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It is the purpose of this Journal to study the major questions facing us as Jews in the twentieth century, through the prism of Torah values. We will explore the relevant Biblical and Talmudic passages and survey the halachic literature including the most recent Responsa. The Journal of Halacha and Contemporary Society does not in any way seek to present itself as the halachic authority on any question, but hopes rather to inform the Jewish public of the positions taken by rabbinic leaders over the generations.

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Genetic Screening For Breast Cancer Susceptibility: A Torah Perspective

Ari Mosenkis

Introduction

For thousands of years man has recognized that some human diseases are familial. Great advances in the biological sciences over the last 150 years have demonstrated that these hereditary diseases result from mutations in DNA, the genetic material contained within every cell. In 1988, the Human Genome Project began analyzing or sequencing the DNA which comprises all 24 pairs of human chromosomes, with the eventual goal of identifying every gene, its function, and the consequences of its malfunction. The genetic bases for scores of disorders have already been uncovered.

Shortly after the discovery of a disease-bearing gene, a screening test for that trait is usually developed. Effective treatment for the disease, however, is often not available. This reality raises an important halachic issue: Should genetic screening be sanctioned for diseases for which no reliable cures exist? The recent discovery of genes linked to breast cancer has brought this issue to the forefront of the field of medical ethics. Little has been written on this topic and this article will

The author is a fourth-year medical student at the Albert Einstein College of Medicine, currently studying at Rabbi Isaac Elchanon Theological Seminary.

serve to address the potential halachic issues associated with genetic testing in general and, specifically, with testing for the breast cancer susceptibility genes.

The Breast Cancer Genes

Approximately 6 to 19% of all breast cancer is hereditary.¹ Intense studies of families with high incidences of breast cancer culminated in 1994 with the discovery of the breast and ovarian cancer susceptibility gene, BRCA1.² Normally, the gene functions to suppress cancerous mutations in breast and ovarian (and other) tissue. When the gene is defective, however, the occurrence of cancerous mutations is far more likely.³ Two variants of the BRCA1 gene, the 185delAG mutation and the 5382insC mutation, are present in 1% and 0.1% of Ashkenazi Jewish women, respectively.⁴ In 1996, a second gene, BRCA2,

1. Couch FJ, DeShano ML, Blackwood A, et al. "BRCA1 mutations in women attending clinics that evaluate the risk of breast cancer." *New Engl J Med* 1997; 336:1409-15.

2. Miki Y, Swensen J, Shattuck-Eidens D, et al. "A strong candidate for the breast and ovarian cancer susceptibility gene BRCA1." *Science* 1994; 266:66-71.

3. Technically, the term "BRCA1" refers to the normal, or un-mutated, gene. Thus, defective, or cancer-predisposing, forms of the gene are, strictly speaking, referred to as "BRCA1 mutations." Nevertheless, the term "BRCA1" is used indiscriminately in scientific literature, referring to both the normal and mutated forms of the gene. Henceforth, all mention of BRCA1 (or BRCA2) in this work will refer to the defective form.

4. Struwing JP, Abeliovich D, Peretz T, et al. "The carrier frequency of the BRCA1 185delAG mutation is approximately 1% in Ashkenazi Jewish individuals." *Nat Genet* 1995; 11:198-200.

Roa BB, Boyd AA, Volcik K, Richards CS. "Ashkenazi Jewish population frequencies for common mutations in BRCA1 and BRCA2." *Nat Genet* 1996; 14:185-7.

was identified as a cause of familial breast cancer.⁵ One variant of the BRCA2 gene, the 6174delT mutation, is also highly prevalent (0.9-1.5%) in the Ashkenazi Jewish population.⁶ The total estimated carrier frequency of the BRCA1 and BRCA2 mutations in Ashkenazi Jews is, thus, greater than 2%. Further analysis of these data reveals that the carrier frequencies are significantly higher in women with family histories of breast cancer, and significantly lower in those women who lack such a family history.⁷ The estimated risk of breast cancer among Ashkenazi Jewish women with any of these mutations is 56% by the age of 70, or four times that of non-carriers.⁸ The risk is substantially greater in BRCA positive women with family histories of the disease (85% risk by the age of 70).⁹ Most of these figures are based on preliminary data or statistical models. Large, population-based, prospective studies are therefore necessary to confirm the true frequencies of and disease risks associated with these mutations.¹⁰

5. Tavtigian SV, Simard J, Rommens J, et al. "The complete BRCA2 gene and mutations in chromosomes 13q-linked kindreds." *Nat Genet* 1996; 12(3):333-337.

6. Roa, et al., *op. cit.*.

Oddoux C, Struewing JP, Clayton CM, et al. "The carrier frequency of the BRCA2 6174delT mutations among Ashkenazi Jewish individuals is approximately 1%." *Nat Genet* 1996; 14:188-190.

7. Struewing JP, Hartge P, Wacholder S, et al. "The risk of cancer associated with specific mutations of BRCA1 and BRCA2 among Ashkenazi Jews." *N Engl J Med* 1997; 336:1401-8.

8. Ibid.

9. Easton DF, Ford D, Bishop DT, et al. "Breast and ovarian cancer incidence in BRCA1-mutation carriers." *Am J Hum Genet* 1995; 56:265-71.

10. FitzGerald MG, MacDonald DJ, Krainer M, et al. "Germ-line BRCA1 mutations in Jewish and non-Jewish women with early onset breast cancer." *N Engl J Med* 1996; 334:143- 149.

Risk-benefit Analysis

The issue at hand is whether or not to advocate mass screening for BRCA1 and BRCA2. As with any controversial issue, risks and benefits must be weighed. The major reason to encourage mass screening is the potential to preserve health, as knowledge of a positive result alerts patients to the high likelihood of developing the disease. They can then exercise more careful surveillance, i.e., more frequent mammograms in concert with breast self-examination and examination by a physician. Additionally, a woman testing positive has two options for possible primary prevention against the development of breast cancer: prophylactic hormonal (Tamoxifen) treatment, and prophylactic bilateral mastectomy.¹¹ Furthermore, if she were to develop breast cancer, knowledge of her gene status could help her decide between aggressive and more conservative therapeutic approaches.¹² In fact, if these benefits prove to be great enough, mass screening for BRCA may actually be halachically obligated, as not screening may constitute a potential danger to life, or *sakanat nefashot*.

11. A recent study calculated that, on average, 30 year old women who carry BRCA mutations gain 3-5 years of life-expectancy from prophylactic mastectomy. This result is substantial as it represents the *average* gain in life-expectancy. Whereas the individual in whom breast cancer was not destined to develop would not gain as a result of the surgery, a woman in whom breast cancer *was* destined to develop could benefit considerably from such a procedure. (Schrager D, Kuntz KM, Garber JE, Weeks JC. "Decision analysis — effects of prophylactic mastectomy and oophorectomy on life expectancy among women with BRCA1 or BRCA2 mutations. " *N Engl J Med* 1997; 336:1465-71.)

12. In other words, the BRCA positive woman may choose therapeutic mastectomy versus lumpectomy with radiation therapy, as the former removes more tissue which may contain undetected tumors and is susceptible to future cancerous mutations.

Additionally, for *some* patients, screening may serve to alleviate mental anguish. This is likely to be true not only in those testing negative.¹³ Some women, such as those with family histories of breast cancer, or any other woman who is particularly fearful of developing the disease, may view the certainty offered by a positive test as less foreboding than lingering uncertainty. Moreover, knowledge of a positive result may alleviate emotional distress as it allows the patient the opportunity to possibly prevent the occurrence of breast cancer, or to detect it in its early (i.e., curable) stages.

Reasons to discourage mass screening for BRCA include the following: A woman testing positive for the BRCA1 or BRCA2 genes may fear the outcome of cancer such as pain, suffering and death, and leaving her loved ones with nobody to care for them. She may also fear — and suffer from — stigmatization of herself and her family including difficulty for herself or her daughters in finding a mate, as well as discrimination from employers and insurance companies. Furthermore, knowledge that she carries a disease-bearing gene can damage her self-image. Additionally, she may experience guilt for transmitting this trait to her children. The common denominator of all these concerns is mental anguish, which is harmful to the patient both physically and emotionally. In other words, though screening may serve to alleviate mental anguish in *some* women, in the *general* Jewish population (i.e., without family histories of breast cancer), those testing positive are likely to experience increased emotional distress.

13. The majority of women, even with family histories of the disease, *will* test negative. However, these women may *still* be at increased risk of developing breast cancer. Some authors, therefore, refer to negative result as “uninformative,” and caution against a false sense of security in these patients which could lead to less vigilant cancer surveillance and prevention. (Couch, et al., *op. cit.*)

Additionally, none of the medical benefits is absolute. First, mammography is an unreliable method of breast cancer surveillance in young women (due to their high density breast tissue) — the very population that would be targeted by a BRCA screening program. There exists considerable controversy in the medical community whether mammograms actually benefit premenopausal women. One expert panel reported that if ten thousand women (of all genotypes) were to have annual mammograms between the ages of 40 and 49, less than 10 lives (and perhaps none) are likely to be saved. Additionally, 30% of the women would be misdiagnosed with possible cancer (i.e., false positive test), or diagnosed with an early form of the disease (ductal carcinoma in situ) which only rarely progresses to invasive cancer, leading to much unnecessary treatment (e.g., surgery, radiation therapy and chemotherapy) as well as a great deal of emotional distress.¹⁴ Furthermore, three of these ten thousand women might develop breast cancer as a result of the radiation from mammography. Based on this report, the National Institutes of Health concluded in January, 1997, that the data do not warrant a recommendation for mammograms for all women in their forties, and that each woman should decide for herself.¹⁵ The American Cancer Society and the National Cancer Institute, on the other hand, do recommend mammograms for all women in their forties, though they disagree on the recommended frequency of mammography.¹⁶

Second, neither of the primary preventive measures are completely effective. The efficacy of prophylactic hormone

14. Vanchieri C. "Treatment uncertainties surround early diagnosis of breast cancer." *Annals of Internal Medicine* 1997; 126(8):I-53-54.

15. Kolata G. "Mammogram talks prove indefinite." *New York Times* January 24, 1997; A1,15.

16. Kolata G. "Another group switches on frequency of mammograms." *The New York Times* March 28, 1997; A16.

therapy is unknown,¹⁷ and bilateral mastectomy is not only drastic, but is also not fully protective. Even after bilateral mastectomy a woman retains a 2% chance of developing breast cancer (as it is impossible to remove all breast tissue). As a recent editorial advised, "Clearly, prophylactic surgery must be reserved for very carefully selected subgroups of women. Moreover, for now, it cannot promise to benefit individual women."¹⁸ Additionally, a task force of the Cancer Genetics Studies Consortium recently published guidelines for follow-up care of women testing positive for BRCA1 and BRCA2, but offered no recommendations for or against any of the above-mentioned preventive measures, due to insufficient data.¹⁹ Clinical research is urgently needed to address these uncertainties.²⁰

The basic halachic questions thus are: How significant a halachic consideration is mental anguish? Is there a halachic obligation to seek medical intervention if there exists a potential danger to life (*sakanat nefashot*)? An examination of the abundant literature regarding screening for Tay-Sachs disease (TSD) might help clarify these issues. Additionally, each issue must be addressed independently through a halachic analysis.

A Comparison With Tay-Sachs Disease

17. Fugh-Berman A, Epstein S. "Tamoxifen: Disease prevention or disease substitution?" *Lancet* 1992; 340:1143-4.

18. Healy B. "BRCA genes — bookmaking, fortunetelling, and medical care." *N Engl J Med* 1997; 336:1448-9.

19. Burke W, Daly M, Garber J. "Recommendations for follow-up care of individuals with an inherited predisposition to cancer." *JAMA* 1997; 277:997-1003.

20. Collins FS. "BRCA1 — lots of mutations, lots of dilemmas." *N Engl J Med* 1996; 334:186-188.

Tay-Sachs disease (TSD) is an autosomally recessive²¹ disease of infancy, common in Ashkenazi Jews. In 1969 the biochemical basis for TSD was identified.²² Two years later, the first mass screening program was initiated.²³ Initially, both the secular medical communities as well as the rabbinate discouraged mass screening for fear of producing anxiety in and stigmatization of those people testing positive as carriers.²⁴ Rabbi Moshe Feinstein stated in 1973 that men and women of marriageable age (20 and 18 respectively) should be tested, though he advised against mass screening, especially at a young age, for fear of a lack of confidentiality.²⁵ In contrast, Rabbi J. David Bleich encouraged mass screening even in childhood or early adolescence.²⁶ The Association of Orthodox Jewish Scientists issued a statement in 1973 consistent with the ruling of Rabbi Feinstein, whereas the Union of Orthodox Jewish Congregations of America adopted a resolution in 1974 similar to the conclusions of Rabbi Bleich.

21. An autosomally recessive trait is one that can only be expressed if two copies of the gene are present (i.e., if one copy is inherited from each parent). An autosomally dominant trait is one that is expressed even if only one copy of the gene is present.

22. Okada S, O'Brien JS. "Tay-Sachs disease: Generalized absence of a -D-N- acetylhexosaminidase component." *Science* 1969; 165:698-700.

23. Myerowitz R, Proia RL. "cDNA clone for the -chain of human -hexosaminidase: Deficiency of -chain mRNA in Ashkenazi Tay-Sachs fibroblasts." *Proc Natl Acad Sci USA* 1984; 85:3955-3959.

24. Rosner F. Tay-Sachs disease: To screen or not to screen. *Tradition* (New York) 1976; 15(4):101-112.

25. *Responsa Iggerot Moshe, Even Ha'ezer*, Vol. 4, #10.

26. Bleich JD. "Survey of recent halachic periodical literature: Tay-Sachs disease." *Tradition* (New York) 1972; 13:145-148.

Bleich JD. "Tay-Sachs testing in the light of halacha." *Ohr Hamizrach* (New York) Tamuz 5732 (1972); 21(4):216-218.

In the mid 1980s, Rabbi Joseph Eckstein, who had himself suffered the loss of several children to TSD, began Dor Yeshorim, a confidential premarital screening program.²⁷ By concealing the results even from those testing positive,²⁸ Dor Yeshorim has eliminated much of the emotional burden resulting from

27. The majority of halachic authorities will not permit abortion of a Tay-Sachs embryo, even in the first trimester. (A notable exception is R. Eliezer Waldenberg who permits abortion in such cases up to the seventh month of gestation.) Therefore, selective match-making or mate-choosing facilitated by a premarital screening program is presently, according to many, the only halachically acceptable method of prevention. As prenatal diagnosis of TSD becomes more sophisticated, however, it may become possible to diagnose TSD within the first 40 days of gestation, in which case some authorities may permit abortion of a Tay-Sachs embryo. It is already possible, via *in vitro* fertilization technique and embryo biopsy, to diagnose TSD in the pre-implantation stage. This *may* offer another halachically acceptable — though financially prohibitive — method of prevention of TSD. Nevertheless, selective mate-choosing avoids the problem of abortion altogether and will likely remain the preferred method, leaving the other techniques for those couples who fail to screen premaritally and find out that they are both carriers only after they are already married or emotionally committed to one another. See: *Responsa Iggerot Moshe, Choshen Mishpat*, Vol. 4, #69 (also printed in *Hapardes, Nissan* 5438 (1978);57(7):7-14), *Responsa Tzitz Eli'ezer*, Vol. 13, #102 (also printed in *Assia* Vol. 2, pp. 93-98), and Abraham AS, *The Comprehensive Guide to Medical Halacha*. Jerusalem and New York, Feldheim, 4:8, p. 28.

28. Dor Yeshorim screens mostly students in religious high schools as well as couples in the engagement process. Those tested are identified only by code numbers, and the results are revealed only to individuals in the engagement process, and only when *both* prospective marital partners are carriers. This system is designed for ultra-Orthodox communities where marriages are commonly arranged through a third party. It is not as useful, however, in more modern communities where individuals meet in a more casual fashion and may not even consider screening until they are already emotionally committed to one another.

TSD screening. The program has therefore received endorsements from many prominent rabbis including Rabbi Feinstein, Rabbi S. Z. Auerbach, Rabbi Y. Elyashiv, and others.²⁹ In fact, at least one Hasidic leader does not give his blessing to a prospective couple if they do not first match with Dor Yeshorim.³⁰ The program has been so successful in Israel that it has completely eliminated the incidence of Tay-Sachs births among newlywed ultra-Orthodox couples.³¹ Dor Yeshorim has grown tremendously and presently screens thousands of people annually for four recessive diseases common in Ashkenazi Jews (TSD, Gaucher's disease type I, Cystic Fibrosis and Canavan's disease).

There are, however, many differences between TSD and BRCA. TSD is a recessive trait, whereas breast cancer genes are dominant. Thus, the goal of screening in the former case is to identify the carrier, who is at no risk of developing disease and is only capable of producing offspring with TSD if he or she mates with another carrier. In the latter case, however, those testing positive are themselves very likely to develop the disease. The emotional burden is thus likely to be far greater in the BRCA positive woman than in the TSD carrier. Furthermore, the TSD gene exhibits complete penetrance (i.e., all those possessing two copies of the gene develop TSD). Familial breast cancer, on the other hand, exhibits incomplete penetrance (between 15 and 45% of women who carry the gene will never develop breast cancer). Additionally, while TSD is a disease of infancy, familial breast cancer affects adults. A

29. *Jewish Tribune*, April 4, 1988, pp. 8-9.

30. Private conversation with a representative of Dor Yeshorim, October 13, 1996, New York.

31. Broide E, Zeigler M, Eckstein J, Bach G. Screening for carriers of Tay-Sachs disease in the ultra-Orthodox Ashkenazi Jewish community in Israel. *Amer J Med Genet* 1993; 47:213-215.

woman testing positive for BRCA may not acquire the disease for decades, if at all. Therefore, a positive result may lead to prolonged and possibly unnecessary emotional distress.

Finally, there are therapeutic and preventive differences. Though TSD itself is incurable, selective matchmaking or mate-choosing facilitated by a screening program is a successful method of primary prevention. The only primary prevention for a woman testing positive for BRCA1 or BRCA2, as previously discussed, is either prophylactic hormone therapy or bilateral mastectomy, neither of which are proven to be fully protective. More careful surveillance may thus be the preferred option. The major mode of surveillance for tumors, however, is mammography, which is unreliable in young women. Therefore, though the benefits certainly outweigh the risks in screening for TSD, that is not clearly the case in screening for BRCA. Hence, it is necessary to further investigate the halachic issues.

A Halachic Analysis: Mental Anguish

The issue of mental anguish is discussed in traditional Jewish sources regarding the disclosure of a serious medical diagnosis to a patient (i.e., truth-telling). The Bible relates that Ben-Hadad, king of Aram, fell ill and sent his servant Hazeal to ask the prophet Elisha if he would die (II Kings 8:7-15). Elisha responded, "Say to him, 'You will surely live.'"³² Though Elisha certainly knew that Ben-Hadad was going to die, he withheld

32. Rabbi David Kimchi, known as Radak, points out that the word "to him" (*lo*) is a *kri u'ktiv* (i.e., it is read differently than it is written.) In the literal reading, with an *aleph*, Elisha certainly told the truth ("say 'you will *not* surely live.'") Rabbi Yigal Shafran suggests that the ruling with respect to truth-telling may stem from the exegesis of this verse based on the tanaaitic debate of "*yesh aim lamikra*" versus "*yesh aim lamasoret*" (Assia (Jerusalem) 1993; Vol. 7, pp. 22-30.)

that information from him. In contrast, when King Hezekiah became critically ill, Isaiah told him "give orders to your household for you are going to die and you shall not live" (II Kings 20:1; Isaiah 38:1). The Midrash, however, comments:

Hezekiah said to Isaiah "Even if you see (him) [a sick person] about to die, do *not* say 'set your household in order' lest [the patient's] mind faint" (*Kohelet Rabbah* 5:6).

