. In either contingency she attains halakhic capacity to contract a marriage immediately following the death of her husband. Rashi, in his commentary, *ad locum*, concedes that this is, in fact, the case. Determination of a woman's status as a divorcée rather than as a widow is significant, comments Rashi, only in a situation in which the husband dies without issue. If the divorce is effective retroactively she is free to remarry as a divorcée; if not, as a childless widow, she is subject to the obligation of levirate marriage.

The parallel discussion in the Palestinian Talmud, *Gittin 7:3*, places the matter in an entirely different perspective:

Is she permitted to marry [immediately]? R. Haggi said, "She is permitted." R. Jose said, "She is forbidden to marry; I say perhaps miracles befell him and he was restored to life."

The Palestinian Talmud clearly considers not only the possibility of levirate obligation but also questions the woman's right to remarry as a widow.¹⁰ To be sure, none of the codifiers of Jewish law adopts the position of R. Jose in forbidding the immediate remarriage of the widow. *Birkei Yosef* observes that R. Jose's fear that "perhaps miracles befell him and he was restored to life" is set aside on the basis of empirical considerations but is not dismissed on substantive grounds. The probability of miraculous resurrection is of so unlikely a magnitude, asserts *Birkei Yosef*, that it need not at all be of concern. *Birkei Yosef* observes that the discussion in the Palestinian Talmud does nevertheless serve to demonstrate that, were such a miracle to occur, the matrimonial relationship would be viewed as having survived the death of the husband and his

10. Cf., however, R. Chaim Kanievsky, *Siah ha-Sadeh, Kuntres ha-Likkutim*, no. 4, who endeavors to rebut *Birkei Yosef's* argument by contending that the Palestinian Talmud is concerned solely with the question of levirate marriage, and who maintains that, although the marital relationship is irrevocably severed upon the death of the husband, the conditional divorce is void under such circumstances because the stipulated condition voiding the divorce was fulfilled.

subsequent restoration of life. *Birkei Yosef* asserts that there is no reason to assume that the Babylonian Talmud disputes this view; rather, it ignores the contingency on grounds which are entirely empirical.¹¹

According to *Birkei Yosef's* analysis, it necessarily follows that removal of a diseased heart, followed by implantation of either a cadaver organ or an artificial heart, does not constitute an act of homicide since, in his view, death is retroactively nullified by virtue of subsequent animation.

It is readily apparent that the question left unresolved in the Babylonian Talmud is neither resolved nor is it the subject of controversy in the Palestinian Talmud. In permitting immediate remarriage, R. Ḥaggi does so only in situations in which status either as a widow or as a divorcée entails capacity to remarry. He is silent with regard to a situation in which an impediment to remarriage may exist by virtue of a possible levirate obligation and hence in which a determination of status as a divorcée rather than as a widow is crucial. R. Jose, of course, forbids remarriage in all instances because of the possibility that the husband may be restored to life. Rambam, *Hilkhot Gerushin* 9:11, takes note of the problem concerning remarriage in the face of a possible levirate obligation as formulated in the Babylonian Talmud and indicates that the question remains unresolved. In failing to indicate a barrier to remarriage in the absence of a possible levirate obligation, Rambam inferentially rejects the view of R. Jose. In rejecting the opinion of R. Jose, Rambam is consistent with his view that resurrection of the dead will occur only at the culmination of the messianic era.¹²

11. Similarly, when the halakhically posited criteria of death, including cessation of cardiac activity, are manifest but the patient is subsequently resuscitated it must be assumed that the patient was not dead during the intervening interval. See R. Moshe Sternbuch, *Kuntres Ba'ayot ha-Zeman be-Hashkafat ha-Torah* (Jerusalem, 5729), chapter 1, p. 9, and R. Shlomoh Zalman Auerbach, cited by R. Gavriel Kraus, *Ha-Ma'ayan*, Tishri 5729, p. 20. Thus, it is only *irreversible* criteria of death which establish that death has indeed occurred.

12. R. Jose's refusal to permit remarriage because of the possibility that "miracles befell him" and that the husband was restored to life appears to contradict the halakhic principle that notice need not be taken of improbable and unlikely contingencies.

The controversy between R. Jose and R. Ḥaggi can perhaps best be understood in light of the controversy between early rabbinic authorities with regard to the sequence of events which will unfold in the eschatological era. Rambam, in his *Ma'amar Tehiyat ha-Metim*, and Ramban, in his *Sha'ar ha-Gemul*, maintain that resurrection will take place subsequent to the advent of the Messiah and will usher in the period of the world-to-come. Sa'adia Ga'on, in the seventh treatise of his *Emunot ve-De'ot*, maintains that there will be two periods of resurrection:

There are, however, latter-day authorities who disagree with the principle formulated by *Birkei Yosef*. The Gemara, *Niddah* 61b, declares, "Commandments will be abrogated in the eschatological era," i.e., subsequent to the resurrection of the dead. Rabbi Elchanan Wasserman, *Kovez Shi'urim*, II, no. 29, formulates two possible analyses of that dictum: (1) The underlying principle may be that fulfillment of *mitzvot* is contingent upon a specific time-period or historical epoch. Just as ritual obligations were not incumbent in the pre-Sinaitic era so, also, those obligations will lapse in the post-resurrection era. (2) Alternatively, the principle enunciated in *Niddah* 61b may simply be that the resurrected dead are not required to perform *mitzvot*. The principle that "the dead are free" of all obligations, derived from Psalms 88:6, entails irrevocable abrogation of all further responsibility for fulfillment of commandments. Hence, the dead are relieved of all ritual obligations even subsequent to their resurrection. According to the latter analysis, release from such obligations is not limited to any particular epoch. Accordingly, the principle would apply even in contemporary times in the unlikely event that a particular corpse would miraculously be restored to life prior to the general resurrection. Whether or not the dead who were restored to life by the prophet Ezekiel were required to observe the commandments is

the righteous will be restored to life in the days of the Messiah; others will be resurrected subsequent to the Day of Judgment, marking the commencement of the period of the world-to-come. This is also the view of R. David ibn Zimra, *Teshuvot Radbaz*, no. 1,069 (vol. III, no. 644), and appears to be the position of *Tosafot*, *Pesahim* 114b, s.v. *ehad*, as well. Cf., also, the position espoused by R. Abraham ibn Ezra in his commentary on Daniel 12:2.

Categorization of resurrection at the hands of a prophet as improbable, insofar as halakhic determinations contingent thereupon are concerned, appears to be incontestable and hence it may be assumed that even R. Jose assigns no halakhic import to that contingency. However, the advent of the Messiah is not only probable but certain. Accordingly, it appears to this writer that R. Jose espouses a view similar to that of Sa'adia Ga'on in maintaining that resurrection of at least a portion of Israel will occur at the time of the Messiah. Hence, he must consider the possibility that the Messiah may appear within the twelve-month period stipulated by the husband and the further possibility that the husband may be among those privileged to be restored to life during that period. R. Ḥaggi, in disagreeing with R. Jose, may well have adopted a position similar to that of Rambam and Ramban, viz., that resurrection will take place only in conjunction with the ushering in of the period of the world-to-come, a period in which corporeal and sensual activity will not occur. In rejecting R. Jose's view, Rambam is consistent with the view regarding the time of resurrection expressed in his *Ma'amar Tehiyat ha-Metim*.

contingent upon which of these two analyses is accepted. Similarly, according to the authorities who maintain that the righteous will be restored to life during the messianic era, the question of their obligation vis-à-vis fulfillment of *mitzvot* in the interim period between their resurrection and the advent of the world-to-come is contingent upon which of these two analyses is regarded as correct. R. Elchanan Wasserman asserts that *mitzvot* are eternally valid and binding, at least in theory, even in the period of the world-to-come. He advances arguments demonstrating that the second analysis is correct and that, in reality, there will be no obligation with regard to fulfillment of commandments in the world-to-come only because death, in and of itself, irrevocably terminates the obligation to perform *mitzvot*.¹³ Accordingly, termination of such obligation is not rescinded by subsequent restoration to life. This position entails the negation of the notion that resurrection serves to nullify, or to reverse, earlier demise.¹⁴ Since resurrection is not tantamount to a reversal of death, there is no logical manner in which a prior marital relationship can be regarded as having been re-established by resurrection.