Thus, it is clear that the rabbinic sages recommend, as learned from Elisha, that it is sometimes better to lie to the terminally ill patient than to reveal his true condition if the truth would produce mental anguish. This opinion is cited in halacha by Rabbi Shabbetai ben Meir ha-Kohen, known as *Shach*,³³ and, later, by Rabbi Moshe Feinstein,³⁴ and others.³⁵

A similar ruling is found regarding informing a terminally ill patient of the death of a family member. Rabbi Joseph Karo, in his code of Jewish law, *Shulchan Aruch*,³⁶ states:

[If] a sick person's close relative dies, don't inform him lest he become emotionally "torn -up" (i.e., depressed) as a result of it. And do not [ritually] tear his garment, and do not cry and do not eulogize in his presence so as not to "break his heart" (i.e., cause him to be fearful). And [one should] silence those who might come to console him [for his loss].

33. *Siftei Kohen, Yoreh De'ah* 338:1.

34. Rabbi Moshe Feinstein. "Responsum in medical halacha: Laws of rationing health care." *Moria* (Jerusalem), Elul 5744 (1984); 13(7-9):53.

35. Abraham AS. *Nishmat Avraham, Yoreh De'ah* 338:1, 1st edit (Jerusalem) 1985; Vol. 2, p. 239.

Abraham AS. *Assia* (Jerusalem) 1993; Vol. 7, p. 13, 31.

36. *Shulchan Aruch, Yoreh De'ah* 337:1.

Shach expands this ruling to prohibit crying and eulogizing even for those who are not related to the patient, as learning of the death of *anyone* may cause him to fear excessively his own death. The *Shulchan Aruch* elsewhere discusses the laws governing informing a *healthy* person of the death of a relative. He rules that in such a case it is not forbidden to inform.³⁷

How do these rulings impact on mass screening for BRCA? These sources are concerned that revealing bad news to a terminally ill patient may cause that patient to despair, worsen his condition, and hasten his death. There is no prohibition to inform a healthy person of either a serious medical diagnosis or of the death of a family member. The woman testing positive for BRCA is not sick, and it is unlikely that the emotional distress she experiences will hasten her death. Consequently, it is unlikely that any prohibition for BRCA screening emanates from these sources.

Nevertheless, the mental anguish resulting from a positive BRCA test is, perhaps, more complicated than that resulting from learning of either a serious medical diagnosis or the death of a relative. The emotional distress in the latter cases primarily involves depression and fear of death. The BRCA positive woman, however, may additionally fear and suffer from stigmatization and discrimination — specifically from potential marriage partners. For this reason alone, one prominent authority, Rabbi Moshe D. Tendler, discourages mass screening for breast cancer susceptibility.³⁸

37. *Shulchan Aruch*, *Yoreh De'ah* 402:12. Nevertheless, there is no *obligation* to inform in such a case due to the halachic concern of, "He that utters evil tidings is a fool" (Proverbs 10:18).

38. Private conversation with Rabbi Moshe D. Tendler, October 28, 1996, New York.

Potential Danger to Life (*Sakanat Nefashot*)

The Torah instructs us to take measures to preserve our health: "Take heed to yourself and guard your lives diligently" (Deuteronomy 4:9) and "Guard your lives diligently" (Deuteronomy 4:15).

There has been debate, however, whether one must seek medical attention when needed, or, rather, put his faith solely in G-d. Rambam encourages the seeking of medical treatment³⁹ whereas Ramban discourages it, though he concedes, based on *Bava Kamma* 85a,⁴⁰ that doctors are permitted to treat.⁴¹ Virtually all contemporary authorities, however, consider it obligatory for the sick to seek, and follow, medical advice.⁴²

It is questionable, however, whether genetic screening can be included in the obligation to seek medical attention. Perhaps the Torah forbids predicting unforeseen medical events through genetic screening. Rabbi Moshe Feinstein suggests this notion in his responsum regarding screening for the Tay-Sachs trait.⁴³ He cites the biblical verse: "You shall be perfect with the Lord your G-d" (Deuteronomy 18:13) to which Rashi comments, "and

39. Rambam, *Peirush Hamishnayot, Pesachim* 4:6.

40. "'He shall surely heal' [Exodus 21:19] from here [is the source] that permission is granted for a doctor to heal" (*Bava Kamma* 85a).

41. Ramban, *Commentary on Torah*, Leviticus 26:11. Even Ramban agrees that in an era such as ours, when there is no prophecy, people are required to seek medical attention when needed.

42. *Kovets Iggerot (Chazon Ish)*, Vol. 1, #138. *Responsa Yechaveh Da'at*, Vol. 1, #61. *Responsa Tzitz Eli'ezer*, Vol. 4-5, *Ramat Rachel*, sections 1 & 20. Deichowsky S. "Compulsory testing and therapy for AIDS." *Assia* (Hebrew) 1993; 7:73-78 (also printed in the English *Assia*, May 1995; II(2):10-12).

43. *Iggerot Moshe, Even Ha'ezer*, Vol. 4, #10.

do not search after the future" (i.e., via fortunetellers).⁴⁴ Rabbi Feinstein concludes, however, that TSD screening does not violate that biblical verse because a blood test is so simple and reliable that checking for the gene is more analogous to opening one's eyes to that which is visible, than to inquiring of soothsayers.

It is clear, therefore, based on the above-cited verse, that genetic screening is fundamentally *permitted*. Perhaps, however, it is never *obligatory* to screen, even in cases of *sakanat nefashot*. Rabbi Moshe Kleinman cites the verse: "The Lord protects the simpletons" (Psalms 116:6).⁴⁵ The implication of this verse is that one need not investigate the dangers around him or within him but may leave his fate in the hands of G-d. However, from numerous sources⁴⁶ we see that when a danger is easy to detect, the verse would not apply, and there *would* be an obligation to investigate. The Talmud states:

One who has marital relations on the ninetieth day [of conception] is considered as if he murdered [because of danger to the embryo]. How can one know? Rather, said Abaye, have relations regularly and "the Lord protects the simpletons" (*Niddah* 31a).

It is implicit from the words of Abaye that if there *is* a reliable method of determining when the ninetieth day is, one would be obligated to identify that day, and refrain from marital relations accordingly. Therefore, concludes Rabbi Kleinman, since a blood test for TSD carriage is simple and reliable, the verse does not absolve one from TSD screening. The argument

44. Rashi, *Commentary on Torah*, Deuteronomy 18:13.

45. Kleinman M. "Tests for Tay-Sachs disease." *Halacha U'refua* (Jerusalem) 1987; 5:255-261.

46. Proverbs 14:15; *Sanhedrin* 110b; *Niddah* 31a; *Avodah Zarah* 30b; *Yevamot* 72a; *Shabbat* 129b; *Tosefta Niddah* 2:4.

can, perhaps, be extended to BRCA. In other words, the verse may not absolve one from BRCA screening if it would otherwise be obligatory because of *sakanat nefashot*.

How are we to view the likelihood of carrying BRCA1 or BRCA2? Should it be considered *sakanat nefashot* (possible danger to life), and screening would thus be obligatory? Is the carrier frequency of greater than 2% in Ashkenazi Jews high enough to constitute *sakanat nefashot*? Perhaps in the *general* Ashkenazi Jewish population the risks of mass screening (i.e., mental anguish) outweigh the benefits, though it is probably permissible to screen on an individual basis. Maybe, then, only women with family histories of breast cancer should be screened, since the concern of *sakanat nefashot* is greater (as there exists a higher probability of testing positive and later developing breast cancer) and there is less of a concern of increasing mental anguish, as discussed above. Some secular medical authorities recommend that only women with *strong* family histories of breast cancer (three or more breast cancer cases diagnosed before age 50) or very early age of disease onset be screened.⁴⁷ Others may argue that such women are already aware of their increased risk and need not be further labeled nor subjected to the increased anxiety. Perhaps any endorsement of mass screening is premature, and the BRCA test should be reserved primarily for women already diagnosed with breast or ovarian cancer who have to decide between aggressive and conservative therapies, and for research purposes. Such are the recommendations of several major national organizations.⁴⁸ Rabbinic authorities, however, have

47. Statement of the American Society of Clinical Oncology: "Genetic testing for cancer susceptibility." *J Clin Oncol* 1996; 14:1730-1736.

48. Statement of the American Society of Human Genetics on genetic testing for breast and ovarian cancer predisposition. *Am J Hum Genet* 1994; 55(5):i-iv.

not yet addressed this issue in writing.

Optimal Age for Screening

What is the optimal age for screening? The probability of detecting the disease in its initial stages is presumably greater if the gene is discovered early. Early gene detection, however, may only foster greater anxiety. Certainly, it seems pointless to screen for the gene *in utero* or in children, decades before the disease will, if at all, manifest itself. Should young women be tested at marriageable age or wait until after they are married? Clearly, answers to these difficult questions may vary from one instance to another. Competent halachic authorities should be consulted.

Confidentiality⁴⁹

Screening for the breast cancer genes is associated with numerous problems relating to confidentiality. If a woman tests positive, who should be informed? Immediate family members are most at risk of carrying the gene and later developing breast cancer, and are often needed for emotional support. Such may not be the case with more distant relatives. Thus, even if the former are informed, perhaps the latter should not be told.

Other parties who may be affected by this information include suitors, employers and insurance companies. If a woman of marriageable age is BRCA positive, is she required to disclose that information to a suitor? If so, when should he

National Advisory Council for Human Genome Research. Statement on use of DNA testing for pre-symptomatic identification of cancer risk. *JAMA* 1994; 271:785.

49. See: Rosner, F. "Medical confidentiality in Judaism." *Journal of Halacha and Contemporary Society*, XXXIII, Spring 1997.

be told? Before the match is made? Before the engagement is announced? If asked specifically if she carries the gene, is she allowed to conceal the truth? Can, or should, a doctor reveal this information to suitors, employers or insurance companies? Dr. Abraham S. Abraham, author of *Nishmat Avraham*, raises several related questions:⁵⁰ Can the parents disclose the presence of disease to a prospective mate against the child's will? Can the child divulge the information against the parents' will?

Rabbi Judah the pious, author of *Sefer Chasidim*,⁵¹ asserts that the bride and groom are obligated to reveal physical defects or illnesses, and failure to do so results in a voidable marriage. Additionally, Rabbi Israel Meir ha-Kohen (Kagan), author of *Chafetz Chaim*, rules that the disclosure of medical information to a prospective marriage partner by a third party does not constitute the biblical prohibition of talebearing (Leviticus 19:16) if the disclosed information will be a determining factor in the decision.⁵² Thus, Dr. Abraham rules that though there is an obligation on the parents to divulge medical information to a suitor, a third party is neither obligated nor prohibited from disclosing such information.⁵³ Rabbi Mordecai Breisch, in *Responsa Chelkat Ya'akov*,⁵⁴ and Rabbi Eliezer J. Waldenberg, in *Responsa Tzitz Eli'ezer*,⁵⁵ rule that a doctor, however, is required

50. *Nishmat Avraham Even Ha'ezer* Vol 3:22-28.

51. *Sefer Chasidim*, # 507.

52. *Chafetz Chaim*, Laws of talebearing, rule 9, 3:4.

53. The *Chafetz Chaim* rules that a third party is *not in violation* of talebearing if he reveals the presence of disease in a prospective marriage partner. He also rules that a third party is *required to reveal* if the groom has heretical beliefs or licentious practices. Thus, Rabbi S. Z. Auerbach infers that there is no *obligation* to reveal in the former case.

54. *Chelkat Ya'akov, Even Ha'ezer*, Vol. 3, #79.

55. *Tzitz Eli'ezer*, Vol. 16, #4.

to reveal his patient's diagnosis of cancer or infertility to his patient's prospective mate. Furthermore, Rabbi J. David Bleich concludes that prospective employers should be informed if the prospective employee has an ailment that is likely to affect his work.⁵⁶ Similarly, if the presence of BRCA is a determining factor to a suitor, employer, or insurance company, it *may* be the obligation of the patient, her parents, or her doctor to divulge the information. Fortunately, there exists both federal and state legislation (in at least 20 states) protecting patients with gene mutations from losing or being denied or charged more for health insurance. Additionally, the Americans With Disabilities Act prevents employers from discriminating against people who have disease-causing mutations.⁵⁷ Needless to say, there is no similar legislation, either secular or halachic, protecting BRCA positive women from discrimination from potential marriage partners.

Implications Vis a Vis Potential Marriage Partners

Heretofore we have concluded that there *may* be an obligation for a BRCA positive woman to inform her suitors of her gene status. We have not discussed, however, the halachic implications of this information *vis a vis* the suitors. The Talmud rules:

Said Raba . . . a man should not marry a woman, neither from a family of epileptics nor from a family of lepers, with a three-fold [familial] incidence (*Yevamot* 64b).

This passage implies that it is prohibited for a man to marry a woman who is predisposed to certain familial conditions. It is unlikely, however, that this ruling is applicable to BRCA

56. Bleich, JD. *Judaism and Healing*. Hoboken, NJ, Ktav, 1981, p.35.

57. Kolata G. "Advent of testing for breast cancer leads to fears of disclosure and discrimination." *New York Times* February 4, 1997; C1,3.

positive women. Rabbi J. David Bleich asserts that only women from families of “epileptics” and “lepers” (talmudic entities whose definitions are unknown) are included in the talmudic enactment.⁵⁸ Rabbi Immanuel Jakobovits, on the other hand, maintains that women predisposed to *any* hereditary disease are included.⁵⁹ Nevertheless, it is not clear if a positive gene test fulfills the criteria of a “three-fold [familial] incident.” Furthermore, even if it does fulfill the talmudic criteria, it is unclear if the passage proposes a true prohibition. Though the passage is cited in *Shulchan Aruch*,⁶⁰ several authorities conclude that it is merely prenuptial advice.⁶¹ Specific cases should be directed to rabbinic authorities.

Obligation to Procreate

The Bible commands: “Be fruitful and multiply” (Genesis 1:28).⁶² Is this commandment suspended when the offspring are likely to carry and transmit a disease-bearing gene, and may die prematurely from that disease? The Talmud relates that King Hezekiah was held culpable for abstaining from the

58. Bleich, JD., *op. cit.*

59. Jakobovits I. *Jewish Medical Ethics*. New York, Block, 1975, p. 155. Rabbi Jakobovits cites Julius Preuss (*Biblical and Talmudic Medicine*, translated by Dr. Fred Rosner, p. 301) who points out that Rashi (*Yevamot* 64b, heading: “*Nichphin*”) translates the word “*nichphin*” as “illness,” whereas elsewhere he translates it as “*le mal de St. Jean*” (the illness of St. Jean, i.e., epilepsy) suggesting, perhaps, that all hereditary illnesses are included in the talmudic enactment.

60. *Shulchan Aruch, Even Ha’ezer* 2:7.

61. Private conversations with Rabbi J. David Bleich, and with Rabbi Hershel Schachter, January 20, 1997. Personal correspondence with Rabbi Immanuel Jakobovits, April 15, 1997.

62. The Talmud in *Yevamot* 65b states that only men are obligated by this commandment.

commandment to “be fruitful and multiply” even though he knew through divine spirit that his children would not be upstanding. Isaiah rebuked Hezekiah for this decision:

What have you to do with the secrets of the All-Merciful?
That which you were commanded you should have
done, and that which is pleasing to the Holy One, blessed
be He, let Him do! (*Berachot* 10a).

In other words, man is commanded to procreate regardless of the outcome. Similarly, the Talmud elsewhere relates:

Amram was the greatest of his generation. When Pharaoh, the evil one, decreed that “all male children shall be cast into the river” [Exodus 1:22] he said, “for naught do we toil.” He proceeded to divorce his wife, [and] all [husbands, similarly,] proceeded to divorce their wives. [Subsequently] his daughter said to him: “Father, your decree is harsher than Pharaoh’s. Pharaoh decreed only on the males, and you decreed on the males and on the females. Pharaoh decreed only in this world and you decreed in this world and in the world to come . . .” Amram proceeded to bring back his wife, [and] all [husbands, similarly,] proceeded to bring back their wives (*Sotah* 12a).

The obligation to procreate is not suspended even when the offspring are likely to die prematurely.

Based on this principle, Rabbi Feinstein rules that a patient with Marfan’s disease is obligated to procreate,⁶³ as are parents whose two children had both died before the age of two of a genetic disease.⁶⁴ Rabbi Yitzchak Zilberstein arrives at the same

63. *Iggerot Moshe, Even Ha’ezer* Vol. IV, 73:2. (Also printed in *Techumin*, Alon Shevut, Israel, 1983; 4:421.)

64. *Iggerot Moshe, Even Ha’ezer* Vol I, 62.

conclusion in a case of two parents, each of whom has hereditary deafness and blindness.⁶⁵ Similarly, Rabbi J. David Bleich concludes that the commandment to "be fruitful and multiply" is not suspended when parents are found to be carriers of TSD.⁶⁶ Certainly, then, there is no suspension of the obligation to procreate for a couple in which one of the spouses is BRCA positive.

Conclusion

Screening tests for genetic diseases are generally developed long before effective therapies are available. The recent discovery of BRCA1 and BRCA2, the breast cancer susceptibility genes, with high prevalences amongst Ashkenazi Jews, has brought the issue of mass genetic screening to the forefront of the field of medical ethics. Such testing raises serious halachic concerns. A patient testing positive is likely to suffer great mental anguish, though the benefits of early awareness of disease risk argue for widespread screening. These benefits, however, are not proven. A distinction can be made between patients from high risk families, in whom the risk of cancer is high, perhaps even constituting *sakanat nefashot*, and patients without family histories of the disease, for whom mass screening may yet be premature. Finally, other areas that require further investigation include the optimal age for screening and confidentiality.

65. Zilberstein, Yitzchak. "Where suspicions arise that a fetus may be born defective." *Halacha U'refua* (Jerusalem) 1981; 2:106-113.

66. Bleich, JD. *Judaism and Healing*, pp. 106-107.

Cloning People and Jewish Law: A Preliminary Analysis

Rabbi Michael J. Broyde

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

Preface

The relationship between modern technology, biomedical ethics and Jewish law has been well developed over the last fifty years. As has been noted in a variety of sources and in diverse contexts, Jewish law insists that new technologies — and particularly new reproductive technologies — are neither definitionally prohibited nor definitionally permissible in the eyes of Jewish law, but rather subject to a case-by-case analysis. Nonetheless, every legal, religious or ethical system has to insist that advances in technologies be evaluated against the touchstones of its moral systems. In the Jewish tradition, that touchstone is halacha, the corpus of Jewish law and ethics. This short paper is an attempt to create a preliminary and tentative analysis of the technology of cloning from a Jewish law perspective. Like all preliminary analyses, it is designed not to advance a rule that represents itself as definitive normative Jewish law, but rather to outline some of the issues in the hope that others will focus on the problems and analysis found in

Director of the Beth Din of America. Senior Lecturer
in Law at Emory University School of Law (on leave)
and Rabbi of the Young Israel of Toco Hills, Atlanta.

this paper and will sharpen or correct that analysis. Such is the way that Jewish law seeks truth.

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

It is the balance between these various needs that drives the Jewish law discussion of all assisted reproductive technology. In that spirit this paper is intended to be a preliminary analysis of the problem of cloning.

I. Introduction

An analysis of the implications of cloning found in Jewish law really contains within it three distinctly different problems in need of resolution. The first one discusses whether the cloning process is permissible (*mutar*), prohibited (*assur*), or a good deed (*mitzvah*). However, the determination of whether any particular conduct is good, bad or neutral is not dispositive in addressing the second issue: the familial status of an individual (re)produced through cloning in relationship to other humans generally, and other members of this person's "family"

specifically.¹ Finally, even when conduct is permissible or perhaps even a mitzvah, Jewish law recognizes that the (rabbinical) authorities of every generation have the authority to temporarily prohibit that which is permissible based on the perception that this intrinsically permissible activity could lead to other more serious violations.² Perhaps cloning is such a case.

Section II of this article will review the current state of technology and science as it relates to cloning. Section III will address the question of who is the family of the clone according to Jewish law, and Section IV then proceeds to address whether cloning is permissible, prohibited, or a good deed.³ Section V will address the questions of cloning and public policy from a halachic perspective.

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

2. See Rambam, *Mamrim*, 2:1-9.

3. Because of the nature of the Jewish law discourse, section III and IV appear to be in reverse order, as it would appear more logical to discuss permissibility before consequences. However, because in Jewish law the permissibility of any activity is frequently dependent on the consequences, this order is adopted.

II. Cloning: The Scientific Background

Cloning, until now the subject of the fictional analysis of the type found in the book *The Boys From Brazil*, has become a medical reality with the recent cloning of a sheep. Indeed, there is no doubt that in a very short number of years it will be medically possible to clone human beings, and there is already an extensive discussion about whether such conduct should be permissible.⁴

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

4. See, e.g. Mona S. Amer, "Breaking the Mold: Human Embryo Cloning and its Implications for a Right to Individuality," *UCLA L. Rev.* 43:1659 (1996).

genetic code, but with disease-free mitochondrial DNA.⁵

Siblings who are not identical twins share some of the genetic materials of their parents; however, since each sperm and each egg take a different set of material from the parents, each sibling has a unique genetic makeup based on a combination of portions of their parents' genes different from that found in their siblings. (All children of the same women have the same mitochondrial DNA, which has a higher mutation rate than nucleic DNA.) Identical twins, however, are the product of a single fertilized egg of a unique genetic makeup which splits in half after fertilization, leaving two fully formed zygotes which develop into two fully formed — but genetically identical — siblings.⁶ These two children share an absolutely identical genetic makeup and until recently represented the only case available in which two people could have an identical genetic makeup.⁷

In the current state of cloning technology, genetic material is taken from a person and is isolated from that person's cells. It is then introduced into the nucleus of an egg/ovum whose own nucleic genetic material has been destroyed, so as to produce an egg/ovum that contains a full set of genetic material identical to the nucleic genetic material of the person whose genetic material was donated. If the genetic material is taken from one person, and the egg is taken from another, the non-nucleic genetic material of the clonee will be that of the egg

5. "Clone Mammals ... Clone Man," *Nature*, 13 March 1997, at page 119. This is not cloning in the common use of the term, but, in fact, is a form of neo-cloning.

6. Both the nucleic and the non-nucleic DNA are the same.

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

donor, and not the gene donor, whereas the nucleic genetic material will be from the gene donor. (The exact role of non-nucleic DNA in character formation is unknown at this time, and one is simply uncertain as to how close the phenotypical resemblance will, in fact, be; however, the current state of technology indicates that the vast amount of one's genetic characteristics are determined by one's nucleic DNA.) A woman could avoid this problem and produce a "full clone" by using her own genetic material and one of her own ova/eggs in the cloning process; that clonee will have the exact same DNA makeup as its clonor.

Through the stimulation of that egg, it is induced to behave like a fertilized egg and then starts the process of cellular division that leads it to behave as if it is a newly fertilized egg with genetic materials from a mother and a father. It divides and reproduces, and when implanted into the uterus of a gestational mother, the zygote will grow and develop into a fully formed fetus which will eventually be born from the uterus of its gestational mother. It is important to recognize that in the current state of technology, all fertilized eggs — including cloned ones — are implanted in a uterus and are carried to term like all normal pregnancies. (In theory, the gene donor, the egg donor and the gestational mother could all be the same person, if the clonor is a woman. Obviously, a man can only be a nucleic DNA donor.)

The child that is born from this gestational mother is genetically identical to the donor(s) of the genetic material and bears no genetic relationship to the gestational mother.⁸ It is

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

not a combination of the genetic material of two people (the mother and father). It is instead identical to the genetic makeup of the one who donated the DNA (or perhaps the two women who donated the nuclear DNA and mitochondrial DNA). It is as if, on a genetic level, this person produced an identical twin, many years after the first person was born.⁹ It is genetically impossible to distinguish cells of the clonee from cells of the clonor, as their genetic makeup remains absolutely identical. Indeed, there is no reason why this process could not be done from the cells of a person who is deceased.

III. Status Issues Related to One Who is Cloned

This entire area of endeavor is so new that there is little if any halachic consensus whether (a) it is permissible and (b) what the status of the offspring might be. What follows is my own speculation as to those problems which Jewish law would have to resolve in order to arrive at a halachic decision.

A. Who is the Clonee's Family

The Jewish legal tradition would, in my opinion, be very much inclined to label the gestational mother (the one who served as an incubator for this cloned individual), as the legal mother of the child, as this woman has most of the apparent indicia of motherhood (see *infra*) according to Jewish law. While this child bears no genetic relationship to its gestational mother, particularly when the clonee is a male, there are no other possible candidates whom Jewish law could label the mother.

One might, at first glance, question this result. However, consider the case of a woman born with no ovaries, who as an infant is given an ovary transplant. Twenty years later, this woman marries and has a child. Who is the legal mother of

9. This is not quite true when the genes are implanted in the egg of another, as the non-nucleic DNA would be different.

the child? I am convinced that Jewish law acknowledges that the women who received the ovary transplant — who had a sexual relationship with a man, and whose body ovulated, conceived, implanted, nurtured and bore this child — is the halachic mother of the child, even though she bears absolutely no genetic relationship with the child.¹⁰ Thus, this child would have a maternal relationship with the woman who bore him. It appears to me that:

- 1) If conception occurs within a woman's body, removal of the fetus after implantation (and, according to most authorities, after 40 days) does not change the identity of the mother according to Jewish law. The mother would be established at the time of removal from the womb and would be the woman in whom conception occurred.
- 2) Children conceived in a test tube and implanted in a host carrier are the legal children of the woman who gave birth to them since parturition and birth occurred in that woman, and conception is not legally significant since it occurred in no woman's body.
- 3) Children conceived in a woman who had an ovarian transplant are the legal children of the woman who bore them.¹¹

According to my analysis, rule two would govern this case, and it would appear, the gestational mother would be the legal mother according to Jewish law.

However, in the last five years quite a robust discussion

10. This issue is discussed at great length in an article by this author "The Establishment of Maternity and Paternity in Jewish and American Law," *National Jewish Law Review* III:117-152 (1988).

11. Ibid.

within Jewish law has developed as to whether a child can halachically have two or more mothers. According to Rabbi J. David Bleich, a number of halachic authorities would be inclined to rule that it is possible for a child to have two mothers according to Jewish law, and, in a case of surrogate motherhood, both mothers are to be considered the mother. Rabbi Bleich reports that the late Rabbi Shlomo Zalman Auerbach adhered to this view.¹² If such were the halacha, there would be little doubt that the one who contributed the genetic materials would also be considered the mother according to Jewish law were she a woman — as her contribution is clearly greater than the egg donor, who is considered a mother by this analysis. Indeed, it is quite possible to argue that both the clonor and the egg donor, who contributes the mitochondrial DNA, would be considered "mothers" according to Jewish law by this analysis, which assumes that more than one mother is possible. The logic behind naming the one who contributes the nucleic genetic material as the mother seems persuasive if one considers the egg donor to be a mother in surrogacy cases. If one maintains that a woman who contributes an egg and does not carry the child to term to be a mother according to Jewish law, certainly one who contributes all of the genetic materials — twice as much as is normally contributed by the mother — is considered a mother according to Jewish law, by these same authorities. The rationale for labeling the contributor of the egg/ovum as the mother would seem to be that the contribution of either the mitochondrial DNA or the egg itself is enough of a contribution that — within a system that labels any woman who contributes as "a mother" — this person too is a mother.

On the other hand, if one agrees with those authorities

12. Rabbi J. David Bleich, "In Vitro Fertilization: Questions of Maternal Identity and Conversion," *Tradition* 25:4, Summer 1991 82-102, at pages 86-88.

who label the gestational mother as "the only mother" to the exclusion of all other mothers and the ovum donor as of no legal significance according to Jewish law, one is uncertain as to what is the result in this case. The contributor of the genetic material still lacks the indicia of motherhood according to this school of thought; however, unlike the typical mother, who contributes but half the genetic material, this woman contributed all of the genetic material, and thus has a greater claim to parenthood than an egg donor in the case of surrogate motherhood.¹³ Nonetheless, the weight of this line of reasoning argues that Jewish law focuses on parturition and birth, and labels the gestational mother as the "real" mother. This result should govern the case of cloning also — the birth mother should be the "real" mother according to Jewish law.

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

Of course, to reach this result, one must resolve a number of halachic disputes about the duty to procreate. There are some who maintain that absent a sexual relationship, there is

13. See Rabbi Ezra Bick, "Ovum Donations: A Rabbinic Conception of Maternity" *Tradition* 28(1) Fall 1993, pages 28-45. Rabbi Bleich responded in "Maternal Identity Revisited," *Tradition* 28(2) Winter 1994. See also *Nishmat Avraham* EH 22:2 at 186 in appendix volume.

no paternity; certainly those authorities rule that no paternity is established in the case of cloning.¹⁴ There are also some who rule that absent a sexual relationship — even if paternity is established — there is no fulfillment of the biblical obligation to “be fruitful and multiply” or a fulfillment of the rabbinic obligation to “inhabit the earth”. Cloning involves no sexual relationship, and thus would not fulfill the mitzvah to procreate according to Jewish law.¹⁵

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

AIH [Artificial insemination of the Husband's sperm] is generally regarded as a halakhically permissible procedure through which paternity can be established and the mitzvah of *peru u-revu* [“be fruitful and multiply,” the biblical obligation to have children] or at least *la-shevet* [“to be inhabited,” the rabbinic obligation to have children] can be fulfilled. By and large most *poskim* [decisors of Jewish law] have assimilated IVF [in vitro fertilization] to AIH and have permitted its utilization ... Virtually all contemporary *posekim* have concluded, first, that the egg and sperm providers do have a parental relationship with the IVF generated offspring; second,

14. See, e.g., *Tzitz Eliezer* 15:45.

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

that the procedure, if undertaken for procreation by an otherwise infertile couple does not violate the prohibition against *hashhatat zera* [wasting sperm/seed]; third, that one may fulfill, through any resulting offspring, either the mitzvah of *peru u-revu* [the biblical obligation to have children], or at the very least, the "lesser" mitzvah of *la-shevet* [the rabbinic obligation to have children].¹⁶

The next sentence to Rabbi Breitowitz' article states "These will be the assumptions on which this article is predicated;" I too will predicate this article on these assumptions. Let me emphasize that these are only assumptions, not halachic decisions issued by recognized *poskim*.

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

It seems logical, to this author, that when the genetic donor is a man, he would have the status of the father and would fulfill the duty to have children, either its biblical or rabbinic component.¹⁷ If the genetic donor is a woman, perhaps one

16. Rabbi Yitzchok Breitowitz, "Halakhic Approaches to the Resolution of Disputes Concerning the Disposition of PreEmbryos", *Tradition* 31:(1)64-92 (1996) at page at pages 65- 66.

17. The mitzvah of *peru-urevu*, or its rabbinic analog, *lashevet*. The argument, advanced by many, is that *lashevet* is fulfilled even when *peru urevu* is not, as *lashevet* is a result-oriented mitzvah, while *peru urevu* is an action-oriented mitzvah with a specific process.

could claim that the gene donor is also the mother in accordance with the logic of Rabbi Bleich found above, or in accordance with those authorities who label the egg donor the mother according to Jewish law in cases of surrogacy.¹⁸ There is little doubt that the genetic donor would be, at least, classified as the mother as a stricture based on doubt, prohibiting sexual relationships with her relatives or her (if the child is male). This might also be the case for the egg donor, who is the contributor of the mitochondrial DNA, whose effect on the clone has yet to be fully elaborated by the scientific community.

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

18. See Rabbi Aharon Soloveitchik, "Test Tube Babies," 29 *Ohr Ha'Mizrach* 128 (1980).

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

Perhaps since the child would lack a father according to Jewish law in the case of a woman donating genetic material to be cloned and the gestational mother being the "mother" according to Jewish law — maybe the provider of the genetic material should be the "father" whether that person is a man or a woman, as providing half the genetic material seems to be enough according to most halachic authorities to label one the "father" even absent intercourse. The possibility that motherhood and fatherhood can be defined independently of the mother or father's gender is explicitly discussed by Rabbi Joseph Babad in *Minchat Chinuch* 189(1), where he discusses the case of an androgenous male who fathers a male child and then has a (homo)sexual relationship with that male child. Rabbi Babad speculates that if the male child has a homosexual relationship with his father, both are liable for incest as well as for homosexual activity. However, if the sexual relationship is with his father's female sexual organs (after all he is androgenous), Rabbi Babad speculates that "the son should be liable for sexual relations with his mother, perhaps."

Notwithstanding the presence of this very tentative analysis, there is little or no precedent for such an analysis; the classical Jewish law codes leave little room for this discussion, which seeks to define motherhood and fatherhood in reference to the

gender of the parents and not independent of the gender.¹⁹ Indeed, even Rabbi Babad's analysis seems to uncouple gender from parental status only in the case of one whose gender status is uncertain (even though he fathered a child); no such ambiguity is normally present.

B. The Identical Twins Issue

Some suggest that the relationship between the clonee and the clonor is that of siblings and not of parents. While this argument seems to have a genetic basis, as the relationship between the clonee and the clonor most closely resembles the relationship between identical twins (although in most cases the mitochondrial DNA will be different), it would appear that there are significant halachic problems with this analysis. The definition of siblings found in Jewish law is either a common mother or a common father or both. As the Talmud notes in *Yevamot* 97b, one can imagine a situation in which children are siblings in which they have no legally cognizable genetic relationship, but nonetheless are considered siblings because they shared a uterus with a common mother. Consider the case in *Yevamot* 97b:

Twin brothers who were converts, or similarly emancipated slaves, may neither participate in *chalitza* nor a levirate marriage; nor are they punishable for marrying their brother's wife [as converts lose their legal relationship with their prior family]. If, however, they were not conceived in holiness [their mother was a Gentile when they were conceived] but were born into holiness [had converted to Judaism before their birth] they may neither participate in *chalitza* nor a levirate marriage and are guilty of a punishable offense if they

19. See *Encyclopedia Talmudit*, "Av" 1:5-18 and "Aim" 2:21-26.

marry their brother's wife.

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

Given this insistent definition for the purpose of declaring one a sibling according to Jewish law²⁰ — that individuals are required to have either a common mother or a common father (or both) to be siblings — it would be difficult to establish that according to Jewish law the relationship between the clonor and the clonee to be a sibling type of relationship, given the complete absence of common parents.

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

20. *Shulchan Aruch, Even Haezer* 15:10.

The argument that analogizes cloning of an adult to the splitting of a fertilized egg appears incorrect.²¹ It is true that when a fertilized egg divides into two independent embryos, both of those children (who are identical twins) are considered children of the couple that fertilized the initial egg — and the second egg is not a "child" of the first. However, this type of case is different precisely because the process of fertilization and division occurs in utero, such that it is clear who is the mother of these children, and thus who is the father. To rule that the provider of the initial genetic material is not the father in a case of cloning — but rather that the father of the provider of the genetic material is the father — seems far removed from logic, as that person is completely uninvolved in the reproductive process. The one who fertilized the egg, either by providing half the normal chromosomes in the case of regular fertilization, or all the chromosomes in the case of cloning, should be considered the parent.

An elaboration of this analysis is needed. The splitting of a fertilized egg is perhaps the simplest form of cloning, the argument goes, and just like that case produces sibling relationships and not a child-parent relationship, so too, a clone from an adult should be classified as siblings, and not as a child. I believe this analysis is incorrect. What makes the identical twins siblings in the case of fertilized eggs, is the definition of siblings discussed above: a common mother and father. The fact that these children share a uterus and a common egg, and thus a mother (see *Yevamot* 97b cited above) inclines one to think that they also share a father who provided the sperm that created the first one of them, and thus they are siblings. Clonor and clonees do not share a mother (egg donor or gene provider) or a father (provider of genetic material) and

21. Fertilized eggs have been split, producing induced identical twins.

thus are not siblings, in my opinion.²²

C. Absence of Paternity and Religious Identity

One other possibility worth considering is the possibility that there is no familial relationship between the clonor and the clonee according to Jewish law. Jewish law might consider these people as categorically unrelated. There is ample precedent in Jewish law that a mere genetic relationship does not establish a legal relationship in the eyes of Jewish law. Nonetheless, once there is a clear establishment of maternity on the part of the gestational mother, as there is in the case of cloning (see above) it seems logical that the provider of the genetic material has the status of the other parent, assuming that this parent is a man, thus enabling him to fit into the category of father. It is illogical to distinguish between a man who contributes sperm to an in vitro fertilization to be the father according to Jewish law, and yet consider the one who contributes all the genetic material not to be the father. In the absence of the genetic provider being a man, one returns to the discussion about two women competing to be the mother in the case of surrogacy.²³

The question of who is the mother is seminal in determining

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

23. Consider the case of the egg of a Jewish woman fertilized by the sperm of a non-Jewish man and then implanted into the uterus of a Jewish woman. Without doubt, Jewish law would assign paternity to nobody and the question of maternity within the categorization of surrogate motherhood described in Section III. The fact that there is no father cognizable according to Jewish law would in no way affect the disagreement between the two women as to who the mother is under Jewish law.

the religious identity of the child. Jewish law insists that the child of a Jewish mother is Jewish, independent of the religious identity of the father, and the child of a Gentile woman is a Gentile, independent of the religious status of its father. Indeed, in the case of intermarriage, Jewish law never recognizes valid paternity, no matter what the religion of the father is. Were one to determine that the gestational mother is the mother, Jewish law would assign the child Jewish identity and would limit paternity to those cases where the provider of the genetic material is also Jewish. In those circumstances, where the donor of the genetic material is a Jewish woman and the gestational mother is a non-Jewish woman, or the other way around, the determination of religious identity would depend on whom one labels the mother. Rabbi J. David Bleich quotes an unpublished responsum from the late Rabbi Shlomo Zalman Auerbach to the effect that, the Jewish status of such a child is subject to doubt, and he or she should be converted.²⁴ (This doubt is likely to continue even when the clonor is Jewish, and the egg donor is Gentile, as the egg donor's religious identity is also relevant, at least once one considers the possibility of multiple mothers.)