III

However, even rejection of *Birkei Yosef's* position does not necessarily entail acceptance of the view that removal of a diseased heart constitutes an act of homicide. During the early period of cadaver heart transplants some rabbinic scholars urged the view, that the question is, in fact, reducible to a matter which was the subject of a celebrated controversy between two eminent eighteenth-century authorities, R. Zevi Ashkenazi (*Hakham Zevi*) and R. Yonatan Eibenschutz. A young woman eviscerated, soaked and salted a chicken, but failed to find a heart. She consulted R. Zevi Ashkenazi who, as recorded in *Teshuvot Hakham Zevi*, nos. 74, 76 and 77, ruled that the animal was kosher. *Hakham Zevi* reasoned that, since it is impossible for any creature to survive without a heart for even a brief period of time, it must be assumed that the chicken, which had thrived and developed in a normal manner, must indeed have been endowed with a heart. The absence of a heart, declared *Hakham Zevi*, must assuredly be attributed to the predatory nature of a cat which must have been in close proximity. Not content with simply ruling with regard

13. See also Rambam, *Sefer ha-Mitzvot, shresh 3*; cf., however, *Sifra, Parashat Zav* (Leviticus 7:35), sec. 158.

14. An opposing view is espoused by R. Chaim Kanievsky, *loc. cit.*

to the case presented to him, *Hakham Zevi* further announced that "even if witnesses will come and testify that they saw with open eyes that nothing was removed from the body of the chicken, it is certain that their testimony is false for it is contrary to reality." In sharp disagreement, R. Yonatan Eibenschutz, *Kereti u-Peleti* 40:4, declared that the testimony of credible witnesses cannot be dismissed peremptorily but rather "it must be assumed that there was some piece [of tissue] which does not appear as a heart but which is designed to fulfill the functions of the heart, but yet the chicken is *treifah* since it is not a normal heart."¹⁵ It has been argued that, since according to *Hakham Zevi* it is impossible for any creature to survive without a heart, removal of a diseased heart *ipso facto* causes the death of the patient and hence constitutes an act of homicide. Reanimation by means of subsequent implantation of a cadaver heart would thus be viewed either as a form of *pirkus*¹⁶ (convulsive movement) or as the generation of a new life.

Actually, the selfsame argument can well be formulated in a manner which is entirely consistent with the position of *Kereti u-Peleti*. As already noted, this authority accepts the basic premise that, absent a heart, a living creature cannot survive. *Kereti u-Peleti* merely posits the possibility that cardiac functions may be assumed by an organ which does not at all resemble a normal heart. Hence *Kereti u-Peleti* might well concede that removal of the heart from a living creature would lead to its immediate demise.

However, according to the conflicting view of R. Ya'akov Friedman of Karlin, *Mishkenot Ya'akov, Yoreh De'ah*, no. 10, removal of a diseased heart would not constitute an act of homicide. According to *Mishkenot Ya'akov*, some residual vital force remains even subsequent to removal

15. Cf., however, R. Abraham Isaiah Karelitz, *Hazon Ish, Yoreh De'ah* 4:14, who takes issue with *Kereti u-Peleti* in arguing that the chicken thus described is indeed kosher. *Hazon Ish* argues that, although removal of the heart does indeed render the animal a *treifah*, there is no source for a ruling that an anomaly of the heart similarly renders the animal a *treifah*.

16. See *Oholot* 1:6: "... and likewise cattle and wild beasts . . . if their heads have been severed they are unclean (as carrion) even if they move convulsively after being cut off." Movement which is not the product of vital forces is not indicative of life; hence, if removal of the heart is *ipso facto* identified with the occurrence of death, subsequent implantation of a heart must be regarded either as prolonging "convulsive" movement, i.e., as "artificial life," or as a form of resurrection.

84

of the heart.¹⁷ Hence, since according to *Mishkenot Ya'akov*, removal of the heart does not *ipso facto* entail death, a diseased heart might be removed in order to implant a cadaver heart without violation of the prohibition against homicide.

In point of fact, the identical question arises with regard to all forms of open-heart surgery. Although the heart is not removed in the course of such procedures, the heartbeat is stopped in order to prevent pulsation of the heart from causing a continuously moving surgical field. During the course of such procedures, life is sustained by means of a heart-lung machine which oxygenates the blood and circulates it through the body. If Ḥakham Zevi is to be understood as declaring that under no circumstances can life persist in the absence of a heart, it follows that, by the same token, life cannot persist in the absence of a functioning heart. It is clear that life is not contingent upon the mere physical presence of a heart but upon the continued pulsation of the heart which causes blood to course through the circulatory system. Nevertheless, no rabbinic authority has argued that causing the temporary cessation of cardiac function in the course of open-heart surgery, in and of itself, constitutes an act of homicide. The matter is readily understood if it is recognized that, even in accordance with the view expressed by Ḥakham Zevi, it is only irreversible cessation of cardiac activity which constitutes death. When, however, cardiac activity is interrupted and subsequently restored it is retroactively established that the original cessation of cardiac activity was not associated with the death of the person.¹⁸ Were this not so, it would follow that successful resuscitation following cardiac arrest is a form of resurrection of the dead.

The same line of reasoning may be applied to transplant surgery involving the use of a cadaver heart. Ḥakham Zevi does indeed declare that life cannot exist without a heart, but he does not assert that life cannot exist other than with the original heart with which the living being was endowed. Hence, removal of the original diseased organ and its replacement with a cadaver heart may be viewed as merely a temporary cessation of cardiac activity which does not constitute death even according to Ḥakham Zevi.

However, implantation of an artificial heart differs significantly from a

17. See also R. Chaim Benveniste, *Knesset ha-Gedolah, Yoreh De'ah* 40; R. Joseph Saul Nathanson, *Sho'el u-Meshiv, Mahadura Tinyana*, IV, no. 108; and R. Shalom Mordecai Schwadron, *Da'at Torah, Yoreh De'ah* 40:8.

18. See above, note 11.

cardiac transplant. The recipient of a cadaver transplant is endowed with a functioning heart; the recipient of an artificial heart possesses an artificial organ. In the latter case, normal cardiac function has irreversibly ceased. Arguably, the artificial organ produces only artificial life. If so, removal of the diseased heart under such circumstances might constitute homicide since removal of the heart effectively terminates natural life in a manner which is irreversible.

Yet it would appear more logical to assume that Ḥakham Zevi would concede the validity of *Kereti u-Peleti's* basic point, viz., that although no creature can survive without a heart, nevertheless, life does not require an organ possessing the form and characteristics associated with a normal, natural heart, but may be sustained by any organ which performs the functions associated with the heart. Ḥakham Zevi would then disagree with *Kereti u-Peleti* only to the extent that, absent the perceived presence of a normal heart, he finds no reason to posit the existence of an unrecognizable organ that performs the functions of a heart. Since Ḥakham Zevi deemed it so unlikely that the chicken in question might possess some unrecognizable organ that assumed the functions of the heart, he asserted that it must be presumed that a normal heart was indeed present and hence the animal is to be declared kosher. Nevertheless, although Ḥakham Zevi forcefully asserts that life cannot persist in the absence of a heart, there is no reason to presume that he would fail to concede that life might indeed be sustained by means of some other organ which performs the functions usually associated with the heart or even by means of a mechanical device designed to perform those functions. Accordingly, Ḥakham Zevi's position does not yield the conclusion that a patient whose life is sustained by means of a heart-lung machine or by means of an artificial heart must be regarded as deceased. Hence, even according to Ḥakham Zevi, removal of the diseased heart need not be regarded as an act of homicide.

IV

However, Ḥakham Zevi, *Teshuvot Ḥakham Zevi*, no. 77, does acknowledge that, although life cannot exist without a heart, lifelike movement may persist subsequent to the removal of the heart. Such movement of a creature subsequent to removal of its heart is described by Ḥakham Zevi as merely convulsive in nature (*pirkus*):

Similarly, when the heart has been removed, even though [the creature] is dead, and, in the case of a human, defiles in a tent and, in the case of an animal, [defiles as] carrion, it is possible for [the creature] to run and to move. This is the *pirkus* described in *Oholot*. But, all this notwithstanding, [the creature] is dead and not alive.

Nevertheless it is clear that, even according to Ḥakham Zevi, the vitality manifested by the recipient of an artificial heart is not in the category of *pirkus*. This may be demonstrated on the basis of a number of talmudic sources which, absent such conclusion, would contradict the thesis enunciated by Ḥakham Zevi. The Gemara, *Hullin* 33a, states:

R. Aḥa bar Jacob said: One may infer from the ruling of R. Simeon ben Lakish that a Jew may be invited to partake of internal organs, but a gentile may not be invited to partake of internal organs. What is the reason? For a Jew, the matter is contingent upon the act of slaughter; since the animal has been properly slaughtered, it is permitted [to Jews]. For gentiles stabbing is sufficient and the matter is contingent upon death [of the animal]. [Therefore] these [internal organs] are comparable to a limb [cut off] from a living animal.

This dictum is predicated upon the previously announced opinion of R. Simeon ben Lakish who declared that, upon severance of the trachea and esophagus, the internal organs which are suspended from these structures are, for purposes of halakhic categorization, regarded as having been separated from the animal and "placed in a basket" (*ke-manḥa be-dikula damya*), i.e., they are no longer regarded as integral to the animal but merely as reposing in the body cavity which serves them as a "basket." Since these organs are regarded as having been "removed" from the animal before it expired, the organs are forbidden to gentiles as "a limb cut off from the living animal."¹⁹

The heart, which is suspended from the trachea by means of the bronchial tubes, is among the internal organs regarded as being placed in a basket as a result of the act of slaughter which entails severance of the trachea. This categorization involves acceptance of the principle that the animal remains alive even though the heart has been removed. Consideration of the heart as having been "placed in a basket" implies that the

19. For a detailed exposition of this halakhic concept, see Rashba, *Torat ha-Bayit he-Arukh, Bayit Sheni, sha'ar shelishi*.

heart is no longer regarded as part of the animal. Yet, the internal organs are deemed to be "cut off from the living animal" despite the simultaneous "excision" of the heart. This can only mean that, despite the "removal" of the heart, the animal is regarded as still living since, were the animal regarded as already dead, the prohibition against partaking of "a limb cut off from the living animal" would not apply.

Thus, the position reflected in *Hullin* 33a appears to conflict with the view espoused by Ḥakham Zevi. According to the Gemara, upon slaughter of the animal, the heart is deemed to have been separated from the body and to have been "placed in a basket," but the animal is nevertheless regarded as yet living. However, for Ḥakham Zevi, life can no longer be present subsequent to the removal of the heart. According to Ḥakham Zevi, the prohibition against "a limb cut off from the living animal" should not apply. In declaring the prohibition applicable to internal organs subsequent to severance of the trachea, the Gemara seems, in effect, to adopt the position that life persists subsequent to the removal of the heart.

A similar apparent contradiction to Ḥakham Zevi's thesis emerges from the discussion of the Gemara, *Hullin* 121b:

R. Oshaia taught: If a Jew slaughtered an unclean animal on behalf of a gentile, upon cutting both [the trachea and the esophagus] or the greater part of both, even though [the animal] still convulses, it conveys the uncleanness of a foodstuff but not the uncleanness of carrion. A limb severed from it is regarded as severed from the living animal and is forbidden to Noachides even after life has departed [from the animal].

Here, again, it is evident that the Gemara assumes that life persists subsequent to the slaughter of the animal even though the heart is deemed to have been excised and "placed in a basket" by virtue of the act of slaughter. Similarly, the Mishnah, *Gittin* 70b, declares:

If both [the trachea and the esophagus] or the major portion of both were cut and he declared, "Write a bill of divorce for my wife," they may write and deliver [the bill of divorce].

Again, we are confronted by the identical problem. If the trachea and the esophagus have been severed, the heart must be deemed to have been "placed in a basket." If, as is the opinion of Ḥakham Zevi, there is no

possibility of life in the absence of a heart, and, as is evident, from *Hullin* 33a, severance of the trachea and the esophagus is tantamount to excision of the heart, how is it possible to execute a valid *get* on behalf of a person who has the halakhic status of a corpse?

The matter may, however, be placed in proper perspective upon examination of the comments of Rabbenu Nissim and R. Menachem Me'iri in their respective commentaries on *Hullin* 32b. The Gemara, *Hullin* 32b, states: "R. Simeon ben Lakish said, 'If he severed the trachea and afterwards pierced the lung (before he cut the esophagus) the slaughter is valid.'" This dictum demonstrates that, subsequent to severance of the trachea, the lung is regarded as though it has been "placed in a basket." Ordinarily, piercing the lung of an animal renders the animal a *treifah* and its meat unfit for consumption. In the case described by R. Simeon ben Lakish, the esophagus had not been severed and the act of slaughter remained incomplete. Nevertheless, the perforation of the lung is of no import. Rashi explains that, since the lung is suspended from the trachea, upon severance of the trachea, the lung is regarded as having been removed in its entirety from the animal and "placed in a basket." Hence, since the lung is no longer an integral part of the animal, perforation of the lung cannot render the animal a *treifah*. The lung, in effect, is regarded as having been completely removed and its disposition no longer has any effect upon the animal. Rabbenu Nissim, *Hiddushei ha-Ran, ad locum*, cites the comment of an anonymous early authority to the effect that, similarly, perforation of the heart or of the liver subsequent to the severance of the trachea does not render the animal a *treifah* "for all that is suspended from the trachea derives its vitality from it." Rabbenu Nissim himself disagrees with this position and states that the heart cannot be deemed to have been "placed in a basket." Rabbenu Nissim reasons that severance of the trachea cannot be regarded as tantamount to removal of the heart "for if the animal is completely dead how would the severance of the esophagus render the animal permissible?" The thrust of Rabbenu Nissim's argument is that, were the animal to be deemed dead by virtue of the severance of the trachea (which, on the basis of the principle *ke-manha be-dikula damya* is tantamount to excision of the heart), no act of slaughter could possibly be valid unless both the trachea and the esophagus were severed simultaneously. Slaughter of an animal requires the severing of both the trachea and the esophagus, but they need not necessarily be severed simultaneously. In the case described in *Hullin* 32b, the lung was perforated subsequent to severance of the trachea but prior to cutting the esophagus. But since severing the

trachea, which is tantamount to excision of the heart, has the effect of "killing" the animal, the subsequent severing of the esophagus is performed on an already "dead" animal and, logically, should be of no effect.