D. The Artificial Person (*Golem*)

Unaddressed until this point is the discussion of the legends in Jewish tradition about *golems*, artificial people created by mystical means. These stories tell of figures made from dirt brought to life by reciting one of the names of the Divine or by placing a piece of parchment with God's name (or the word *emet* ("truth")) on the *golem's* forehead. The Talmud (*Sanhedrin* 65b) recounts:

Rava created a man and sent him to Rav Zera. The

24. *Lechumra*; Bleich, *supra* note , at page 93-95 and note 43 at page 102.

rabbi spoke to him, but he did not answer; Rav Zera exclaimed "you are artificial: return to dust".... Rav Hanina and Rav Ohaya would sit every Sabbath eve and study the book of creation and create a calf one-third the size of a full calf, and eat it.

In the last 600 years there have been a number of accounts of *golems* created to assist the Jewish community in its various times of need.²⁵ As Rabbi Chaim Steinmetz notes "whether or not these legends are fictional is irrelevant; what we are interested in is how man's ability to artificially create life is viewed by Jewish thinkers."²⁶

The responsa literature contains a clear discussion of whether an artificially created person (a *golem*) is human or not — may it be killed, does it count in a *minyan*, can it ritually slaughter and so on. Humanness — being created in the image of God (*tzelem elokim*) — is not dependent on intelligence.²⁷ Rather, as the *Encyclopedia Talmudit* states:

A person who is born from another person — in the womb of a woman — is prohibited to be killed.

It adds:

One who is created through a mystical process or through a mixing of divine letters [if that person is

25. For more on *golems* in the Jewish tradition, see Moshe Idel, *Golem: Jewish Magical and Mystical Traditions on the Artificial Anthropoid* at 213-232.

26. Chaim Steinmetz, "Creating New Species", Unpublished ms. My thanks to Rabbi Steinmetz for sharing his article with me.

27. For an elaboration on this, see Eleazar Fleckeles, *Teshuvot Me' Ahava* 53, who discusses whether a significantly deformed child is human, and concludes that obviously it is. For a tentative contrary assertion, see Ya'akov Hagiz, *Halachot Ketanot* 37-38 which is responded to in the *Mishnah Berurah* 329 s.v. *ela*.

killed] the one who kills him does not violate the prohibition to murder (*lo tirtzach*).²⁸

Yet other halachic authorities focus on the fact that these artificially created "people's" (*golem's*) origins are non-human, or that they are specifically divinely created, or that a *golem* is both specifically divinely created and a deaf-mute.²⁹ Indeed, Rabbi Samuel Adels Maharsha, commenting on *Sanhedrin* 65a, could easily be understood as ruling that a *golem* that can speak and appears human, is, in fact, human — a result that appears very intuitive to this writer.³⁰ Indeed, support for the proposition that "humanness" is determined by human function in cases where apparent definition of humanness — birth from a human mother — does not apply, can be found in an explicit discussion of humanness in the Jerusalem Talmud (*Niddah* 3:2). That source states:

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

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

Yet suppose it is entirely human, but its face is animal-like, and it is learning Torah? Can one say to it "come and be slaughtered?" [Rather one cannot]. Or consider

28. *Encyclopedia Talmudit*, "Adam" 1:165. See also *Chacham Tzvi* 94. *She'elat Yavetz* 2:82 quotes others who compare such a creature to an animal — it is alive, but not human.

29. Compare *Darchei Teshuva* on YD 6:11, Maharsha, *Sanhedrin* 65a, *Sidrai Taharot*, *Ohalot* page 5a, *Tzafnat Paneach* 2:7.

30. For more on this, see Azriel Rosenfeld, "Human Identity: Halakhic Issues", *Tradition* 16:3 197 at page 58.

if it is entirely animal like, but its face human, and it is plowing the field [acting like an animal] do we come and say to it, "come and perform levirate marriage [*yibum*] and divorce [*chalitza*]?" [Rather, one cannot.]

The talmudic conclusion seems to be simple. When dealing with a "creature" that does not conform to the simple definition of humanness — born from a human mother — one examines context to determine if it is human. Does it study Torah (differential equations would do fine for this purpose, too), or is it at the pulling end of a plow? By that measure, a clone, even one fully incubated artificially, would be human, as it would have human intellectual ability and human attributes.³¹

However, it appears to this writer that these stories about fully artificial people are of no relevance in cases of AIH/D, IVF, or cloning since the fertilized egg is implanted in the uterus of a woman, who gives birth to a child and is the legal mother. Thus, a clone, no less than any other "born" child, meets the *prima-facie* test for humanness and is human.

To the extent that the mystical stories have something to contribute to the approach of Jewish law to this topic — itself a matter of significant dispute as noted by Maharsha, above — that discussion will have to wait for the invention of a full human incubator, thus allowing a child to be born without any implantation into a human.³²

31. This might however, indicate that a fully incapacitated clone might not be human. See Rabbi Moshe Hershtler, "Genetics and Test Tube Babies," *Halacha uRefuah* 4:90-95 (5745).

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

E. Miscellaneous Issues Related to Cloning

A host of miscellaneous issues raised by this analysis can only be dealt with in a preliminary way. The first is the famous discussion generated by a series of responsa (*teshuvot*) by Rabbi Saul Yisraeli and others as to whether a dead man can legally father a child according to Jewish law, and as to who owns the genetic material of the dead person which will subsequently be used to reproduce this person.³³ Presumably, those who hold that a dead man cannot legally reproduce so as to have a paternal relationship or fulfill a mitzvah, would rule that one whose cells are cloned after death is not the father according to Jewish law. Those who disagree with this analysis would seem to disagree in the case of cloning as well.³⁴

There is little doubt that soon there will be yet another (modified) form of cloning that would permit the taking of nucleic genetic material from a variety of sources, and one need not employ the genetic material of just one person. How exactly Jewish law would view the parental, familial, or maternal status of one who has various pieces of genetic materials from a variety of sources is an issue which is little addressed. If one accepts the analysis of Rabbi Bleich that it is plausible for a child to have more than one legal mother or father — based on the fact that Jewish agricultural laws allows for a plant to have more than two legal parents — one would be inclined to view the parents of those children as the contributors of the genetic material as well as the gestational mother.³⁵ Presumably those who disagree with that analysis would argue that the gestational mother is the "real" mother according to Jewish law. In a case where there is no gestational mother³⁶ this approach would

33. See Breitowitz, *supra*, at pages 69-80.

34. *Ibid.*

35. See Rabbi Bleich, *supra*, at pages 93-95.

36. Such is currently science fiction and not fact.

argue that there is no mother according to Jewish law, or perhaps this approach would label the primary donor as the mother or father, or consider them all doubtful (*safek*) parents. Indeed, such is exactly the dilemma in the current cloning technology when the egg/ovum donor is not the same person as the contributor of the nucleic genetic material, as that clonee has genetic material from two different sources: nucleic genetic material from the clonor, and mitochondrial genetic material from the egg donor.

IV. Is Cloning Permissible, Prohibited, or A Good Deed?

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

1. Activity Which Is Obligatory (*mitzvah chiuvit*).

The requirement for a man to procreate by having a minimum of two children — a boy and a girl — is obligatory according to Jewish law. At least as a matter of theory, a Jewish law court can compel one to marry and have children.³⁷

2. Activity which is Commendable, but not Obligatory (*mitzvah kiyumit*).

Various authorities rule that procreation beyond the obligation to have one boy and one girl is a discretionary activity which is a *mitzvah*. According to this approach,

37. *Shulchan Aruch EH* 1:3. While this is no longer done, and has not been done for 500 years (see *Ramo*), the rationale for not engaging in compulsion has nothing to do with the fact that this obligation is not as a matter of theory compellable in Jewish law.

such conduct is a mitzvah, but not legally obligatory.³⁸

3. Activity which is Permissible (*mutar*).³⁹

Rabbi Moshe Feinstein is of the opinion that for a woman to engage in artificial insemination with sperm other than her husband's, with her husband's consent, in order that she may have a child, in a situation in which the sperm donor is a Gentile, is permissible.⁴⁰

4. Activity which is discouraged but not prohibited (*bitul mitzvah*).

Various Jewish law authorities rule having many children a discretionary mitzvah (see rule 2, above and note) and deem the decision to stop having children after one has the minimum number required as a

38. Thus, according to this approach, a person who has already fulfilled the obligation to be fruitful and multiply and is not married is under no obligation to remarry, although such conduct is a discretionary mitzvah and should be done when possible. This explains the rulings of *Mechaber* and *Ramo*, *Even Haezer* 1:8, both of whom permit marrying a woman who cannot have children in a variety of situations, including, *Ramo* writes, to avoid disputes. Certainly, *Ramo* would not permit one to avoid having the minimum required number of children to avoid confrontation; see comments of *Gra* on *EH* 1:22 who notes this. For a contrary view, see *Rambam*, *Ishut* 15:16. For a lengthy discussion of this, see Rabbi Yehuda Henkin, *Benai Banim* 1:31 and 2:38.

39. This is not to be confused with a reproductive technology that has some aspects of prohibition (*issur*) and some aspects of prescription (mitzvah) such as artificial insemination of the husband's sperm. Such activity involves a balance of whether the aspect which is proscribed is outweighed by the fulfillment of the mitzvah which is prescribed.

40. *Iggerot Moshe Even Haezer* 1:10, 71; *Even Haezer* 2:11; *Even Haezer* 3:11. Many argue with this approach, and this is not the place for a discussion of this issue, which is cited merely as an example of such conduct.

nullification of an optional mitzvah. According to this approach, one who avoids fulfilling this commandment has forsaken the opportunity to do a good deed (mitzvah) — but there are those who hold that such conduct is not definitionally prohibited.

5. Activity which is Prohibited (*assur*).

For example, an abortion for a reason unacceptable to Jewish law is prohibited.⁴¹

Thus the seminal discussion about cloning focuses on whether the obligation to be fruitful and multiply or its rabbinic analog has been fulfilled by the cloning activity. This question seems to be without clear precedent in Jewish law. One could argue that the definitional activity found in the obligation to be fruitful and multiple solely involves a man giving genetic material to produce a child who lives. Such a child is produced in this case. There is at least one mother (gestational mother) and in most circumstances there will be a father/second parent. Why then should no mitzvah be fulfilled, or at least a child born not exempt one from the future obligation to procreate? On the other hand, one could argue, that the intrinsic definition of the obligation to be fruitful and multiply or its rabbinic cognate involves the combination of the genetic materials of a man and a woman — whether through a sexual act or in a petri dish — and absent the combination of genetic material from a man and a woman, there is no fulfillment of the obligation to be fruitful and multiply.⁴² Indeed, this could be implied

41. "Abortion in Halakhic Literature", Rabbi J. David Bleich, *Contemporary Halakhic Problems* 1:325-371.

42. One could also argue that to fulfill the mitzvah of *peru-urevu* or *lashevet*, one must engage in a sexual act, and absent a sexual act, no mitzvah is fulfilled. However, as noted above in section IV, that approach has been rejected by most decisors, and is no more (and no

from the comments of Ramban on Leviticus 18:6, which perhaps makes reference to other Jewish authorities who maintain that incest is prohibited because it eliminates genetic diversity.⁴³

It seems to this author that the first approach seems to be superior to the second. This is particularly true when the fertilized egg is implanted in a woman, thus producing a child and a birth-like process that clearly resembles the natural birth process and motherhood.⁴⁴ Indeed, even if one were inclined to argue that there is no fulfillment of the full obligation to procreate absent fertilization, maybe cloning as a form of reproduction is sufficient to exempt one from the obligation to procreate again, as for example a Gentile who converts to Judaism after having children as a Gentile is exempt from the renewed obligation to procreate as he already had children before⁴⁵ (even if these children did not convert to Judaism with their parents).⁴⁶

less) coherent in the case of cloning as it is in the case of IVF.

43. See Ramban on Leviticus 18:6, and the notes written by Rabbi Bernard Chavel who quotes an authority who adopts this view.

44. Whether Jewish law would view this case differently in a circumstance in which a child is fully cloned and went from petri dish to incubator to feeding tube without ever being implanted in the body of another seems to me to be a vastly more complex question.

45. *Shulchan Aruch Even Haezer* 1:7. As explained in *Biur Heitev* 1:11, the converted Gentile in this case is exempt from the obligation to be fruitful and multiply, because he has children who are "called after his name," even though he has not — according to Jewish law — yet fulfilled this obligation at all. A clone could be such a case exactly. Producing a clone could be a sufficient fulfillment of the obligation to procreate that — even though one has not actually fulfilled the mitzvah — one has exempted oneself from ever having to fulfill the obligation.

46. This is a dispute; compare *Chelkat Mechokek*, *Taz*, and *Beit Shmuel* commenting on *Even Haezer* 1:7.

So, too, it is important to recognize that the Jewish legal tradition limits the obligation to be fruitful and multiply to a man, and not to a woman; while this tradition recognizes that in all circumstances a woman is a necessary participant in the obligation to be fruitful and multiply, but yet for a variety of reasons outside the scope of this paper it is quite clear that the normative Jewish tradition assigns no obligation upon a woman to be fruitful and multiply.⁴⁷

Thus, when cloning involves the taking of genetic materials from a woman and putting it in the egg of another woman, while a third woman carries the child to term, one could say that no mitzvah is fulfilled (as none of the participants are obligated) and the activity itself is neither good nor bad, although the need to engage in other prohibited activity would be enough to prohibit this cloning according to Jewish law, as there is no counterbalancing mitzvah to offset even a small impropriety.⁴⁸

So far, this article has not yet voiced what might be any intrinsic halachic grounds to prohibit cloning. Indeed, a review of the cloning process does not indicate any apparent grounds to argue that there is a generic blanket prohibition against

47. *Shulchan Aruch EH* 1:13. It would appear to this writer that this line of reasoning provides an argument that the Jewish tradition does not insist on the combination of genetic material from two people — with each side providing half the genetic material as a *sine qua non* for fulfilling the mitzvah to reproduce — as the mitzvah is only obligatory on one of the two parties; the woman's contribution is necessary, but not a mitzvah.

48. It is markedly easier to argue that any conduct is prohibited according to Jewish law in cases where the scale which weighs its positive and negative components clearly contains nothing on the positive side of the scale.

cloning.⁴⁹ One would be hard pressed to define the taking of the cells necessary to genetically reproduce the person as a form of wounding (*chavala*) as the cells can be extracted without any apparent violation of Jewish law. Indeed, in that regard, cloning lacks many of the serious halachic problems associated with artificial insemination, in-vitro fertilization, and surrogate motherhood, all of which have serious halachic issues raised in terms of the fertilization of the egg by the sperm, and other related issues. Cloning — precisely because it does not involve any reproductive technology other than implantation — seems to be free of these issues.

However, this analysis does indicate that in the case where the donor of the genetic material is a woman, the best that one can categorize this activity is as permissible activity (*mutar*), as no mitzvah is fulfilled. Indeed, in a case where the proposed gestational mother is married, the fact that the clonor is a woman (and fulfilling no mitzvah) might — alone — be enough of a reason to prohibit it, since a number of halachic authorities prohibit a married woman from functioning as a gestational mother for any child other than one whose father is her husband,⁵⁰ and a plausible claim could be made that one should be strict for this approach absent a mitzvah being performed, which is not the case when the clonor is a woman. Certainly this is true absent permission from the husband.

This author does not see any substantive violation of Jewish law that definitionally occurs when one clones cells from one human being into the egg of another and implants that fertilized

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

50. See Rabbi Yaakov Breish, *Chelkat Yaakov* 3:45-48. Similarly, see Rabbi Yechiel Yaakov Weinberg, *Sridai Eish* 3:5.

egg into a gestational mother.⁵¹ In those circumstances where the clonor is a man such that he fulfills the obligation to be fruitful and multiply or its rabbinic cognate and he cannot fulfill the obligation otherwise (including through AID/H or IVF), cloning might be classified as a good deed (*mitzvah kiyumit*); in those circumstance where the clonor is a woman, cloning could be classified as religiously neutral, neither prohibited nor a *mitzvah*, simply permissible, depending on the desires of the parties.⁵²

A. Permission to Clone

The question of property right ownership in one's own DNA sequence needs to be addressed, as scientifically there is no reason why a person needs to consent to being cloned. Cells could be extracted without a person's consent, or even,

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

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

perhaps at some point, a person could be DNA sequenced such that one could duplicate their genetic code without the need for extracting anything from that person's body. It would appear to this writer that a person's right to physical integrity is sufficiently well established in Jewish law and tradition that there is no need to demonstrate that Jewish law would prohibit one from assaulting another to get cells from their body to clone.⁵³ (However, if that were done — notwithstanding the violation — the resulting child who was cloned would still be a human being, entitled to all protections granted all people, just like a child conceived through rape is a human, with no stigma.)

However, the right to control one's own genetic information absent a physical intrusion is much harder to justify exactly in the halachic tradition. It would seem to this writer that taking a person's genetic information through a scan or from cells naturally shed from a person while they function — is not much different than taking a person's literary accomplishments without permission (but with attribution). The question of whether one can copy another's invention, book, insight, quote, Torah ruling or genetic code would seem to be the same issue. The vast majority of halachic authorities accept that Jewish law has some notion of patent and copyright which prevent one from taking ideas which another creates, even if nothing is physically taken: however, where this prohibition precisely comes from and what it is based on differs significantly from decisors to decisors, and is based on such diverse concepts as excommunication (*cherem*), theft, implied conditions, limited sales, secular law, common commercial practice, and others commercial law concepts.⁵⁴

53. See *Shulchan Aruch, Choshen Mishpat* 420:1-3.

54. For a survey of these issues in the context of patenting a non-human life form, see Arie P. Katz, "Patentability of Living within

V. The Slippery Slope and the Denigration of Human Beings

Many have argued that the problems with cloning have nothing to do with the technical issues relating to cloning, rather it is the fear that the individuals produced through cloning will not be considered human by society and will lead to a number of gross violations of normative [Jewish] laws and ethics, such as the harvesting of organs from these people, their use for human experimentation, slaves, or other prohibited activities.⁵⁵ The correctness or incorrectness of this assertion of prospective ethical violation of the clonees' rights as humans created in the image of God is difficult to evaluate in the Jewish tradition. There is no doubt at all that a person produced through cloning, and born of a mother, is a full human being according to Jewish law and tradition and is entitled to be treated — must be treated — as such by all who encounter this person.

This author is hard pressed to find any rational halachic argument that could justify the categorization of a person produced through cloning as not human. Indeed, an examination of the rationales for explaining why a *golem* is not human indicates that the absence of a human parent does not necessarily make one non-human — and a cloned child clearly has a mother, at the least. Even those halachic authorities who insist that absent a sexual act, no mitzvah is fulfilled, in situations such as IVF, have given not a scintilla's worth of indication that the individuals produced through such processes are not human.

Some fear that that society will mislabel such individuals

Traditional Jewish Law: Is the Harvard Mouse Kosher?," 21 AIPLA Q.J. 117 (1993) which reviews many different theories of Jewish patent and copyright law while discussing patenting life forms.

as something other than human, and engage in activities tantamount to murder or enslavement, by treating these individuals as organ sources, or as individuals to be experimented upon, or as forced labor. One could imagine a rabbinic authority, aware of the possibility of ethical lapses in our society, arguing that as a temporary measure based on the exigencies of the times that cloning should not be engaged in until such time as the appropriate educational activity can teach people that clones are human beings entitled to be treated with full and complete human dignity.⁵⁶ However, this type of prophylactic rule which argues that permitted activity should be prohibited in light of the ethical failures of the times is not the same as asserting as a normative rule of halacha that such conduct is prohibited. Rather it is a temporary measure to prohibit that which is intrinsically permissible.⁵⁷

55. Indeed, consider the case of a woman who suggested conceiving a child — in order to abort it and obtain fetal-brain tissue to help treat her father, ill with Parkinson's disease.