A twentieth-century scholar, R. Menachem Kasher, *Teshuvot Divrei Menaḥem*, I, *Hoshen Mishpat*, no. 27,²⁰ suggests that the disagreement between the two positions recorded by *Hiddushei ha-Ran* lies in acceptance or rejection of Ḥakham Zevi's thesis. According to the first opinion recorded by Rabbenu Nissim, life continues to be present even subsequent to "removal" of the heart by means of severance of the trachea and, hence, completion of the act of slaughter by severing the esophagus renders the animal permissible. The second opinion, i.e., the position espoused by Rabbenu Nissim himself, also recognizes that slaughter can be performed only on a living animal. For this reason, the second opinion maintains that, since the act of slaughter obviously cannot be performed on a dead animal, it follows that severance of the trachea cannot cause the heart to be deemed to have been "placed in a basket." If that were indeed the case severance of the esophagus would be of no avail. Accordingly, Rabbi Kasher asserts that, in expressing his view with regard to the impossibility of survival in the absence of a heart, Ḥakham Zevi follows the second opinion recorded by Rabbenu Nissim.

This analysis is most unlikely. It is highly improbable that Ḥakham Zevi, who maintained that his thesis was empirical in nature, would concede that these early authorities are in disagreement with regard to what he perceived to be a matter of objective reality rather than with regard to a point of law. This objection acquires enhanced cogency in light of Ḥakham Zevi's statement in *Teshuvot Ḥakham Zevi*, no. 77, to the effect that, not only is life contingent upon the heart, but that "with regard to this no person has ever disagreed." Moreover, according to this analysis of the second position advanced by Rabbenu Nissim, it follows that, although it is forbidden to invite a gentile to partake of internal organs of a non-kosher animal, it is nevertheless permitted to invite a gentile to partake of the heart of such an animal. A position of this nature is not found in the writings of any rabbinic decisor, i.e., there exists no statement to the effect that the heart is not included among the internal organs which may not be presented to a gentile. Moreover, the previously cited statements of the Gemara, *Hullin* 33a and *Gittin* 70b, appear to contradict the first position recorded by Rabbenu Nissim.

20. This material originally appeared in *No'am*, XIII (5730), pp. 10-20.

In order properly to understand Ḥakham Zevi's thesis it would appear that a sharp distinction must be drawn between actual, physical excision of the heart and a situation in which the heart is not physically separated from the body but, for purposes of establishing the relevant halakhah, is regarded as having been "placed in a basket." Indeed, it is undeniable that, even subsequent to severance of the trachea, the heart not only remains physically attached to the body but also continues to pump blood through the circulatory system. In this regard, the heart is distinguishable from the lung whose primary attachment to the body is by means of the trachea and which cannot continue to perform respiratory functions subsequent to severance of the trachea.

Bearing this point in mind, it is possible to explain the controversy between Rabbenu Nissim and the anonymous author of the first opinion cited by him with regard to whether the heart must be deemed to have been "placed in a basket." The anonymous first authority cited by Rabbenu Nissim maintains that the heart is deemed to have been "placed in a basket" upon severance of the trachea, even though it is still attached to the body by means of a yet functioning circulatory system. Rabbenu Nissim himself maintains that, in light of the continued attachment of the heart to the body by means of the circulatory system and by virtue of its continued functionality, the heart cannot be deemed to have been "placed in a basket" simply because the trachea has been severed. Nevertheless, even the anonymous authority who espouses the first opinion would concede that, since the heart continues to function, life remains present in the animal. Therefore, even though the heart is regarded as having been "placed in a basket," the animal is nevertheless not regarded as dead. Accordingly, a limb severed from the animal is regarded by the Gemara, *Hullin* 33a, as having been severed from a living animal. Similarly, a human being whose trachea has been severed is still regarded as alive and retains capacity to execute a *get*, as is evident from the statement of the Gemara, *Gittin* 70b. According to Ḥakham Zevi, this would not be the case in a situation in which the heart has been physically excised. In the latter case, since the heart has been totally separated from the body and has entirely ceased to function, it is impossible, according to Ḥakham Zevi, for any residual vitality to remain. Thus, Ḥakham Zevi's comments must be understood as applying only to situations in which the heart has been physically removed, but not to situations in which, only as a halakhic construct, is the heart deemed to have been "placed in a basket."

This distinction finds support in the comments of Me'iri, *Hullin* 33a:

Since we have explained that, whenever the trachea is severed, the lung is regarded as if it is placed in a basket, some are of the opinion that even if one were to come and remove it totally before the esophagus is severed [the slaughter] is valid. But this is not at all correct. . . . The principle is stated only with regard to perforation [of the lung, viz.] that [the animal] is not rendered a *treifah* in that manner since perforation and other *treifot* do not kill immediately; but whenever [the lung] is totally removed [the animal] dies before slaughter and there is no doubt that it is carrion.

In these comments, Me'iri distinguishes, even with regard to the lung, between mere perforation of the lung subsequent to severance of the trachea and *actual* removal of the lung. In the case of the former, the animal is not a *treifah* because, as indicated by the Gemara, the lung is regarded as having already been "placed in a basket." Nor is the animal regarded as already dead on the basis of what is only "constructive" placement in a basket. However, declares Me'iri, if the lung is removed subsequent to severance of the trachea, but before severance of the esophagus, the animal is *neveilah*, or carrion. The animal is regarded as having died immediately upon removal of the lung prior to severance of the esophagus since the animal cannot survive the physical removal of the lung. Indeed, Me'iri's position parallels that of Ḥakham Zevi: Ḥakham Zevi asserts that survival without a heart is impossible; Me'iri, in effect, declares that, similarly, survival without a lung is impossible.

It should also be noted that there is no evidence that the author of the first opinion cited by Me'iri disagrees with Ḥakham Zevi. The anonymous author of the first opinion asserts only that the animal may survive for at least a brief period subsequent to removal of the lung and, accordingly, the animal is rendered permissible for food if the esophagus is severed during that period. A similar statement is not made with regard to removal of the heart; the authority who espouses that opinion may well agree that removal of the heart results in instantaneous death so that severance of the esophagus is of no avail.

V

Me'iri's comments certainly support a distinction between actual physical removal of an organ and what may be termed "constructive" removal of the organ. Constructive removal denotes a situation in which a halakhic status of removal is posited on the basis of interpretation and analysis of

attendant circumstances. In a situation of constructive removal of the heart, the heart remains *in situ* but, for purposes of Halakhah, is regarded "as if" it were placed in a basket. Thus Ḥakham Zevi's statement regarding the impossibility of life in the absence of a heart may be viewed as applying only to physical removal of the heart but not to situations in which the heart is only regarded "as if" it were placed in a basket.

However, merely to draw a distinction between actual and constructive removal of the heart is not to present a conceptual basis for that distinction. Ḥakham Zevi recognizes that it is entirely possible that movement may be manifest in various organs and limbs of the body even subsequent to physical removal of the heart. Such motion is dismissed by Ḥakham Zevi as "the convulsive movement referred to in *Oholot*, but nevertheless [the animal] is dead and not alive." Although severance of the trachea renders the heart "as if" it were placed in a basket, it would be possible similarly to characterize the residual motion manifest after severance of the trachea as "convulsive movement" which is not at all an indicator of the presence of life. Yet, as has been shown earlier, in situations in which the heart remains *in situ*, but is regarded "as if" it were already placed in a basket, the animal is regarded as still living.

The Mishnah, *Oholot* 1:6, states, "And likewise cattle and wild beasts . . . if the heads have been severed, they are unclean [as carrion] even if they move convulsively like the tail of a newt (or a lizard) that twitches spasmodically after being cut off." Decapitation is here depicted as a definitive indication that death has occurred. But decapitation is hardly the only recognized symptom of death. The Gemara, *Yoma* 85a, posits other indicators of death as well. The case in point concerns an individual trapped under a fallen building. Since desecration of the Sabbath is mandated even on the mere chance that a human life may be preserved, the debris of a collapsed building must be cleared away even if it is doubtful that the person under the rubble is still alive. However, once it has been determined with certainty that the person has expired, no further violation of Sabbath regulations may be sanctioned. The question which then arises is how much of the body must be uncovered in order to ascertain that death has in fact occurred? The Gemara cites two opinions with regard to that question. The first opinion cited by the Gemara maintains that the nose must be uncovered and the victim of the accident pronounced dead only if no sign of respiration is found at the nostrils. A second opinion maintains that examination of the chest for the absence of a heartbeat is sufficient to determine that death has occurred. It is evident that both opinions regard respiration as the crucial symptom

indicating the existence of life. Hence both opinions agree that absence of respiration at the site of the nostrils is a sufficient criterion of death. The second opinion merely adds that absence of a heartbeat is also to be deemed sufficient evidence that death has actually occurred. This is evident from the statement of R. Papa quoted by the Gemara in clarification of this controversy. R. Papa states that there is no disagreement between the two opinions in instances in which the body is uncovered "from the top down." In such cases the absence of respiration is regarded by all as conclusive in nature. The dispute, declares R. Papa, is limited to situations in which the body is uncovered "from the bottom up" and thus the heart is uncovered first. The controversy in such cases is whether the absence of a heartbeat is sufficient evidence, in and of itself, to establish that death has occurred, or whether further evidence is required, viz., uncovering of the nostrils. The necessity for examination of the nostrils is based upon the assumption that it is possible for life to exist even though such life may be undetectable by means of examination of the chest for the presence of a heartbeat. Rashi succinctly comments that the first opinion maintains that examination of the chest is insufficient to determine whether or not life is present "for at times life is not evident at the heart but is evident at the nose."

It would appear that reflected in these two sources, *Oholot* 1:6 and *Yoma* 85a, are two independent criteria, either of which is sufficient to establish that death has occurred: (1) decapitation; and (2) cessation of cardiac activity as manifest by absence of respiration.

R. Moshe Sofer, *Teshuvot Hatam Sofer, Yoreh De'ah*, no. 338, posits a tripartite test to be utilized in determining whether or not death has occurred. *Hatam Sofer* declares, "But in any case, once [the patient] lies as an inanimate stone and there is no pulsation whatsoever, and if subsequently respiration ceases we have only the words of our holy Torah that he is dead." *Hatam Sofer* adds a further criterion in addition to those found in *Yoma* 85a, viz., absence of all bodily movement with the result that the patient lies "as an inanimate stone." The other criteria posited by *Hatam Sofer* are based upon the discussion in *Yoma* 85a. The absence of pulsation required by *Hatam Sofer* is clearly synonymous with cessation of cardiac activity. *Hatam Sofer* requires that the absence of detectable cardiac activity must be accompanied by cessation of respiration in accordance with the opinion recorded in *Yoma* 85a which maintains that examination of the area surrounding the heart is not to be relied upon since, at times, a heartbeat may indeed be present but not be discernible. In this ruling *Hatam Sofer* follows the position of Rambam,

Hilkhot Shabbat 2:19, *Shulhan Arukh*, *Orah Hayyim* 329:4, and other codifiers who rule in accordance with the opinion that examination of the nostrils is an absolute requirement. Thus, according to *Hatam Sofer*, death may be pronounced only upon manifestation of three criteria: (1) cessation of all bodily movement; (2) absence of pulsation; and (3) total absence of respiration.

Although *Yoma* 85a fails to specify absence of bodily motion as a necessary criterion of death, it is certain that the source of *Hatam Sofer's* position is Rashi's elucidation of that text. Commenting on the Gemara's query, "How far must he examine?" Rashi remarks, "If [the victim] appears as dead, [i.e.] he does not move his limbs." The clear inference to be drawn from Rashi's comment is that, if animation is manifest in muscular movement, the victim is perforce known to be alive. Further examination is pointless since an individual in such a state cannot be pronounced dead on the basis of the absence of detectable signs of cardiac or respiratory activity. This, however, does not resolve the problem; it merely pushes the problem back one step. *Hatam Sofer* may well have relied upon Rashi's statement, but on what basis did Rashi determine that absence of bodily movement is a necessary condition of death?

Careful examination of the words of the Mishnah, *Oholot* 1:6, yields a ready source for Rashi's position. The Mishnah states, "If their heads are severed they defile [as carrion] even though they move convulsively in a manner similar to the tail of a newt which convulses." The Mishnah carefully distinguishes between convulsive movement (*pirkus*) and movement which is indicative of animation produced by vital forces. This distinction is evidenced by the Mishnah's categorization of convulsive movement as comparable to the reflexive, twitching motion of the severed tail of a newt. The necessity for such a distinction can only reflect the antecedent premise that bodily movement is ordinarily a sufficient criterion of the continued presence of life. Thus, there arises a need for a distinction between motion which is a veridical criterion of life and mere *pirkus*, or convulsive movement, which is not a sign of vital animation. Accordingly, Rashi comments that other criteria of death assume significance only if the victim or patient appears to be dead as evidenced by the fact that "he does not move his limbs" because, in the case of a person who has not been decapitated, bodily movement, in and of itself, is an absolute sign of vitality.

Indeed, of necessity, the Mishnah must be construed as serving to establish the principle that motion constitutes a sufficient indicator of

life. Were this not the primary thrust of the Mishnah, the explanatory phrase "even though they convulse . . ." would be entirely superfluous. Assuming, as we must, that, in accordance with *Yoma* 85a, the Mishnah recognizes that absence of respiration constitutes a necessary criterion of death, a decapitated animal would perforce be deemed to be dead were absence of respiration, in and of itself, a sufficient criterion of death since, obviously, a decapitated animal cannot breathe. Hence, a formulation of a distinction between vital and non-vital movement would be entirely superfluous. At most, the Mishnah might have incorporated an explanatory phrase to the effect that "even though they convulse they defile [as carrion] for respiration has ceased" without finding it necessary to stress that convulsive movement is not indicative of the presence of residual life forces.