56. It has been reported to this writer that such is the position of Rabbi Lau, the current chief rabbi of Israel, although I have been unable to verify these reports. News reports state that "Israeli Chief Rabbi Meir Lau said the cloning of living creatures is prohibited by Jewish religious law. 'The use of genetic engineering to create life is totally prohibited,' the rabbi said during a conference at Tel Aviv's Bar-Ilan University." See *AFP-Extel News Limited, AFX News* March 5, 1997. However, subsequent reports indicate that the "Chief Rabbinate doesn't reject genetic engineering in principle, but limits must be set, Chief Rabbis Eliahu Bakshi-Doron and Yisrael Lau told the Knesset Science and Technology Committee at Hechal Shlomo on Monday;" *Jerusalem Post*, April 2, 1997, Pg. 3 "News in Brief."

57. *Ho'ra'at sha'a, le-esur davar mutar.*

A recent article reported:

Rabbi Moshe Tendler, professor of medical ethics, talmudic law and biology at Yeshiva University in New York, sees other potential good use for human cloning. In theory, the Orthodox scholar might permit cloned children when a husband cannot

The same is true about arguments against cloning grounded in efficiency. Some have argued that halacha should prohibit cloning because so much human reproductive material has to be expended to produce a single clone. Whatever the merit of this argument, it is likely the march of scientific progress will vastly reduce the inefficiency of this process. More significantly, normative halacha does not view the death of pre-embryos in the process of attempted implantation as violative of halacha. That is exactly what embryos are to be used for.⁵⁸

It could be argued that cloning should be prohibited based on the various talmudic dicta that seem to praise the importance of genetic diversity.⁵⁹ This, however, seems to paint with too broad a brush. It is clear that the Jewish tradition views the natural process of reproduction as the ideal, for a variety of reasons, including that it allows for genetic diversity, with all other methods to be used only when normal reproduction is unavailable. Cloning, for a variety of reasons, falls far short of the ideal. However, to claim that a single case of cloning as an alternative to infertility should be prohibited based on this analysis is no more persuasive than to claim that halacha should forbid artificial insemination or IVF since it is less than ideal. The correct response should be that these less than ideal methods

produce sperm. But he believes that the danger of abusing the science is too great to allow its use. As a Jew, he lives in the historical shadow of the Nazi eugenics program, in which people with 'undesirable' traits were weeded out of society, forbidden to have children and ultimately killed...."The Talmud says that man has to learn to sometimes say to the bee, 'Neither your honey nor your sting.' Are we good enough to handle this good technology? Of course we are, if we can set limits on it. And when we can train a generation of children not to murder or steal, we can prepare them not to use this technology to the detriment of mankind."

"Cloning," *Pittsburgh Post Gazette*, March 1, 1997 at A1.

should be used in circumstances where the ideal method does not or cannot work. In my view the talmudic dictum about genetic diversity stands for the proposition that wholesale cloning should be discouraged, and nothing more.

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

It is possible to argue that the Jewish tradition would not look askance on the use of cloning to produce individuals because these reproduced individuals could be of specific assistance to others in need of help. Consider the case of an individual dying of leukemia in need of a bone transplant who agrees to clone himself with the hopes of producing another like him or her who, in suitable time, can be used to donate bone marrow and save the life of another (and even more so, the clonor). The simple fact is that Jewish law and tradition views the donation of bone marrow at the very least as a morally commendable activity, and perhaps even morally obligatory such that one could compel it even from a child.⁶⁰ Jewish law

58. See Rabbi Breitowitz, pages 69-70.

59. See *Sanhedrin* 38a and *Berachot* 58a. Maharal also indicates that genetic diversity is part of the divine plan; see *Derech Chaim* 4.

60. See "Compelling Tissue Donations," Rabbi J. David Bleich, *Tradition* 27:4, 59-89 (1993). The rationale for this is that such donations (which are not really donations according to Jewish law, as they can be compelled) are neither statistically harmful nor particularly painful, and thus one who engages in this activity fulfills the biblical obligation not to stand by while their neighbors' blood is shed. This activity is

sees nothing wrong with the having of children for a multiplicity of motives other than one's desire to "be fruitful and multiply." Indeed, the Jewish tradition recognizes that people have children to help them take care of themselves in their old age, and accepts that as a valid motive.⁶¹ It recognizes a variety of motives why people have children; there is no reason to assert that one who has a child because this child will save the life of another is doing anything other than two good deeds — having a child and saving the life of another.

This writer suspects that to the extent that human cloning does become an available medical procedure, it will be for the treatment of profound infertility, such as in the case of a soldier who was fully castrated after stepping on a land mine, and not for any of the more controversial purposes. Just as there was great concern over how frequently and for what purposes artificial insemination would be used, and after 20 years of data we see that it is used nearly exclusively to treat infertility, I suspect that such will be the case here, too. This vastly diminishes the public policy issues associated with cloning.

V. Conclusion

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

61. *B'eyna hutra l'yada*; see *Yevamot* 64a; *Shulchan Aruch* EH 154:6-7 and *Aruch HaShulchan* EH 154:52-53.

be vigorously combated.

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

There is a natural tendency to prohibit that which is unknown, and that tendency is itself a morally commendable virtue lest one engage in activity which is prohibited as its consequences are not understood. However, prohibiting that which one does not understand is a regrettable state of affairs. This preliminary analysis is submitted in the hopes that others will comment and critique it, and Jewish law will develop an established policy concerning issues relating to cloning.⁶²

62. Rabbi Moshe Feinstein, in his responsa addressing artificial insemination, suggests that to accommodate the concerns of others who understand the halacha differently than he, and not to create illegitimacy even according to some authorities — semen from Gentiles may be used for the insemination, as that will reduce the possibility of *mamzerut* to zero. He writes this even though he personally is quite convinced that no *mamzerut* problem arises even with Jewish

Postscript

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

The creativity of people is greater than nature. When God created in the six days of creation the laws of nature, the simple and complex, and finished creating the world, there remained additional power to create anew, just like people can create new animal species through inter-species breeding People bring to fruition things that are not found in nature; nonetheless, since these are activities that occur through nature, it is as if it entered the world to be created.....⁶³

Maharal's point is that human creativity is part of the creation of the world, and this creativity changes the world, which is proper. The fulfillment of the biblical mandate to conquer the earth (*vekivshuha*),⁶⁴ is understood in the Jewish tradition as

sperm; See *Iggerot Moshe, Even Haezer* 1:10, 71; 2:11; 3:11. See also Rabbi Moshe Feinstein, *Dibrot Moshe, Ketubot* 233-48. Such a policy — of halachic risk reduction given uncertainty — is worthy of imitation in these circumstances as well.

63. Maharal Mi-Prague, *Be'er Hagolah* pages 38-39 (Jerusalem 5731).

64. *Bereshit* 1:26. Lord Immanuel Jakobovits stated:

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

permitting people to modify — conquer — nature to make it more amenable to its inhabitants, people. Cloning is but one example of that conquest, which when used to advance humanity, might be without theological problem in the Jewish tradition.

"Will Cloning Beget Disaster?", *The Wall Street Journal*, Friday, May 2, 1997.

Secular Names

Steven Oppenheimer, D.D.S.

And G-d formed from the earth every beast of the field and every bird of the sky and brought them to Adam to see what he would call each one; and whatever Adam called each living creature, that remained its name (Hu Sh'mo).¹

Rav Shamshon Raphael Hirsch² says the word *Shem* (name) comes from the word *Sham* (place). A person's name (*Shem*) indicates his place in the world. When someone is given a name, that name has a profound effect on that person's essence. The Besht, the Ba'al Shem Tov, commenting on this verse in Genesis,³ wrote *HaShem Hu Ha'Neshama Shel Ha'Adam*, one's name is one's very soul. In fact, the middle letters of the word *neSHaMa* (soul), spell the word *Shem* (name).

The Midrash states:

*The Jews were redeemed from Egypt through the merit of four things: **they didn't change their names**, they didn't change their language, they didn't engage in gossip (Lashon HaRa), and they didn't engage in licentious behavior; **they didn't change their names**, they went down [to Egypt] as Reuven and Shimon and they left [Egypt] as Reuven and Shimon; and they didn't call Reuven, Rufus, and they*

1. Genesis 2:19

2. In his commentary to Genesis 2:19

3. *P'ninei Ha'Chasidut*.

Steven Oppenheimer is a practicing endodontist in
Miami Beach, Florida.

*didn't call Shimon, Luliani, nor Yosef, Listim nor Binyamin, Alexander.*⁴

If a person's name is so important, and if the *Midrash* states that the Jews were redeemed from Egypt because they didn't change their names, how is it that today, secular names are so widespread among Jews? If one can learn from *Galut Mitzrayim*, the exile in Egypt, and extrapolate from *Geulat Mitzrayim*, the redemption from Egypt, then it would seem that we should not have secular names, but good Hebrew names! How is it that so many Jews in America today have Hebrew *and* English names? Could it be that we are holding up the *Geulah* by having secular names?

Maharam Shick⁵ quotes the *Midrash*, (that they didn't change their names) and writes that it is a Torah prohibition to have a non-Jewish name. We see this from the verse *Hivdalti etchem min Ha'Amim*, (and I have separated you from the nations)?⁶ Maharam Shick quotes Rambam⁷, that we see from this verse that one is not permitted to dress like the Gentiles. So, too, says Maharam Shick, we are not allowed to call ourselves by a non-Jewish name. "And don't say", says Maharam Shick, "that I also have a Hebrew name to be called up to the Torah, that is foolish and stupid, and it is still prohibited to have a non-Jewish name."

The Talmud⁸ quotes the verse in *Mishle*⁹, "*and the name of the wicked shall rot*," and brings a grim story referred to in a passage from Lamentations.¹⁰ A child was given the name Do'eg (in spite

4. *Shir HaShirim Rabah*, Chapter 4

5. *Responsa Maharam Shick*, Y.D., Chap. 169.

6. Based on Leviticus 20:24

7. *Hilchot Akum* 11:1

8. T.B. *Yoma*, 38b

9. *Mishle*, 10:7

10. Lamentations, 2:20

of Do'eg's bad reputation).¹¹ His mother would measure his weight every day and would give the increase in his weight in gold to the *Beit HaMikdash*. In spite of this, the child died a horrible death. The Talmud states that none should name their children after wicked people and because of the unfortunate choice of name and the deviation from custom, "see what happened to him." The *Migdal Oz*, Rabbi Ya'akov Emden, writes¹² that just as we are not allowed to name someone after a wicked person as it says in *Mishle*, "*and the name of the wicked shall rot*," so too, it is also not permitted to have a non-Jewish name.

Rabbi Yosef Rosen, *zt"l*, writes¹³ that one is permitted to have a secular name that is a translation of one's Hebrew name.

It is interesting that the Chatam Sofer, writes¹⁴ that someone who has two names, *shem kodesh* and *shem chol*, a Hebrew name and a secular name, should not be called to the Torah by both names. He was not referring to the Hebrew name and the English name but to the Hebrew name and the Yiddish name. The Yiddish name is the *shem chol*, the secular name. If your name is *Tzvi Hershe* you should only be called up by the name *Tzvi*.

How is it that so many of us have Hebrew and secular names? Not only that, but throughout the ages we see Jews have taken secular names. We find many non-Hebrew names among the *zugot* mentioned in *Pirkei Avot*. Antigonos and Avtalyon are some examples. Rabbi Moshe Feinstein, *zt"l*, points out that many

11. Do'eg Ha'Adomi, who lived during the time of Sha'ul HaMelech, was originally a great scholar and head of the Sanhedrin. He engaged in *lashon ha'ra* (slander) against David HaMelech and helped poison the relationship between Sha'ul and David. Do'eg died at age 34. The Talmud says that he had no share in *olam haba* (the world to come).

12. *Nachal Tet*, 14.

13. *Tzafnat Pa'ne'ach*, No. 275.

14. *E.H.*, No. 21.

Amoraim had non-Hebrew names, such as Mar Kashisha, Rav Z'vid, Mar Zutra, and Rav Papa. Most of the names of the *Geonim* were Aramaic and not Hebrew. The author of the *Maggid Mishnah* was Rabbeinu Vidal. The name Maimon, the father of Rambam, appears to be a secular name.¹⁵ Rav Yitzchak Zev Soloveitchik of Brisk was also called Rav Velvele; his grandfather, Rav Yosef Dov Soloveitchik, the *Bait HaLevi*, was called Rav Yoshe Ber, and Rav Yitzchok Dov Bamberger of Wurtzburg was called Rav Seligman Ber.¹⁶ The great thirteenth-century leader of French Jewry was known by the Hebrew name, Rav Yechiel of Paris and by the French, Vivant of Meaux.¹⁷

Doesn't all this seem to be against the *Midrash* that we spoke of earlier? Rav Moshe Feinstein states¹⁸ that many non-Hebrew names that have gained acceptance in the Jewish community today as Jewish names started out as secular names taken from the countries in which Jews lived. At the time, says Rav Moshe, the rabbis complained about Jews taking these names, but they eventually gained acceptance. Today's secular names are not any worse than the old secular names. The new names just haven't been around as long. Eventually, they, too, will probably be accepted. And, therefore, when one writes a *get*, a bill of divorce, all secular names are equal, one isn't any holier than another.

Let us address, then, the last two remaining questions: (1) What about the *Midrash*, (they did not change their names) and, therefore, the Jews merited redemption? And if this is so, (2) Why do so many of us have a secular name? Rabbi Yehuda Loew, *zt"l*, the Maharal MiPrague, explains our *Midrash* as a

15. *Iggerot Moshe*, Vol. IV, No. 66.

16. *Shorshei Minhag Ashkenaz*, by R. Binyamin Shlomo Hamburger, B'nei Brak, 5755.

17. *Encyclopedia Judaica*, Vol. 12, page 810.

18. *Iggerot Moshe*, E.H., Vol. 3, No. 35.

special requirement only for the Jews of Egypt.¹⁹ They had not yet become a nation and needed the strict adherence to retaining their names and their language to serve as a distinction between them and the Egyptians. Rabbi Loew explains that one's name serves as one's personal connection to one's nation. A people's language serves as its connection to its nationhood. Rav Moshe also makes this point, that the requirement not to have a secular name was only for that period in time and is not a law today. While it may not be desirable to give your child a secular name, there is no *issur* (prohibition) involved.

As for the second question, "Why do so many of us have secular names?", I would like to share a fascinating historical insight. There are, apparently, three categories of names that Jews have had. 1) *Shem kodesh* – names taken from *Tanach* (Bible) or Gemara (Talmud). These were given at the *Brit* and were used for *Aliyahs* to the Torah, Jewish legal documents, and in prayers for the sick. 2) *Shem chol* – these were usually Yiddish-German nicknames that were given on the Shabbat that the mother came to Shul during the *Cholkreisch* (hollekreich) ceremony. In Eastern Europe, in recent generations, this ceremony has been lost. 3) *Shem lo yehudi* – during the period of emancipation, these names were adopted by the Jews of Central and Western Europe for the purpose of governmental registration. These names were unrelated to the Cholkreisch ceremony.

The purpose of the Cholkreisch ceremony was to establish the child's nickname, the *shem chol*, to be used in his everyday life. The Cholkreisch ceremony is about 1,000 years old. Rav Simcha of Vitry²⁰ and Rabbi Yehuda HaChasid both write about this ceremony. The first one to mention it by name and explain the name, however, was the fifteenth-century Rabbi Moshe

19. *G'vurot HaShem*, Chap. 43.

20. Rashi's noted student and author of *Machzor Vitry*.

HaLevi MiMagentza, the Maharam Mintz. He explained that *Hol* or *Chol* referred to the secular name and *Kreisch* referred to the calling out (*Tze'a'ka*) of that name. ["In German, in the southern region, they call *Tze'a'ka*, kreisch."]

Rabbi Avraham Moshe Tendlau (1801-1877) wrote that the word "kreisch" used in the sense of "*Tze'aka*" comes from the old German "kreien", or "kreischen". This is similar to the English word in use today, 'cry']. On the first Shabbat that the mother came to Shul, the children of the community would be invited to the home of the new baby. They would lift up the cradle and call out the nickname, the *shem chol*, of the new baby. The adults would throw fruit to the children. The sixteenth-century rabbi, Rabbi Yosef Hahn Neuerlingen, author of *Yosef Ohmetz*, warned about the custom of throwing fruit to the children. The fruit got squashed and this was *Bizui Ochlin*, a desecration of food. The custom arose to throw candy to the children. This is probably the origin of today's custom to throw candy to the children at joyous occasions in shul. There are those who say that the lifting of the cradle during the naming is the origin of the name Hollekreich. In French, lifting the cradle is called, "haut la creche" which is similar to the term "hollekreich".²¹

Rabbeinu Tam²² indicates that Jews would give themselves Hebrew names but the Gentiles would call them other names. When his Aunt Rachel got divorced, she had a secular name given to her by the Gentiles, Belle-Assez which means very pretty. This is the origin of the Yiddish name Bayla. The Rosh also speaks of Gentiles giving Jews names during his time. Zanzvil was a nickname for *Shmuel*, Rechlin for Rachel, Mirush for Miryam, Bunam for Simcha, Seligman for Pinchas, Wolf for

21. *Shorshei Minhag Ashkenaz*, loc. cit.

22. *Tshuvot Rabbeinu Tam*, No. 25.

Shimon, and Zalman for Shlomo.²³

Historically, there was a distinction between the *Shem Kodesh*, the Hebrew name, and the *Shem Chol*, the secular name. The *Shem Kodesh* served for *d'varim she'b'kedusha*, holy matters, such as being called to the Torah, prayers, and the writing of Jewish legal documents. The *Shem Chol* served for secular matters, as a nickname used by the person's family and friends. The *Shem Kodesh* was given in Shul at the time of the Brit; the *Shem Chol* was given at the baby's home while he lay in his cradle. We see this from Maharam Mintz who wrote over 500 years ago about a man called Meshulam Zalman. "He is called Meshulam to the *Sefer Torah* and this is the *Shem Kodesh* that his father gave him at the Brit, and the secular nickname for Meshulam is Zalman, the name given to him by his father and mother in his cradle on the Shabbat that she went with him to Shul, and this (ceremony) is called '*Hol Kreisch*'.²⁴

The student of the *Trumat Ha'Deshen* (1389-1459) wrote a *sefer* called *Leket Yosher*. In the introduction, he introduces himself as follows: "My name is Yuzlan and I am called to the *Sefer Torah* as Yosef B'Reb Moshe." Concerning his Rebbe he wrote: The Gaon is called to the *Sefer Torah* as Yisrael B'Reb Petachya, z"l, but the world calls him Rabbi Isserlin.²⁵ Rabbi Moshe ben Yisrael, zt"l, is known as the Ramo. Ramo is an acronym for Rav Moshe Isserlis. Isserlis means "son of Yisrael."

In Germany, a clear separation was kept between the *Shem Kodesh* and the *Shem Chol*. In Eastern Europe, however, over the course of time, this distinction was blurred, most probably as a result of the abandonment of the Cholkreisch ritual. There were some rabbis, such as the student of the *Shevet Sofer*, (Rabbi

23. *Shorshei Minhag Ashkenaz*.

24. *Ibid*.

25. *Ibid*.