It may further be argued that *Yoma* 85a does not serve to establish criteria of death independent of the criterion of death recorded in *Oholot* 1:6 with the effect that death is defined as either cessation of cardiac activity, as evidenced by absence of respiration, or as decapitation. Rather, it may be postulated that the essential criterion of death is cessation of all bodily movement. Thus, decapitation may be viewed, not as constituting death merely by reason of severance of the head from the body, but because decapitation causes cessation of all vital motion. As is evident from the explanatory phrase of the Mishnah in *Oholot*, were subsequent convulsive movements to be regarded as vital movement, decapitation, in and of itself, would not constitute death. Thus, the essential distinction between a living creature and a corpse is that the latter lies as an "inanimate stone." Accordingly, neither respiration nor cardiac activity need be viewed as a unique activity indicating the presence of life; rather, respiration and cardiac activity should be regarded merely as specific forms of bodily movement. Hence, whenever either cardiac or respiratory activity is present, the organism must be regarded as yet animate on the basis of bodily movement that is indicative of the presence of vital forces.

Placed in this context, Rashi's comment declaring that examination for signs of cardiac and respiratory activity is required only when the victim shows no evidence of movement and appears as an "inanimate stone" serves not only to qualify the discussion in *Yoma* 85a but also to provide the framework for a conceptual understanding of the criteria posited by *Yoma* 85a. Rashi's comment underscores the notion that bodily movement is the essential symptom of life and that whenever such motion is present the patient is *ipso facto* alive. *Yoma* 85a serves to establish that

movement as an indicator of life is not restricted to gross motion of limbs, but includes the more subtle and spontaneous motion of the pulsating heart and respiring lungs as well.

This understanding of the absence of motion as the essential criterion of death yields an obvious distinction between physical removal of the heart and severance of the trachea. According to Ḥakham Zevi, life cannot persist subsequent to actual removal of the heart for the simple reason that continued vital motion becomes impossible. Although severance of the trachea results in a situation in which the heart is deemed to have been "placed in a basket," such determination is a halakhic construct and, as such, is germane only to matters of purely halakhic concern, viz., whether the heart is deemed to be integrated within the body or is deemed to be disassociated from the body. The question of whether an organism is alive or dead is not at all contingent upon a determination of whether the heart is deemed to be an integral part of the body. It is not removal of the heart *qua* removal that causes death, but the cessation of motion following closely in the wake of such removal that is the criterion of death. Hence, severance of the trachea may serve also to separate the heart from the body (rendering it as if "placed in a basket") for all matters pertaining to contiguity of the various organs; but severance of the trachea is irrelevant to a determination of the occurrence of death because the heart, although it may be deemed to have been "removed," nevertheless continues to perform all cardiac functions. Since the heart continues to beat normally, continued cardiac "movement" serves as an indicator that life is yet present. Ḥakham Zevi's thesis to the effect that no creature can survive without a heart must be understood as applying only to situations in which the heart is physically detached and removed from the body in a manner which prevents the heart from animating the body with the result that all bodily motion ebbs. Were the detached heart somehow capable of causing motion to persist in the body, there would be no reason to reach a determination that death has occurred. Precisely such a situation arises upon severance of the trachea. Halakhically, the heart may be viewed as detached, but, empirically, the organism remains capable of motion and hence the individual is deemed to be alive. Thus a gentile may not be invited to partake of the organs of a non-kosher animal which has been slaughtered, but which has not yet died, because the animal remains alive despite severance of the trachea.

This, then, is precisely the position espoused by the anonymous exponent of the first opinion cited by Rabbenu Nissim who maintains that

perforation of the heart subsequent to severance of the trachea does not render the animal a *treifah*. According to that view, since the trachea has already been severed by the act of slaughter, perforation of a heart is tantamount to perforation of a heart already "placed in a basket" and no longer an integral part of the animal. Hence, perforation of the heart does not render the animal a *treifah*. Nevertheless, the animal is not deemed to have expired since the heart continues to function. Therefore, the animal is not regarded as carrion and the act of slaughter may be completed. If, however, the heart were to be completely severed from the body and physically removed prior to completion of the act of slaughter, i.e., prior to the severing of both trachea and the esophagus, the animal would indeed be deemed to be carrion. This is so since, by virtue of removal of the heart, the animal has, according to Ḥakham Zevi, been put to death prior to the completion of the act of slaughter.

Rabbenu Nissim himself disagrees with this position and asserts that the heart is never to be regarded "as if it had been placed in a basket." Rabbenu Nissim apparently reasons that recognition that the animal has, in fact, not died, as evidenced by the fact that the heart continues to pump blood through the circulatory system, logically entails acceptance of the position that the heart is not already "in a basket" but continues to function as an integral part of the organism. Hence, in the opinion of Rabbenu Nissim, so long as the heart remains attached to the body and functions as the animating force of the circulatory system, it is deemed to be an integral of the body even though it is no longer attached to the body by means of the trachea. According to Rabbenu Nissim, the heart cannot be deemed to have been "placed in a basket" so long as the circulatory system is operative. Hence, according to Rabbenu Nissim, perforation of the heart in such circumstances renders the animal a *treifah*.

This consideration obviously does not pertain in situations in which the heart has been completely detached and removed from the body cavity subsequent to severance of the trachea. According to the opinion cited by Me'iri, the identical considerations apply to the lungs as well and the animal is deemed to have succumbed immediately upon physical removal of the lungs. Thus, both positions recorded by Rabbenu Nissim, as well as the opinion cited by Me'iri, are entirely compatible with the thesis advanced by Ḥakham Zevi.

Acceptance of the explanation that the presence of cardiac activity is not a unique indicator of the presence of life, but rather that it is simply a form of movement indicative of the presence of vital forces, yields a

significant point with regard to the status of a patient during surgery undertaken for implantation of an artificial heart. It has previously been established that only irreversible cessation of vital functions—as distinct from transitory, reversible cessation of such functions—is indicative of death. Since cardiac activity occupies no privileged position in the determination of death, and since it is not the mere presence of the heart or the function of the heart as a unique organ which is the essential indicator of life, but rather the “movement” of the heart as a form of integrated, vital movement of the organism which indicates that life is present, it follows that temporary cessation of cardiac activity during the course of a surgical procedure is neither cause nor evidence of death. In such procedures the integrated vital movements of the body are not permanently halted; they are merely temporarily interrupted. Since “movement” is indeed restored to the body and it is precisely integrated, vital movement which is the essence of life, whether such movement is produced by a natural heart or by an artificial organ is of no moment. So long as animation can be restored, life has not yet ebbed. Implantation of an artificial heart has the effect of restoring animation; the movement restored by means of implantation of an artificial heart is not mere convulsive motion but is vital in nature.

The conclusion that such motion is not mere *pirkus*, or convulsive movement, is evident from the comments of Rambam in his *Commentary on the Mishnah, Oholot* 1:6. Rambam distinguishes vital movement from convulsive movement by postulating that vital movement is “the motor force which diffuses throughout the limbs from a single root and source.” It is clear that such integrated motion is manifested by the recipient of an artificial heart. To be sure, Ḥakham Zevi does declare that in the absence of a heart it is impossible for any creature to survive. However, it is certain that Ḥakham Zevi’s comments must be understood as asserting only that it is impossible for any creature to live without an organ, or apparatus, which performs the functions normally associated with a heart. Hence, absent any indication of the existence of some other organ or device, the presence of a normal biological heart must be inferred and conclusively assumed. Accordingly, Ḥakham Zevi rules that there existed no basis for a conclusion that the chicken brought before him was a *treifah*. However, there is no reason to assume that Ḥakham Zevi would deny the possibility that life might be sustained by means of a transplanted heart or by means of an artificial apparatus. Certainly, if it is “movement” in general, rather than cardiac movement specifically, which is the primary indicator of life, whether the source of that “move-

ment” is natural or artificial is immaterial. The crucial point established by Ḥakham Zevi is that there is no life in the absence of integrated vital movement, and, conversely, whenever such “movement” is present, life exists.

VI

The question which remains to be resolved is whether or not the recipient of either an artificial heart or a cadaver transplant is to be regarded as a *treifah*. A *treifah* is an animal or human being suffering the loss or perforation of certain organs. The condition may be the product of congenital anomaly or the result of trauma. Animals in the category of *treifah* are *ipso facto* non-kosher and their meat may not be consumed. In the case of a human being this question is of significance solely with regard to whether the murder of such a person is a capital crime since, in Jewish law, the murder of a *treifah* is a form of non-capital homicide. The Gemara, *Sanhedrin* 78a, declares:

Our Sages taught: If ten men struck a man with ten staves, whether simultaneously or one after the other, and he died, they are not liable. R. Judah ben Batyra said, if one after the other, the last is culpable because he hastened [the victim’s] death. R. Yoḥanan said: Both engaged in exegetical interpretation of the same verse, “and he that killeth *kol nefesh* [lit., ‘all life’] of man shall surely be put to death” (*Leviticus* 24:17). The Sages maintain that *kol nefesh* limits [culpability] to [the taking of] the whole life; R. Judah ben Batyra maintains that *kol nefesh* [implies] whatever there is of life.

Raba said: All agree that one who kills a *treifah* is not liable: [and that] if he slew a person who is moribund (*goses*) by virtue of an act of God [lit., at the hands of Heaven] he is culpable. They disagree only with regard to a person who is moribund as a result of a human act [lit., at the hands of man]: One likens him to a *treifah* and [hence] his slayer is exempt, the other likens him to a person who is moribund by virtue of an act of God [lit., at the hands of Heaven] and [hence] his slayer is culpable.

In a three-part article which appeared in *Ha-Tzofeh* (8 Tevet, 15 Tevet and 22 Tevet, 5743), Rabbi Shlomoh Goren attempts to define the phrase “at the hands of Heaven” in a rather novel manner. Rabbi Goren argues that the term “at the hands of Heaven” as employed in *Sanhedrin* 78a is

92

to be understood in precisely the same manner as it is understood in the context of an entirely unrelated discussion recorded in *Yevamot* 75b. The Gemara, *Yevamot* 75b, states that, although Scripture declares that a person who has "wounded testicles" is forbidden to engage in sexual intercourse (Deuteronomy 23:2), the prohibition is limited to wounds suffered "at the hands of man." However, one who has been wounded "at the hands of Heaven" is not subject to this restriction. Rashi and Rosh define the term "at the hands of Heaven" as connoting injuries suffered as a result of "thunder or hail" or a condition which is the result of congenital anomaly. However, Rambam, *Hilkhot Issurei Bi'ah* 16:9, states that the concept of an injury sustained "at the hands of Heaven" also encompasses damage sustained as a result of any illness or physiological disorder. This position is accepted by *Shulhan Arukh, Even ha-Ezer* 5:10. Rabbi Goren states:

According to the opinion of Rambam and those who follow his position, in every instance the severance of an organ as a result of disease in that organ is deemed to be a wound at the hands of Heaven and [the individual] is fit [to engage in intercourse]. But, according to the opinion of Rashi, since the surgical procedure and severance of the organ is performed at the hands of man, even though the removal is necessary by virtue of an illness at the hands of Heaven, the matter is considered as if it had occurred at the hands of man. The same is true with regard to our case, [viz.] one who kills a person possessing an artificial heart. It has been demonstrated that one who kills a *treifah* at the hands of man is liable to capital punishment at the hands of the *Bet Din*, but the slayer of a *treifah* at the hands of Heaven is exempt from punishment by man but liable at the hands of Heaven. The same is true with regard to one who slays a person who possesses an artificial heart since the implantation is the result of a grave cardiac illness which arises in a natural manner at the hands of Heaven. According to the opinion of Rambam, one who slays [such an individual] is liable to the death penalty even at the hands of the Sanhedrin and is judged as an outright murderer. But, according to Rashi and Rosh and those who follow their opinion, one who slays a person possessing an artificial heart will be exonerated from the death penalty at the hands of the *Bet Din*. . . .

The view expressed by Rabbi Goren is obviously predicated upon the interpretation of Rambam's position advanced by *Teshuvot Hatam Sofer*,

Even ha-Ezer, I, no. 17. According to *Hatam Sofer*, Rambam maintains that a surgeon's removal of the testes for therapeutic reasons is considered to be "wounding at the hands of Heaven." However, other authorities assert that, even according to Rambam, whenever removal of the testes is accomplished surgically, the "wounding" is deemed to be "at the hands of man" even if performed for therapeutic purposes.²¹

However, Rabbi Goren's position is subject to challenge on more fundamental grounds. The distinction drawn by the Gemara, *Yevamot* 75b, between a wound sustained "at the hands of man" and a wound sustained at the hands of Heaven is limited in application. That distinction serves to delineate the prohibition against sexual intercourse on the part of an individual who has sustained an injury to the genital organs but is of absolutely no import with regard to the distinction drawn in *Sanhedrin* 78a between a person rendered moribund "at the hands of man" and one rendered moribund "at the hands of Heaven." The distinction is entirely understandable with regard to the halakhic disabilities associated with wounds to the genitalia but lacks cogency with regard to culpability for the slaying of a moribund person.

Sefer ha-Hinnukh, no. 559, states that the prohibition against intercourse by a person wounded in the genital organs is designed to impose sanctions against those who would cause intentional damage to their sexual organs. It was the wont of monarchs in antiquity to emasculate servants in order to create eunuchs who were then placed in charge of the royal harems. Persons contemplating such a procedure would not be prepared to accept the onus of a stricture prohibiting intercourse and hence the effect of the prohibition is to prevent intentional damage to sexual organs. *Sefer ha-Hinnukh* concludes his comments with the statement that this explanation serves to illuminate the halakhic distinction between an individual who is wounded "at the hands of man" and one who is wounded "at the hands of Heaven." Since the purpose is to prevent intentional emasculation, no purpose would be served in extending the prohibition to persons wounded "at the hands of Heaven."

In light of *Sefer ha-Hinnukh's* exposition, Rambam's extension of the concept of wounding "at the hands of Heaven" to encompass injury to the genital organs sustained as a result of illness or disease (and, as understood by *Hatam Sofer*, even to surgical removal of the genital organs for therapeutic purposes) is readily understandable. Thus, according to this position, the primary distinction between a wound sustained

21. For a fuller discussion of Rambam's position, see above, pp. 151-153.

"at the hands of man" and a wound sustained at "at the hands of Heaven" is a distinction between intentional injury designed to destroy reproductive capacity and unintentional, undesired injury born of illness or disease. Such considerations are entirely irrelevant to the definition of a "goses at the hands of man" as distinct from a "goses at the hands of Heaven."