Yitzchak Meir Tzoval MiFakash) who attempted to stop the mixing of the two names. He allowed use only of the *Shem Kodesh* when calling someone to the Torah. In time it became common for people in Eastern Europe to use both the secular name and the Hebrew name for all matters. This created halachic problems in writing *Gittin* (divorce papers). In the past only the *Shem Kodesh* had been used. Now, it was uncertain exactly what should be written.²⁶

During the period of Emancipation, there were Jews who wanted to be accepted by the Gentile population and took non-Jewish first names. In Prussia, the government prohibited Jews to change their Jewish names to Christian names. In 1787, an Austrian edict limited the Jews to biblical first names. Nevertheless, the assimilationists managed to take Christian names. In 1836, Leopold Zunz published a book entitled *Namen der Juden* in which he attempted to prove that throughout the ages Jews had names given to them by the Gentiles. In this way, he hoped to persuade the government to allow Jews to choose any name they wanted.

In the Austrian-Hungarian Empire, the government allowed the Jews to adopt Christian names. The overwhelming response on the part of the Jews to take such names surprised even the Gentiles. When Maharam Shick²⁷ turned over the official list of names of his congregants to the local government official, the official berated him over the fact that so many Jews had non-Jewish names. The official was astounded that they were not proud enough of their Jewish heritage. It was then that Maharam Schick wrote his responsum decrying taking non-Jewish names.²⁸ He explained that following the law making it obligatory for Jews

26. Ibid.

27. Hungary, 1807 - 1879.

28. *Responsa Maharam Shick*, Y.D., No. 169.

to have surnames, his father took the last name, SHiK, which was the abbreviation for *Shem Yisrael Kadosh* – a Jew's name is holy. This was done to remind his progeny of the importance of retaining a Jewish name. It is interesting to note that when a controversy arose over a rabbi who preached in the vernacular rather than in a "Jewish language", Maharam Schick came to his defense and justified the rabbi's practice.²⁹

Non-Jewish names were to be found among Jews even during the time of the *Tanaim*. There is a *Braitā*³⁰ that teaches:

Divorce papers brought from abroad (to Israel) signed by witnesses, even if the names are like the names of idolators, [the divorce papers] are valid. [This is] because most of the Jews [who live] outside of Israel have names that resemble the names of idolators.

Rabbi Moshe Feinstein writes³¹ that it is impossible to determine when non-Jewish names came to be considered as Jewish names since all these names were originally taken from the Gentiles. In the beginning, the rabbis complained about these names, but they took hold. So, too, the rabbis could complain about the English names that Jews have taken in this country and similar names in other countries, but how much should they complain and how successful would they be? Rav Moshe is telling us that these non-Jewish names have been around for a long time in one form or another.

A number of countries in Central and Western Europe required Jews to register their children's birth in the official registry. Only German names were recognized, and so almost every Jew had a German first name, just as it is common today

29. Ibid. O.C. No. 70.

30. T.B. *Gittin* 11b.

31. *Iggerot Moshe, E.H.* Vol. 3, No. 35.

for Jews in Anglo-Saxon countries to have English names.³²

Rabbi Shlomo Carlebach (1844-1918) wrote that since many Jews had left the ghetto and lived among the Gentiles, they were uncomfortable about calling themselves overtly Jewish names, fearing ridicule by the Gentiles, and so chose German names. Rabbi Carlebach recommended that they adopt a translation of their Hebrew names, i.e. Abraham for *Avraham* and Moses for *Moshe*. Social pressure, however, eventually led more and more Jews to take German names.³³

A name determines one's destiny³⁴

Had the generations so merited, G-d would have given each and every person a name, and from that name we would have known that person's nature and deeds.³⁵

One should ever examine names, to give his son a name worthy of him to become a righteous person, for sometimes the name may be a contributory factor for evil or for good.³⁶

The Talmud³⁷ brings the story of Rabbi Meir who stopped at an inn with his two travelling companions. Rabbi Meir didn't want to leave his money with the innkeeper named *Kidor*, because Rabbi Meir doubted his honesty. He based his suspicions upon the verse, "they are a generation (*Ki Dor*) given to perverseness."³⁸ In the end, Rabbi Meir turned out to be right and *Kidor*, the innkeeper, stole his (Rabbi Meir's)

32. *Shorshei Minhag Ashkenaz*.

33. *Ibid*.

34. T.B. *Brachot* 7b.

35. *Midrash Tanchuma*.

36. *Ibid.*, *Parshat Ha'azinu*.

37. T.B. *Yoma* 83b.

38. Deuteronomy 32:20.

companions' money. They complained to Rabbi Meir that he should have warned them. Rabbi Meir answered, "I considered this name a suspicion, not a definite presumption." In other words, a name can only arouse suspicion that a person *may* have an intrinsic dishonest nature. A name cannot, however, determine this definitively, since a person may overcome this character flaw and control the negative influences of his name.

We see that one should be very careful to select a name for a child that will have a positive effect upon his growth and development. A Hebrew name carefully selected does just that. This is what the Ba'al Shem Tov meant when he wrote that a name can manifest one's very essence. While the practice of using non-Hebrew names has been around for a long time, it is clear that *Chazal* saw major benefits in having and using a *Shem Kodesh* – a Hebrew name.

Every time a person engages in the performance of mitzvahs, he acquires a good name (*Shem Tov*) for himself. A person is called by three names – that which he is called by his father and mother, that which he is called by others, and that which he acquires for himself. The best of all is the name he acquires for himself [by the performance of mitzvahs].³⁹

Let us strive for the ideal approach. Let us choose a *Shem Kodesh* and pursue a *Shem Tov*. Let us pursue mitzvot and be proud to be Jews. And may our names and our deeds hasten the final redemption.

This article is dedicated to the memory of my beloved father, Chayim Gershon ben Meir, A"H.

39. *Midrash Tanchuma, Parshat VaYak'heil.*

Identifying the Chilazon¹

Rabbi Chaim E. Twerski

The Disappearance of *Techelet*

Techelet, an integral part of the mitzvah of *tzitzit*, was lost to us many centuries ago. The exact time and circumstances of this loss is subject to historical speculation, but it is known that it was available during the time of the *Amoraim* (which closed toward the end of the fifth century of the common era) and was no longer available at the middle of the Gaonic period (the eighth century)².

1. The majority of the research for this article comes from works of Dr. I. Zeiderman, from an article published in "*Techumin*" volume number 9; Dr. Boruch Sterman from his as yet unpublished article "*Tekhelet*"; and Dr. Ari Greenspan from a yet unpublished article. Dr. Sterman and Rabbi Greenspan, in turn, derived much of their knowledge of *techelet* from Rabbi Eliahu Tevgar, author of the *sefer Kl'il Techelet* and co-founder of Amutat P'til Techelet.

2. The Gemara *Menachot* 42b-43a discusses the usage of *techelet* and the way that it is dyed, "this *techelet*, how do you dye it?" The Gemara 43a recounts that Mar from Moshke brought *techelet* in the years of R. Achai, and that the *techelet* was tested. Rav Achai was of the last of the *Amoraim* and the earliest of the *Rabanan Savrai*, living during the years of Mar b. Rav Ashi and after (circa 500). If so, this is a piece added by the *Rabanan Savrai*. Had the *techelet* become unavailable at the close of the period of the *Rabanan Savrai* (c. 570), there would have been a mention of this following the episode of Rav Achai. (Even if the Rav Achai mentioned here refers to some *Amora* that lived earlier [highly doubtful], yet, there is no mention of

The best estimate is that the loss of the technology of the *techelet* dyeing process and/or the identity of the *chilazon* (the specific species needed to make *techelet*) is that it was a consequence of the Arab conquest of 639 CE,³ or perhaps the result of the Christian massacres of 628 CE.⁴

The *chilazon* was never available in Bavel (Babylonia), the center of Jewish population during this era, and until that time *techelet* was imported from *Eretz Yisroel*⁵. Thus, with the

techelet's being unavailable during the years of Ravina and R. Ashi, c. 470 at the close of the Talmud). We may therefore conclude that *techelet* was available until the end of the talmudic era. On the other hand, the *Midrash Tanchuma Parshat Shelach* laments the loss of *techelet*. The estimated date of the final redaction of *Midrash Tanchuma* is about 750 CE.

3. Suggested by Rav Leiner in his introduction to his *sefer*, *Ptil Techelet*, and by Rav Yitzchok Halevi Herzog, *The Royal Purple and Biblical Blue*, Ehud Spanier, Keter Publishing, Jerusalem (1987). "The Arab conquests of Palestine about 639 entailed the total destruction of the purple dyehouses administered by the imperial official. Was this the real cause of the extinction of *techelet*?" (page 112).

Techelet is the subject of Rav Herzog's doctoral thesis first submitted in 1913 and first published in the *The Royal Purple* (1987) from a microfilm of a manuscript.

4. My own theory. The massacre of 628, which was led by Heraclius and inspired by the monks and the Patriarch Modestus, is recorded by Graetz and other historians of the period. Graetz records "he [Heraclius] instituted a persecution of the Jews throughout Palestine and massacred all that failed to conceal themselves in the mountains or escape to Egypt." (*History of the Jews* Vol III, Page 23). It would seem to me that the closure of the dye factories by the Byzantine government would not have, by itself, brought an end to *techelet* manufacture, but the loss of Jewish artisans would have broken the chain of tradition in the knowledge needed for *techelet* manufacture. However, the subsequent closure of the dye manufacture would have been a factor in preventing its renewal in a subsequent generation.

5. This can possibly be inferred from *Menachot* 42b. Abaya asked

destruction of the *yishuv* in *Eretz Yisroel*, came the ultimate disappearance of *techelet*.

Rav Leiner's Attempt of Rediscovery

In 1887 HaGaon HaRav Gershon Henoch Leiner (the Radziner Rebbe) undertook the monumental task of rediscovering the lost *chilazon*.⁶ After proving from the talmudic texts that there is no reason to assume that the *chilazon* became either extinct or irretrievably lost,⁷ he postulated that the *chilazon* is very likely extant in the waters of the Mediterranean Sea, where it was known to exist at one time. With this theory in hand, he undertook a journey to Italy to visit an aquarium where he might study the various species of fish in order to determine, based on the descriptions culled from talmudic literature, the identity of the *chilazon*.

R. Shmuel b. Yehudah, "How do you dye *techelet*?" It is known that R. Shmuel b. Yehudah spent time in *Eretz Yisrael*, and brought back some of his acquired knowledge to Babylonia (See Hyman, *Toldot Tanaim v'Amoraim* p. 1037. "He [R. Shmuel b. Yehudah] was appointed along with his colleagues Ravin and Rav Dimi to travel to *Eretz Yisrael* and bring back teachings from the Masters"). Abaya, therefore, asked him to describe the process, since R. Shmuel b. Yehudah had been there and seen exactly how the *techelet* is dyed. Had the dyeing been prevalent in Babylonia, Abaya could have gone to see how it done himself.

In addition, since the *chilazon* were indigenous to the Mediterranean Sea, it would have been unavailable in Babylonia.

6. Rav Leiner (1839-1891) wrote three *sefarim* on this subject, 1) *S'funei T'munei Chol* (1887), 2) *P'til Techelet* (1888), and 3) *Eyn Ha'techelet* published posthumously (1891). The first *sefer* introduced his arguments regarding the feasibility of discovering the *chilazon*, and was published before his discovery. The second *sefer* was a defense of his identification of the *chilazon* as *Sepia officinalis*. The third was written as a response to his critics.

7. The subject of his first work, *S'funei Tmunei Chol*.

Despite his great efforts, his formidable erudition, and three treatises that he wrote to support his contention, the Radziner Rebbe's conclusion, that the *chilazon* is the species *Sepia officinalis* (cuttlefish), was met with a great deal of skepticism in his time and years later was conclusively refuted by Rav Yitzchok Isaac Halevi Herzog.⁸ However, his efforts were not all in vain, for in addition to writing the most authoritative work on *techelet* with regard to many facets of this mitzvah, he laid the groundwork for a future generation to seek the *chilazon*.

Recent Attempts at Rediscovery

In recent years, a group of religious scientists who have since formed an association called Amutat Ptil Techelet, took up the task of finding the elusive *chilazon*. They claim that this time the efforts have been met with success.

At the outset, any such claim should be greeted with a healthy dose of skepticism, since even the esteemed Rav Leiner was in error in this very matter and the skepticism that greeted his claim was proven to be quite justified. If so, we must suspect that lesser qualified persons would be at least as likely to come to erroneous conclusions.

However, this should not mean that the claim of the modern discovery should be ignored. Rather, it needs to be examined carefully, and if, after carefully weighing the evidence, it turns out that the claim lacks foundation, it should be rejected. On the other hand, if the evidence in favor of positive identification is overwhelming, then the return of *techelet* should be accepted

8. There can be no doubt that it was Rav Leiner's work that inspired Rav Herzog to devote his doctoral thesis to the subject of *techelet*. No doubt, it was his intention to substantiate his findings, and he was chagrined to discover that the identification of Rav Leiner was erroneous.

by the majority of *shomrei mitzvot*, for this will afford *chovevei mitzvot* an opportunity that has not been available for nearly 1400 years. It should thus be regarded with great excitement and enthusiasm, as a precious and dear element of the mitzvah of *tzitzit* may well have been retrieved.

The Claim

The Ptil Tekhelet Institute claims that a species of snail called by its official Latin name, *Murex trunculus*,⁹ is the *chilazon*. The evidence of this come from a variety of disciplines including history, chemistry, and archeology, intermixed with textual proofs from the Talmud and *Midrash*. An outline of the evidence follows:

1) The Talmud,¹⁰ regarding *tzayadei chilazon* states the following:

..these are the fishers of *chilazon* from Haifa to Sidon.

From this statement we can derive that the natural habitat of *chilazon* was off the shores of what is today northern Israel and southern Lebanon, and what was, in ancient times, Phoenicia.

2) It is documented that the center of the dye industry in the ancient world was Phoenicia.¹¹ The most famous of the

9. *Murex brandaris*, a sister species to *Murex trunculus*, will also fill all the specifications laid out in this monograph. The contention is that the *chilazon* is identified with both of the two murex species since each of these has brominated indigo as natural chemical in its mucus, from which the murex-derived indigo can be extracted.

10. *Shabbat* 27a.

11. Pliny the Elder, *Natural History*, Book IX, pages 40-45, is one of the earliest recorded sources. Aristotle in *De Animalibus Historia* also gives a detailed description of the Phoenician dyeing processes. Also in Strabo, *Geography*; Jones, H.L. Ed.; Loeb Classical Library;

dyes was Tyrian Purple, an extremely expensive dye that was in great demand by the nobility and the extremely wealthy, as it was unique in its beauty and color-fastness.

3) If one opens a *Murex trunculus* snail and squeezes the hypobranchial gland one will obtain a clear mucus.¹² This mucus, if taken out of the shell and exposed to the air, will change from its clear color to yellow, then to green, then to blue and finally to purple.¹³

4) In the late 19th and early 20th century, there were archeological findings of enormous numbers of broken *Murex* shells discovered near the cities of Sidon and Tyre.¹⁴ These were buried in large pits and each broken opposite the hypobranchial gland—a manner consistent with the method needed to extract the dye material found naturally in these snails (and inconsistent with the method employed for its use as a food). The pit near Tyre contained broken shells of *Murex*

Cambridge, 1930 XVI 2,23.

12. *Shabbat* 75a states that the dyer does not want the *chilazon* to die in the process of extracting the "blood" because he wants the dye to remain clear. This indicates rather strongly that the 'blood' or mucus extracted is clear and that it would not remain clear long after the death of the *chilazon*. See also *Tosafot ad. loc.* regarding the "blood" of the *chilazon*, stating that it does not mean the lifeblood but a secretion.

13. J. Wilfrid Jackson, F.G.S "The Geographical Distribution of the Shell-Purple Industry," taken from Volume 60, Part II of *Memoirs and Proceedings of the Manchester Literary and Philosophical Society*, Session 1915-1916.

14. Jackson, *ibid*, writes that archeologist L. Lortet reported (*La Syrie d'aujourd'hui*, Paris 1883 pg. 102) finding in the vicinity of Sidon great banks, a hundred yards long and several yards thick, composed entirely of broken shells of *Murex trunculus*; and in Tyre, H. B. Tristram (*The Land of Israel*, 1882, pg. 48) reports that large quantities of crushed *Murex brandaris* shells were discovered.

brandaris and *Thais haemastoma* (a third type of *Murex* which yields a reddish dye) shells while the pit near Sidon had *Murex trunculus* shells exclusively. Off the coast of Lebanon and Northern Israel these same species can be found even today.

Now, from these facts alone, we have no identification whatsoever regarding the *chilazon*. It stands to reason, of course, that these snails must have been used in the dye industry of ancient Phoenicia, since such vast amounts of snail shells broken in a peculiar manner buried in pits can only mean that these snails were used in the dye industry. But the color that results from these snails is purple, not blue. Purple is the color of *argaman*, an important dye in halacha, as this was needed for the *bigdei k'hunah* and other sacred objects. *Techelet* is assumed by tradition and verified through a host of other sources, to be a blue dye, and not purple.

The last piece of the puzzle came to light about 15 years ago when it was discovered that if the dye obtained from *Murex trunculus* is exposed to direct sunlight during the dyeing process, the resultant dye changes from purple to blue.¹⁵

Chemically, after exposure to oxygen the dye of the *Murex trunculus* is dibromoindigo, with a certain amount of indigo intermixed. In the process of making the dye substance water soluble, the dye must be reduced (deoxidized). If, in the reduced state, it is exposed to sunlight, the sun's ultraviolet rays have the power to unbind the bromide atoms from the indigo molecule, leaving the remaining chemical dye, indigo. This indigo is chemically identical to plant-derived indigo, and the dye is therefore the identical color. Plant-derived indigo has

15. The discovery was made in the early 1980's by Otto Elsner and Ehud Spanier while doing research in ancient dyeing techniques. (See *Tekhelet* by Baruch Stermann).

the Hebrew name *k'la ilan*.¹⁶ *K'la ilan* is the false *techelet* mentioned several times in the Talmud, and which is obviously identical in color to *techelet*.

With this, we now have sufficient grounds to identify *Murex trunculus* as a very likely candidate for *chilazon*. 1) It is known that this species was found near Sidon. 2) The remains of a dye factory near Sidon had thousands of *Murex trunculus* shells. 3) This shell produces a dye that can be converted to a blue indigo dye without much difficulty; and 4) This dye is chemically the same as *k'la ilan*, which the Talmud states is the same color as *techelet*.¹⁷

We need also realize that before the 19th century, when Henry Perkins opened the field of synthetic coal-tar dyes, there were very few natural dyes available.¹⁸

That *chilazon* was a shell fish (mollusk) is shown by inferences in the Talmud and Midrash. For one, the Midrash says that the shell (*nartik*) of the *chilazon* grows with it.¹⁹ Second, the Talmud²⁰ says that one who cracks open (*ha'potzeiah*) a *chilazon* violates the Shabbat. The word *potzeiah* from the word *petza*, means to strike with force. When applied to opening a *chilazon*, this word implies cracking something open, as in *p'tziat egozim* (cracking open nuts). If an animal is cracked open, it must have a hard shell to crack, otherwise the term to "cut"

16. The positive identification of *k'la ilan* as indigo comes from the Aruch who states this identification explicitly on the entry *k'la ilan*. Cf. *Radvaz Responsa* 2: 685.

17. *Bava Metzia* 61b, *Menachot* 42b-43a.

18. *Encyclopedia Britannica*, entry "Dyestuffs and Pigments," mentions 10 to 12 materials that were in use prior to the 19th century. Indigo and the *Murex* dyes were among these.

19. *Psiktah d' Rav Kahana* 11:21.

20. *Shabbat* 85a.

(*lachtoch*) or merely to "open" (*liftoach*) would be employed.

The Talmud also says that "the treasures buried in the sand" (Deuteronomy 33:19) is a reference to *chilazon*.²¹ Snails do burrow into the sands of the shallow waters.

Further support that *chilazon* is a snail (or conch) is that in some Middle Eastern languages, (Farsi and Assyrian²²), the word for snail or conch is *chilazon*.²³ Middle Eastern languages, as Latin languages, often share nouns in common.

A further linguistic proof comes from a statement by the Raaviya²⁴, who quotes a *Yerushalmi* identifying *techelet* with the Greek word *propherin*. *Propherin* is the Greek word for *Murex*.

Chilazon is known to be an uncommon species. This is true of *Murex trunculus* and *Murex brandaris*, for these are found only in some areas off the Mediterranean coast²⁵ and are difficult to obtain in the large quantities needed for dyeing.²⁶

Further, the Talmud tells us that the dye needs to be extracted while the snail is yet alive, or soon after.²⁷ This is in total agreement with the nature of the mucus of the *Murex trunculus* and *Murex brandaris*, since in order for the color changing

21. *Megillah* 6a.

22. A language evolved from Aramaic.

23. From discussion with an Iranian Jew and an Assyrian.

24. *Berachot* §25.

25. In fact, the government of Israel prohibits the catching of *Murex trunculus* off the coast of Israel as it is considered an endangered species.

26. So much so that, in ancient times, the value of wool dyed by the *murex* extract was worth many times its weight in gold. McGovern and Michel, Acc. Chem Res. 23, *Royal Purple Dye; The Reconstruction of the Ancient Mediterranean Industry* 152-157 (1990).

27. *Shabbat* 75a.

processes to develop, a specific enzyme, purporase, must be present. This enzyme deteriorates soon after the death of the *Murex* and if the exposure to the air does not occur within a few hours, the mucus will not develop into dibromoindigo.²⁸

Putting this all together, when looking for *chilazon*, we are seeking a mollusk, or more specifically a snail, that was found off the coast of ancient Phoenicia, that was used in the dye industry, that is difficult to obtain, and that can produce a blue dye that is identical in color to indigo and which must be squeezed from the snail while yet alive or immediately after the death of the snail. All these match *Murex* and no other known mollusks.

But, one may argue, even granting all this, we still do not have positive identification for *chilazon*. One might suggest that the true *chilazon* is a yet-undiscovered mollusk and that *Murex*, although it can produce a blue indigo dye, is *possul* for

28. Dr. Boruch Sterman, *Tekhelet*. In correspondence to me, Dr. Sterman stated that he asked eminent biochemists and they confirmed that if left in the body of the *Murex*, the enzyme purporase (needed for the production of the indigo molecule) could not survive very long after the death of the *Murex*. According to Joel Yisraeli, professor of Microbiology, this deterioration would take place in a matter of minute. He explains, "Inside a cell there are proteins whose job it is to eat up and decompose other proteins. In order for the cell to function, the protein eaters must be suppressed (by other proteins, of course). As soon as you turn off the suppressors, the eaters go to work and chomp away at a very fast rate. Whenever I cut into a cell, if I haven't chemically found some way to suppress the eaters, then everything is gone within minutes." It should also be noted that both Aristotle and Pliny reported the same phenomena with regard to *Murex* and noted that the dyers seek to remove the dye from the *Murex* while the snail is still alive. However, actual experimentation to determine the rapidity of deterioration has not been done to the time of the writing of this article. It is hoped that this will be done in the not-distant future.

techelet nonetheless, since this is the wrong mollusk. After all, it is possible (even if highly improbable) that two different mollusks have the same chemical in the mucus and share all the other characteristics stated above.²⁹

Rav Herzog, in his thesis, argues quite forcefully that this is a fallacious argument, for the following reason:³⁰ Surely, the *chachmei ha'mishna* were well aware of the dyes produced just north of them in Phoenicia. Now, if the dye produced by the *Murex* is indeed *not* valid, then, just as the Mishna admonished against the use of *k'la ilan*, the Mishna would have admonished to avoid the use of the "*possul*" mollusk and would have described the differences between the two species³¹ (as the

29. Rav Tevgar in his *sefer, K'kil Tekhelet*, argues quite forcefully that this suggestion is untenable, since all mollusks in the Mediterranean have been discovered. This is known because marine biologists have continually searched and continue to search the Mediterranean Sea for new species of all types, and no new species of mollusks have been discovered for many decades (other than on rare occasion those which have migrated from the Atlantic due to storms or other rare events). The only new discoveries in recent decades have been micro-organisms scarcely visible to the human eye. The likelihood that there is a yet-undiscovered mollusk indigenous to the Mediterranean that is the true *chilazon*, must be dismissed as more than remote.

Rav Tevgar argues further that the word *chilazon* implies merely that *techelet* must be produced from a snail, not any specific snail, and if in fact there are two different snails that can produce *techelet*, then either would be valid for *techelet*!

30. *The Royal Purple*, page 74.

31. Understandably, the concern for the use of *k'la ilan* as a substitute for *techelet* would be a far greater concern, since plant indigo is inexpensive and *murex* is presumably as expensive as our hypothetical *chilazon*; there would therefore be no profit motive to substitute the real *chilazon* with *murex*. Nonetheless, it stands to reason that if there were two different species both capable of producing an indigo dye and both sharing so many similarities, that the Talmud would have

Talmud took the trouble to identify the differences between the *arava* and the *zafzafa*).³² Needless to say, there is no such Mishna or *Braitha* that does so. The absence of such a dictum is a strong indication that there was indeed only one known mollusk that was used for the blue dye and if so, this was *Murex*.

Rejection of *Sepia* as *Chilazon*

As mentioned earlier, the Radziner Rebbe, Rav Gershon Henoch Leiner, identified the *chilazon* as the common cuttlefish, *Sepia officinalis*. He amassed impressive evidence to prove this, and in fact, many were convinced by the weight of his evidence and the strength of his conviction.³³

Rav Yitchok Herzog, who studied Rav Leiner's *sefer* with great interest, subjected his argument to rigorous analysis. He obtained some samples of the Radziner *techelet* and sent them to three different laboratories in three different countries, for chemical analysis. The results astonished him. It turned out that all three laboratories came to the same conclusion — the dye claimed to be *techelet* was in fact a well-known synthetic dye known to the world as "Prussian Blue", first synthesized in 1704.³⁴ He then sent a letter to the Radziner's son (Rav Gershon Henoch had passed away in 1891) asking for the exact process by which the *techelet* was made. He received a reply

been concerned that an error would be made by those involved in producing the dye in thinking that there is no halachic difference between them and would have warned about this possible error.

32. *Sukkah* 34a.

33. The Marsham, (the Bezhana Rav, HoRav Sholom Mordechai Schwadron) and Rav Itzel Ponevizer, both universally recognized *gedolei ha'dor*, wore these *Sepia*-dyed *techelet*. (Heard from Rav Dovid Kohn.)

34. The chemical formula for Prussian Blue is $\text{Fe}_4[\text{Fe}(\text{CN})_6]_3 + 12\text{K}^+$.

from one of the manufacturers as to the exact method. Rav Herzog's further investigation into the process led him to understand that the *sepia* ink had little to do with the final product, and that it was the chemicals added to the mixture that were, in fact, the basis for the resultant dye. The *sepia* ink is not a necessary ingredient for the dye produced by this process. Any organic compound will do, and in fact the original Prussian Blue was manufactured using ox blood as one of the ingredients.

Rav Herzog, recognizing the greatness and integrity of the Radziner Rebbe, suggested that Rav Leiner must have enlisted the help of a chemist in order to find the method to change the black ink to blue. The chemist did his best by introducing the chemicals needed to synthesize Prussian Blue.³⁵ Rav Leiner assumed that since the added chemicals had no intrinsic color (they were either clear or white) that the blue color is inherent in the black ink. The chemicals added only removed the impurities from the *sepia* ink and what was left behind was a pigment extracted from the *sepia* itself. He was therefore convinced that the Prussian Blue dye that emerged from the squid ink is the *techelet* that he sought for so long.

It is obvious, however, that the secretion of the *chilazon* that makes *techelet* must be the basic dye itself, not an inconsequential ingredient that can be supplied by any organic source.

Although this in itself is more than enough to discredit the Radziner Rebbe's theory, there are quite a number of other discrepancies that make this identification highly questionable.

35. The chemicals added to the mixture are iron, potash, ammonium chloride, muratic acid, sulfuric acid, and tartaric acid. The only element to which the organic compound (be it *sepia* ink or any other organic substance) contributes is nitrogen.

For one, cuttlefish are quite common and were, in fact, a source of common ink at one time.³⁶ The Talmud indicates that *techelet* was very expensive, so much so that even the few threads for *tzitzit* amounted to an expense.³⁷ This does not square with cuttlefish ink.

Second, the Talmud says that “the treasures buried in the sands” refers to the *chilazon*.³⁸ Cuttlefish cannot exist in sand.

Third, the cuttlefish does not have a external shell³⁹, and it appears from the Talmud that the *chilazon* has a hard shell which needs to be cracked in order to obtain the dye.

Last, the *techelet* is known to be a very permanent dye, while the Prussian Blue will wash out with soap. (The Radziner Rebbe addresses these issues, of course, but gives answers that are quite forced.)

Rav Herzog’s Thesis

As we noted earlier, Rav Herzog’s doctoral thesis was on the subject of *techelet*. After refuting the claim of the Radziner Rebbe, he investigated other possibilities and set forth as a final point, his own hypothesis. In his thesis he came close to suggesting that *Murex trunculus* was indeed the *chilazon*. However, due to four difficulties in this identification, he was forced to reject *Murex trunculus*. The greatest of the objections is that the dye of *trunculus* is purple, not blue. The second

36. *Encyclopedia Britannica*, entry “Cuttlefish.”

37. *Menachot* 43b. This is further adduced by the concern for counterfeit *techelet* of indigo, mentioned earlier.

38. *Megillah* 6a.

39. Though it does have an internal shell, called the cuttlebone, one does not need to break this bone in order to get the ink out of the ink sac.

objection is that the dye is not especially permanent. The third objection is based on a statement of the Talmud that “the body of the *chilazon* is like the sea.”⁴⁰ Rav Herzog understood this to mean that the color of the *chilazon* is like the color of the sea (blue). *Murex trunculus* shells are not blue but rather a light brown color. The final objection is that it does not appear “once in seventy years” as the Talmud says is the nature of *chilazon*.⁴¹

The first two objections have, with new knowledge, been adequately answered. As noted earlier, the *trunculus* dye is indeed purple, but if the dye is subjected to sunlight it will turn blue in the dyeing process. The second objection, that it is not especially fast, is simply not so. Rav Herzog was ill informed as to the fastness of the dye by someone who did not study the dye sufficiently.⁴² In fact, if properly prepared with the correct reduction agents, (chemicals used to treat wool to absorb the dye) the dye is extraordinarily fast. In a recent test, a thread of *techelet* was bathed for three days in strong bleach solution without the slightest effect.⁴³ The third objection has been answered by viewing the snail in habitat. The snail in the water will take on a blue-green color due to the sea=fouling organisms. The snail that Rav Herzog had in hand was evidently cleaned of its fouling and therefore did not have the appearance of the sea.

The last of the objections remains, for we do not know of

40. *Menachot* 44a.

41. *Ibid.*

42. It is very likely that the dye was tested in cotton, which does not absorb the indigo very well.

43. Verified by personal experimentation. The dyed wool was soaked in a strong bleach solution. Pure bleach will dissolve the wool itself.

any comet-like appearance of *Murex trunculus* or *Murex brandaris*. However, several suggestions have been made to explain what the Talmud might have meant by this. In any case, the Rambam, in identifying *techelet* did not mention this as one of the identifying features of the *chilazon*, and the Radziner Rebbe, in identifying *sepia*, gave an interpretation that would fit the *Murex* equally well.

It is clear that one did not need to wait seventy years to get the *chilazon*, for an industry existed upon its basis, and it is obvious that no industry can exist where the supplies become available only once in seventy years. Rather, it seems that the Talmud is saying that only rarely *chilazon* come up ashore and become available in abundance.

Some speculative answers as to why this may be include, perhaps this could be due to reproductive patterns that we are not yet aware of, or perhaps the Talmud was referring to a rare storm or other such rare occurrence that would cause the *chilazon* to come ashore in large numbers.

Rav Herzog concluded his thesis without an identification of the *chilazon*, but left open a suggestion that it might be a snail called *janthina*, which has a violet colored shell. He suggested that perhaps the mucus of this snail may have the properties needed to create a blue dye. In addition to the blue color of the shell, one other feature is striking with regard to the *janthina*. This species often live in large groups that are attached to one another. In rare occasions, they are known to wash ashore by the millions. This could easily be what the Gemara means by the description of "once in seventy years", meaning, as we would say, "once in a lifetime". Rav Herzog noted that the Talmud does not state, when giving the reason for the enormous expense of *techelet*, that the amount of snails

needed is immense,⁴⁴ but that the occurrence of the species is rare.

Nonetheless, Dr. Sterman writes that modern research has shown that *janthina* could not have been the *chilazon*, for, among other reasons, although it does secrete a blue liquid, it does not produce a dye that can be used to color cloth, for this fluid turns brown after a few minutes and, in addition, is water soluble. Chemists have not found a way to use the secretion as a viable fabric dye.⁴⁵ Moreover, this species lives by floating on the water, and will drown underwater. It cannot, therefore, live in the sand, and the scriptural description of *sefunei t'munei chol* cannot describe the *janthina*.

The Color of Techelet

While the color of *techelet* is thought to be blue by virtually all, one of the modern scholars who has done pioneering work in this field, Dr. I. Zeiderman, (in an article published in *Techumin* volume 9) has suggested that it is not so. In that same article, he marshals much evidence to prove that *Murex trunculus* is indeed the *chilazon*, but argues that that the color of *techelet* is not blue but rather purple with a bluish shade (*segol hanota l'kchol*).

To this, he presents the following argument:

The Talmud asks how one can distinguish between *k'la ilan* and *techelet*.⁴⁶ The Gemara then gives a method of chemical

44. It does take about 30 *murex trunculus* to extract enough dye for the four threads needed to make one pair of *tzitzit*.

45. H.K Mienis and E. Spanier, "A Review of the Family Janthinaidae in Connection with the Tekhelet Dye," *The Royal Purple*, p. 197. Confirmed with correspondence between Dr. Sterman and the late Dr. Otto Elsner.

46. *Menachot* 42b-43a.

testing. The threads are soaked in a series of chemicals. If the color does not fade, then it is *techelet*. If it does, then it should be subjected to another series of chemicals. If the color becomes bright again, it is *techelet*. If it remains faded, it is *k'la ilan*.

Now, if the dye obtained from *trunculus* is indeed indigo, then it would seem that it would be impossible for there to be any difference at all between the two. Any chemical that will fade one will fade the other, and similarly. Equally, any chemical that will not fade one will not fade the other.

However, if the color of *techelet* is purple, then we can understand that the artificial *techelet* is made from a combination of the indigo dye with a red dye. It is the red dye that will be affected by the chemicals stated in the *gemorra*, and that is why the pure *techelet* will stay fast while the ersatz *techelet* will fade.

R. Yehudah Rok of Yeshivat Har Etzion, in disagreement with Dr. Zeiderman, brings much evidence that the color of *techelet* is indeed a pure blue. Among his proofs is the fact that Rambam states that the color of *techelet* is the color of the sky, and that the Gemara says the color is like that of the sea. Neither the sky nor the sea are purple or any shade of purple.⁴⁷ Further proof may be adduced from the fact that it has been translated as "blue wool" by tradition, a point raised by Rabbi Leiner in his work against those who have claimed in his time that *techelet* was green or black. The Greek translations, made yet when *techelet* was extant, also translate *techelet* as "*iakinthos*", which, when transliterated into modern language is "hyacinth"

47. Zeiderman suggests that immediately after sundown the sky is indeed a shade of purple due to the mixture of the red rays of the sun and the blue sky. Even if so, this does not explain the match with the color of the sea, and with regard to the sky's color seems to be quite forced. The Rambam states clearly the color of the sky while the sun shines. (*L'Ein ha'shemesh*).

which is known to be a blue colored flower.⁴⁸

R' Yehuda Rok, acknowledging that Dr. Zeiderman does have a point, contends, correctly, I believe, that the direct evidence in favor of blue *techelet* far outweighs the indirect evidence he advances to identify *techelet* as purple.

Possible answers to solve the riddle of the chemical testing cited by the *gemorra* may lay in variant methods used for dyeing with indigo rather than in the dye itself.⁴⁹ It is also possible that although the dye chemical of both the *Murex trunculus*

48. Hyacinths come in a variety of colors; however this is a relatively recent phenomena as botanists have cultivated and created many new types of hyacinths. However, even today, most of the hyacinths are blue. *Encyclopedia Britannica* states, (entry "Hyacinth"), "Most species have...fragrant flowers that usually are blue but may be pink, white, or other colours in cultivated varieties." We may be sure that if someone wanted to describe a color by the familiar flower, the hyacinth, in ancient times, it was blue that was meant, even if there was, even at that time, variants in the color of the flower. By analogy, if one were to describe a particular color as "the color of the rose" everyone would understand that a deep red color was meant, despite the fact that there are pink, white and yellow roses available in the flower shops.

49. In correspondence to me Dr. Sterman wrote the following: "Though we are not one hundred percent certain, it would appear that snail *tekhelet* and indigo were reduced in different ways. *Tekhelet*, since it comes from a snail, may have been reduced chemically using lead and tin pots with the sulfuric reducing agent found in the glands of the snails. (This seems to be what Pliny describes.) Indigo, on the other hand, comes from a plant and has no proteins or sulfur compounds. Up till a few tens of years ago in America, and still in some African countries, indigo was reduced by fermentation, using bran, madder and sugars to cultivate the bacteria necessary to reduce the dye. These differences may have had something to do either with the way that the dye adhered to the wool, or perhaps to some extraneous chemicals found in the dyed wool (maybe in the snail *techelet*, or just as possibly in the plant indigo.)

extract and the indigo plant are identical, nonetheless, the impurities that are inherent in both the animal and vegetable materials may have some effect upon the take of the dye into the fabric.

Other Objections

One of the major points raised by Rav Leiner in support of his theory is that the Rambam states⁵⁰ that the color of the secretion of the *chilazon* is black like ink.⁵¹ This identifies quite well with *sepia* and not at all with *Murex trunculus*. On the other hand, however, Rashi and Tosafot⁵² both seem to state that the color of the *chilazon* extract was blue, not black,⁵³ a

50. *Hilchot Tzitzit* 2:1.

51. It should be noted that we do not know the source for the Rambam, a point that led Rav Leiner to speculate that the Rambam had himself discovered the *sepia* and obtained *techelet* from it – for otherwise how would he have known that the "blood" of the *chilazon* is black. There is no known *midrash* or any other source that indicates that the color of the "blood" of the *chilazon* is black? One can only speculate that the Rambam took this information from a secular source (as he did in a few other cases with regard to factual matters as he states himself at the end of *Hilchot Kidush Hachodesh*, which was taken from Ptolemaean astronomy), and that this source was, perhaps, itself either corrupted or faulty. In fact, Aristotle does say that "in the northern part they give a black dye and in the southern parts red." Vitruvius, an Aristotelian scholar, says that Aristotle was referring to the color of the dye, not the shell of the mollusk. (Aristotle, *Di Animalibus Historia*, p. 175). Rav Herzog makes the same speculation, page 77.