Moreover, the essence of the distinction between a "goses at the hands of man" and a "goses at the hands of Heaven" is expressly formulated by the Gemara, *Sanhedrin* 78a. In the discussion of the dispute between the Sages and R. Judah ben Batyra regarding ten men who struck a man with ten staves, the Gemara states:

One likens him to a *treifah*, the other likens him to a person who is rendered moribund at the hands of Heaven. He who likens him to a *treifah*, why does he not liken him to a person rendered a *goses* at the hands of Heaven?—[Because] a *goses* at the hands of Heaven has not sustained an [injurious] act; but an [injurious] act has been done to this one. And he who likens him to a *goses* at the hands of Heaven, why does he not liken him to a *treifah*?—A *treifah* has his vital organs cut, but this one has not had his vital organs cut.

It is evident that the murderer of a "goses at the hands of Heaven" is liable to the death penalty because the *goses* is deemed to be fully alive even though moribund. In every case in which a life is destroyed by means of an act of murder it is only residual longevity which is extinguished. In every instance the residual longevity constitutes the entire life-complement of the victim. Destruction of such life-complement by a single aggressor constitutes homicide. Thus the murderer of a newly-born child and the murderer of an octogenarian are equally liable despite the disparate life-expectancy of the respective victims. Homicide is defined as the termination of human life through an act of man regardless of the life-expectancy of the victim. The murderer of a "goses at the hands of Heaven" is culpable because the moribund individual is yet alive and the brief life span available to him constitutes an entire life-complement insofar as the victim is concerned. Hence the murderer has deprived the victim of the latter's full longevity anticipation, brief as it may be. The murder of a "goses at the hands of man" is readily distinguishable. The culpability of the murderer of such an individual is a matter of dispute precisely because the perpetrator is not solely responsible for extinguishing the victim's full life-complement. Since the victim was already smitten

by another aggressor, the last aggressor has not single-handedly deprived the victim of his natural life expectancy because "an act has been done to him." In such a case the life-complement has been destroyed as the result of the acts of multiple individuals. None of the perpetrators is liable to the death penalty since, according to the Sages, capital culpability exists only when a single aggressor destroys the entire life-complement of the victim.

It follows, therefore, that a gravely ill patient who is rendered moribund by a surgical procedure must be deemed a "goses at the hands of man," despite the therapeutic purpose of the procedure and the entirely laudable design of the surgeon. The murderer of such a patient has not deprived the victim of the latter's full life-complement since, in point of fact, an antecedent human act, viz., the surgical procedure, has contributed to the destruction of the patient's life-complement. The surgical procedure clearly constitutes a human act as a result of which the residual life is not deemed to be a "whole life." Hence it is absolutely clear that the culpability of the murderer of a person already rendered moribund (albeit unintentionally) by virtue of an unsuccessful medical procedure would fall within the ambit of the controversy between the Sages and R. Judah ben Batyra.

This point may also be established on the basis of the comments of Rosh, *Nazir* 4b. The Gemara declares that a Nazarite is not only forbidden to defile himself through tactile contact with a corpse but is also forbidden to touch a *goses*. Rosh declares that this prohibition is limited to contact with a "goses at the hands of Heaven" but does not include the touching of a "goses at the hands of man." *Teshuvot Hatam Sofer, Yoreh De'ah*, no. 338, explains that, according to Rosh, contact with a *goses* "at the hands of man" is not deemed to constitute defilement since a *goses* "at the hands of man" is not as close to death as is a *goses* "at the hands of Heaven." *Hatam Sofer* expresses amazement because this distinction, as drawn by Rosh, is the antithesis of the distinction drawn by the Gemara, *Sanhedrin* 78a, with regard to culpability for homicidal acts. Similarly, the author of the published marginal glosses on Rosh's commentary writes that the rationale underlying Rosh's distinction is that a *goses* "at the hands of man" is deemed to be endowed with a higher degree of vitality than is a *goses* "at the hands of Heaven." He then proceeds to question the cogency of Rosh's assessment since "according to the Sages, whose opinion is normative, a 'goses at the hands of man' is deemed to be 'a dead person' which is not the case with regard to a 'goses at the hands of Heaven.'"

94

In an attempt to resolve this difficulty, R. Zevi Hirsch Chajes, in his commentary on *Nazir* 4a, states:

A distinction must be made: With regard to capital punishment there is a statutory requirement as it is written, "kol nefesh, whatever there is of life," and hence [absence of culpability] is contingent upon an act, as Rashi explains *ad locum*. In the case of a "goses at the hands of man" an act was done to him antecedently and therefore one who kills him has killed a "dead person." This is not the case with regard to defilement, since it is predicated essentially upon death. Therefore, [with regard to a "goses at the hands of man"] there is the consideration that [the victim] may have swooned and does not yet defile. Whereas [with regard to a *goses*] "at the hands of Heaven," since there is no external causative act, therefore, once the illness has become so severe that [the patient] is moribund there is no longer any doubt that criteria of death are present.

It is clear from these comments that a greater degree of vitality is present in a "goses at the hands of man" than is present in a "goses at the hands of Heaven." This consideration notwithstanding, all are in agreement that one who slays a "goses at the hands of Heaven" commits a capital crime, whereas the Sages maintain that one who slays a "goses at the hands of man" is not liable to capital punishment. The reason for regarding a "goses at the hands of man" as lacking in "vitality" is that he has been the victim of an antecedent act of aggression which has resulted in diminished vitality. Since intent obviously plays no role in determination of the presence or absence of vitality, a victim rendered moribund as a result of a surgical trauma cannot be deemed to be a "goses at the hands of Heaven" and hence is not in the halakhic category of "kol nefesh—a whole life."

Rabbi Goren's comments are even more puzzling in view of the fact that, although the Sages and R. Judah ben Batyra disagree with regard to the culpability of one who kills a "goses at the hands of man," with regard to the halakhic status of a *treifah* there is no distinction between one who is rendered a *treifah* "at the hands of man" and one who is rendered a *treifah* "at the hands of Heaven." As is reflected in the rulings of Rambam, *Hilkhot Evel* 4:5, and *Shulhan Arukh, Yoreh De'ah* 339:1, a moribund person may acquire the status of a *goses* even though no organ is removed or perforated. A *treifah*, however, is defined not simply as one suffering from a terminal malady but as one suffering the loss or

perforation of specific organs. The slayer of a *treifah* is exempt from capital punishment by virtue of statutory law which makes no distinction with regard to the source of such anomaly.

By definition, the recipient of a successful artificial heart implantation is not moribund and hence is not a *goses*. Nevertheless, such a person may be a *treifah*. Perforation of the heart renders the victim a *treifah* and, *a fortiori*, removal of the heart would render the patient a *treifah*. However, according to Rambam's definition of *treifah*, demonstrative success of artificial heart implantations coupled with anticipated survival for a significant period of time would serve to remove the recipients from the category of *treifah*. Rambam, *Hilkhot Shehitah* 10:12-13, rules that, with regard to animals, the criteria established by the Gemara delineating the various forms of *treifah* are immutable. However, with regard to capital homicide, Rambam, *Hilkhot Rozeah* 2:8, rules:

Every person is presumed to be complete and his murderer must be put to death unless it is known with certainty that he is a *treifah* and the physicians declare that this trauma has no cure by human agency and that he would die of it if he were not killed in some other way.

Thus, according to Rambam, with regard to human beings, determination that the individual is a *treifah* is a matter of medical diagnosis.

There is little question that, at present, the recipient of an artificial heart must be considered a *treifah* even according to the opinion of Rambam. It is, however, entirely possible that, with the passage of time and accompanying advances in medical technology, the recipient of an artificial heart may no longer be considered a *treifah*. Under such circumstances Rambam would maintain that the murderer of the recipient of an artificial heart would be liable to the death penalty.

95