52. *Menachot* 42b. See also *Eyn Hatechelet* section 22 for a discussion concerning the Rashi and Tosafot.

53. Where the *Braitha* tells us, "One brings the "blood" of the *chilazon* and chemicals," Rashi states that it is the manner of dyers to soak the wool in *tzarif* to enable the wool to absorb the dye. Now, if Rashi would agree to the Rambam that the "blood" of the *chilazon* is

point conceded by Rav Leiner in his *sefer*, *Eyn Hatechelet*.⁵⁴

Another objection can be deduced from a notable statement of Rabbenu Bachya with regard to why silk was not used in the construction of the *mishkan*.⁵⁵ He answers that silk, since it is derived from a worm, which is an impure species, would not be fitting for the *mishkan*. He then asks that if so, why is *tola'at shani* used to make the red wool? He answers that the color does not come from the worm itself, but from a shell in which the worm is contained. Evidently, Rabbenu Bachya would

black, there would be no need to explain the need of the chemicals brought with the "blood" of the *chilazon* to be for the sake of the wool, as it is needed for the dye color itself! Tosafot, *ad. loc.*, ask how the use of chemicals is allowed in the *chilazon* blood. Wouldn't the chemicals be an additive to a pure substance, and therefore render the dye *possul*? Tosafot answer, "perhaps the *techelet* is by its definition a mixture of these chemicals." Now, if the "blood" of the *chilazon* is black, then the question of Tosafot doesn't begin to make sense. Of course chemicals are needed, for without the chemicals the *chilazon* "blood" produces the wrong color!

In fact, in order to dye with the *murex*, as with any vat dyeing process, chemicals do need to be added to the dye itself. Dyes are, by nature, insoluble in water, for a colorant that is soluble in water would not be much good as a dye, as it would wash out of the cloth when soaked in water. This leads to a problem. How do you get the dye into the fabric? In order to soak or cook the dye into the fabric, you do need to dissolve the dye in water. A dye cannot be both water soluble and insoluble at the same time! The solution to this problem is to alter the chemical make-up of the dye temporarily by reducing the dye (that is, to introduce a base chemical that will remove the oxygen from the chemical compound that is the dye, and change it into a different chemical temporarily). This new chemical will be water soluble. The fabric is soaked in the reduced solution (which, in this case, will have a green color) until the fabric has well absorbed the dye. When the fabric is then removed from the water, the oxygen from the air will combine with the reduced dye and it will revert back to its original chemical makeup, turning back to the blue indigo. The transformation is immediate and complete.

have to assume that the *chilazon* is also a type of a kosher species, for otherwise how could it be valid for the use of dyeing the priestly vestments and the *mishkan* itself?⁵⁶ However, Rashi says explicitly that the *chilazon* is a type of *tola'at* (worm).⁵⁷ It does not seem possible to reconcile Rashi's opinion with that of Rabbeinu Bachya. In matters of fact, such as whether or not *chilazon* is a kosher species, both cannot be correct.

Another objection that can be raised is that the Talmud states that "the body of the *chilazon* is like the sea and its creation is like a fish."⁵⁸ How does this statement square with *Murex trunculus*?

The first half of that statement has been discussed earlier, that the color of the shell, in the water, is indeed like the color of the sea. The second part of the statement was taken by Rav Leiner to mean that the nature of the species is similar to that of a fish, a fact that can easily be regarded as consistent with *Sepia officinalis*; but in which way could this be true with regard to *Murex trunculus*? Perhaps the "creation" means its coming into being, i.e. its method of birth. *Murex trunculus*, like fish, are spawned from eggs.

Other Halachic Considerations

When the Radziner Rebbe took his findings to the *gedolei Yisrael* of his time, he met with some measure of resistance. Among the most significant responses were those of the Kutna Rav (Rav Yisrael Yehoshua Trunk, known as Reb Yehoshua

54. He says the we can ignore both Rashi and Tosafot. Since both did not have the *chilazon* they were unable to do anything but guess at the color of the dye, and blue would be a logical assumption. The Rambam, who says that it is black, must have had a better source for his information

Kutna, author of *Yeshuot Malko*) and the Brisker Rav, Rav Yosef Ber Soloveitchik (author of *Bet Halevi*).

The Kutna Rav's rejection was based on the fact that the dye was made with added chemicals, and he quoted Rashi and Tosafot as inferring that the color of the extract of the *chilazon* itself was the dye color.

As we have seen, the Kutna Rav's argument was exactly on target. His suspicion, that the chemicals added were the main coloring agent and that the *sepia* was therefore not the *chilazon* was the very same objection that Rabbi Herzog raised and substantiated. However, this objection cannot be said with regard to the *Murex trunculus*, as it is indeed blue before any chemicals are added, and the chemicals that are added to enable the dyeing process do not affect the outcome of the dye itself.

The *Bet Halevi*'s objection is a more complicated one. In fact, exactly what he said is also a matter of disagreement, and quite unverifiable, since there is no written record. His letter to the Radziner was not printed verbatim in the Radziner's third *sefer*, but was paraphrased. Rav Yosef Ber Soloveitchik had a somewhat different version regarding the objection of his great-grandfather.⁵⁹

According to the Radziner Rebbe, the objection of the Brisker Rav was as follows. In order to accept that *Sepia officinalis* is the *chilazon*, we will have to explain why it was not available during the 13 centuries that it was not used. For if it was available, then the very fact that it was not used during this entire time is ample proof that *sepia* is in fact not the *chilazon*.

59. See *Nefesh Harav* by HaRav Hershel Schachter. It is quite possible, of course, that he had two objections, and only the stronger objection was communicated in writing to Rav Leiner, while the second was communicated orally to his son and remained a family tradition.

The Radziner countered that he did indeed explain that the science of making a blue dye out of the black ink was indeed lost, and that it was only after much effort that he rediscovered the process. In addition, the identification of the fish itself would have been lost over the period of time, since the loss of one element (the process) would have eventually resulted in the loss of the second (the identification of the species).

It would appear that the Brisker Rav was not satisfied with this answer, for the *sepia* is a common sea animal and was available in many places in the world where Jews lived. Evidently, it did not seem reasonable to him that the *sepia* would be so unavailable that the science of making the dye would ever have been lost.

This objection does not apply to *Murex trunculus*, which is an uncommon species. Had a generation elapsed without Jews in northern Israel, as did happen in the sixth century of the Common Era, then the identification of this species would have been forgotten to all the sages who lived in Babylonia and other countries of the Diaspora.

According to Rav Yosef Ber Soloveitchik, the objection was much more basic. The reason he did not accept *sepia* was simply because we no longer have a *mesorah* (tradition) with regard to the identity of *chilazon*, and without a *mesorah*, we cannot know that we have identified the *chilazon*.

The Radziner did not counter this objection because it was not presented to him. However, one might argue on his behalf that one does not need absolute certainty in halacha with regard to the establishment of a factual matter, but rather all that is ever needed is a reasonable basis. Indeed, the principle of *rov* (that we follow the majority) or *chazaka* (that we follow the *status quo*), the two most used instruments of halacha in matters of *issur* and *heter*, are prime examples of where the halacha instructs us to follow reasonable assumptions even though there

is no certainty of fact.

The halachic basis for identifying *chilazon* is simple — the evidence has created an *umdana d'muchach*, a relative certainty that exceeds the power of *rov*. *Rov* is not a sufficient basis, for example, to decide a monetary issue against a defendant (*muchzak*) yet an *umdana d'muchach* can be sufficient evidence according to some opinions.⁶⁰ If so, in matters of *mitzvot* or even matters of *issur*, where *rov* is sufficient to determine a matter of fact, all the more so may one rely upon an *umdana d'muchach*.

Moreover, although it must be acknowledged that *mesorah* is a very strong force in halacha, by no means does a *mesorah* create a certainty of fact. For example, what could be a greater matter of *mesorah* than the method of making *t'fillin*? Only *soferim* are involved and each *sofer* was trained by an older *sofer*. Yet, although the order of the *parshiot* in a set of *t'fillin* must be correct for the *t'fillin* to be valid, there is a lack of absolute certainty as to what is the correct order, with no fewer than four differing opinions.⁶¹ If the halacha would demand absolute certainty in the essential elements of a mitzvah, then we would not wear *t'fillin* today because there is an area of disagreement as to the correct order of the *parshiot*. But we do wear *t'fillin*. Evidently, the framework of halacha allows for the possibility

60. See statement of Shmuel, *Bava Batra* 93a. It should be noted that a reverse *s'vara* is stated there according to Rav; however in matters of jurisprudence, the halacha follows Shmuel.

61. There is a dispute between Rabbenu Tam and Rashi whether the order is *Kadesh, V'haya ki Yeviacha, Shma, V'haya im Shamoa*, or *Kadesh, V'haya ki Yeviacha, V'haya im Shamoa, Shma*. In addition, there is the opinion of the *Shimusha Rabba* that the order is right to left from the standpoint of the one who wears the *t'fillin* rather than (as assumed in practice and based on our text of the Talmud) from the standpoint of the reader (facing the one who wears the *t'fillin*.) This makes, therefore two possibilities for each of the two orders.

of error, and instructs us to follow the most reasonable likelihood, be it based *on rov, chazaka, umdana*, or any method of determination of fact accepted within the halachic framework.

Conclusion

The argument for identifying *chilazon* as *Murex trunculus* has much merit. However, it cannot be said this identification can be 100% absolute, both with regard to the species or even with regard to the color. Nonetheless, the element of certainty would seem to surpass the threshold needed for identification *l'halacha*. Moreover, there is no *issur* in wearing a blue colored thread in the *tzitzit*, even if it turns out that this is not *techelet*, a point made poignantly by the Radziner Rebbe, in his *sefer, Ptil Techelet*.⁶²

As with anything that is not definite, this matter is likely to be controversial for a long time to come. If I may offer my own humble opinion it would seem that this identification ought to be accepted by many, if not the majority of *poskim*. But it will likely take much time for this to happen, for halacha is by its very nature conservative, and in general, a consensus is reached only after much debate and deliberation.

62. As Rav Leiner states in *Eyn Hatechelet* and in *Ptil Techelet*, the curse meted out for those who use *k'la ilan* in their *tzitzit* and claim that they are wearing *techelet*, is meant for those who are intent upon deception, not those who are making a sincere attempt of fulfilling the mitzvah.

Crockpots: Are They All They're Cracked Up To Be?

Rabbi Daniel Rabinowitz

One of the conveniences of modern life is a crockpot or slow cooker, a device which is utilized in many Jewish homes to cook the classic Shabbat food "*chulent*". A crockpot is comprised of an outer pot which contains the heating element and a second pot, which fits inside the outer piece, into which the food is placed. A crockpot can be used for cooking and also permits food to be kept hot for extended periods of time without burning or losing its heat. (There are two other types of crockpots: in the first, the heating element and pot are one and the same, and the crockpot is one piece. This type of crockpot will be discussed later in the article. The second type of crockpot is composed of a pot which rests on a hot plate. This is not a "crockpot" in the true sense, but merely a type of hot plate, and is not pertinent to this article.)

Although crockpots are common in many Jewish homes, questions have been raised as to the permissibility of using a crockpot on Shabbat. A basic rule of Shabbat requires that a pot may be completely enclosed so as to retain the warmth (*vbnrv*). Furthermore, in order to permit returning the pot to the fire (*vwzj*), the fire must be covered (*utrqt ptwd*).¹ Normally this requirement is satisfied by the use of a metal plate (a *blech*)

1. There are many other conditions that must be met for permissible *chazarah*, which are not directly relevant to the status of the fire and are not the subject of this article.

Member, Yeshiva Gedola of Greater Washington

that covers the flame and/or the knobs of the stove.² Even if the pot is not returned to the open flame, there is another problem: Leaving a pot of partially-cooked³ food on an open flame (*vhva*) is prohibited since we fear that a person may "stir the coals" or adjust the flame to speed up the cooking process. The fourth problem is removing food from a pot that is directly on the fire (*xhdn*). In dealing with the permissibility of the use of a crockpot, we must deal with these four problems, *sh'heah*, *hatmana*, *chazarah* and *megiz*.

I. *vbnrv* – *Hatmana*

Hatmana is the prohibition against enclosing a pot with something that will either increase or help retain the temperature of the pot.⁴ Even on Friday one is not permitted to wrap a pot for Shabbat with a material which will *add* temperature to the food;⁵ this is called "*mosif hevel*". However one is permitted to wrap a pot with a material which will only *retain* the current temperature. On Shabbat itself, all forms of wrapping the pot are prohibited, whether or not they add or only retain the heat.⁶ The *Shulchan Aruch*⁷ explains that even if the food is

2. *Iggerot Moshe*, *Orach Chaim* I:93.

3. *Biur Halacha* 253, *tdvbt v"s*, states that *sh'heah* applies even for foods only one-third or one-half cooked (*hextws yc kfen*). The *Chazon Ish* in *Orach Chaim* 37:3 says that in such a case there would be no problem of *sh'heah*. Therefore, if the food is not cooked to the stage of *Maachal Ben Drusai*, according to all *Poskim* there will be a prohibition of *sh'heah*; if it is one-third cooked, according to the *Mishnah Berurah* there will still be a problem.

4. *Shulchan Aruch* 257:7.

5. *Ibid*.

6. *Ibid*.

7. *Ibid*.

completely cooked, one is still forbidden to enclose it.⁸ A crockpot in which the inner pot is enclosed by the outer pot might therefore pose a problem.⁹

This problem might seem to be circumvented by the fact that the pot's lid is not enclosed by the heating element.¹⁰ However, that fact merely takes it out of the category of classic *hatmana*. There is still the problem of partial enclosure, which is forbidden by the *Shulchan Aruch*¹¹ but permitted by the Ramo.¹² The *Chazon Ish*¹³ declares that the halacha concurs with the *Shulchan Aruch*. According to this ruling, crockpots would not be permitted. The *Mishnah Berurah*, however, seems to say that we follow the opinion of the Ramo which permits partial *hatmana*.¹⁴

Even if we want to rely on the lenient ruling of the Ramo,¹⁵

8. Ramo, *ibid.*, agrees to this but quotes an opinion that if the food is either completely cooked or completely raw there is no problem of *hatmana* on Friday if using a covering which adds heat. *Biur Halacha wqhg yft v"s* states that this is a "single opinion" and therefore may not be relied upon. Even if one were to rely on the opinion quoted in the Ramo, one would not be able to return the crockpot to its heat source on Shabbat as it would be *mosif hevel* on Shabbat, an act which all rabbinic opinions prohibit.

9. A regular pot does not pose a problem of *hatmana* even though the pot insulates the food, since its primary purpose is to hold the food, as opposed to keeping it warm (based on *Shulchan Aruch* 257:2).

10. Even though the lid retains heat, the *Shulchan Aruch* 257:2 and *Mishnah Berurah* in note 14 there rule that it does not constitute *hatmana* because its primary purpose is to keep contaminants from the pot.

11. No. 253, end of para. 1.

12. *Ibid.*

13. *Orach Chaim* 37:19.

14. *Mishnah Berurah* 253:9.

15. *v"f q"x vbnrvt vhhva 'xc /ca //hca* explains that from the language of the Ramo "*dvbn*" it seems to be that this is only *bede'aved*.

we have to determine if the absence of a wrapping only on the lid of the pot qualifies as partial *hatmana*. The Ramo states¹⁶ that the entire time the "top" is uncovered there is no problem, but it is unclear if "top" refers to the upper portion of the pot, or the lid. According to the first explanation, if just the lid were uncovered, it would still be considered total *hatmana*. Under that analysis, a crockpot would not be permitted even according to the Ramo, as the upper portion of the crockpot is covered even though the lid is exposed. An alternate explanation of the Ramo is that the entire pot can be covered as long as the lid portion of the pot is not also covered. Pursuant to this analysis of the Ramo, crockpots would be permissible.

The question of which explanation of the Ramo is correct is a dispute among the *Acharonim*. The *Pri Megadim*¹⁷ quotes the *Taz*, criticizing the practice of placing a cold bottle of water in a pot of hot water in order to warm it a bit, as this would be considered *hatmana*. The *Pri Megadim* understands this to be so even if the top of the bottle (the lid portion) is not immersed in water. He therefore offers this as proof that the Ramo would agree that if only the lid remains uncovered, it would be complete *hatmana*. But the *Mishnah Berurah*¹⁸ disagrees and limits the case of the *Taz* to a pot completely immersed in water, which is a regular case of *hatmana*.

The *Pri Megadim*,¹⁹ however, brings another proof from the Rashba.²⁰ The Rashba quotes a Mishnah which is discussing *muktzeh*. The Mishnah says: "If the pot was enclosed by wool, one may not move the wool. If they are immovable, how should

16. *Shulchan Aruch* 253:10.

17. 259:3, *vbnrv v"s*.

18. 253:2.

19. *Ibid*.

20. *Shabbat* 47b.

one go about removing one's pot? Take the cover off, and the wool will fall off by itself." The Rashba reasons that the Mishnah must be referring to a case where wool did not cover the lid of the pot. Otherwise, in order to get to the lid, one would have to move the wool which is *muktzeh*. Therefore, the reference must be to a case where the lid is uncovered. The Rashba explains²¹ this Mishnah as referring to when the wool was wrapped around the pot on Friday, as it is forbidden to wrap a pot with wool on Shabbat because of *hatmana*. Therefore the Rashba reasons that although the lid is uncovered, there is still *hatmana*. The *Pri Megadim* feels that this proves partial *hatmana* applies even when the lid is uncovered.

A possible refutation to this proof of the *Pri Megadim* is that Rashba's explanation of the Mishnah is not a unanimous view. The Ran²² offers an alternate explanation, that the Mishnah deals with a case where the pot is completely enclosed and is not open at all on the top. This would mean that the Mishnah is dealing with a regular case of *hatmana*.

There are many *Poskim* who agree with the second explanation of the Ramo, that if just the lid is uncovered it is considered partial *hatmana*. These include the *Magen Avraham*²³ and the *Shulchan Aruch Harav*²⁴ as well as the *Aishel Avraham*.²⁵ The *Mishnah Berurah* is also of the opinion that this case would be prohibited only if the lid is covered.²⁶

21. The Mishnah is only discussing cases of permissible *hatmana*.

22. *Shabbat* 49a; possibly Rabbenu Tam in *Sefer Hayashar* is also expressing this view.

23. 259, in *Kitzur Dinei Hatmana*.

24. 257, *Kuntress Acharon* #3.

25. *Ibid*, and in #253:17.

26. See *Mishnah Berurah* in 253:68 and 253:69, who maintains that the Ramo permits partial *hatmana*. The *Chaye Adam* in *Hilchot Shabbat*,

There is possibly a further reason there would be no prohibition of *hatmana* in the use of a crockpot. The Tosafot,²⁷ Rosh²⁸ and the *Tur*²⁹ say that there is no prohibition of *hatmana* for an oven because there is airspace between the pot and the walls of the oven.³⁰ Therefore, we might suggest that since there is some airspace between the inner and outer pot, a crockpot would be comparable to an oven. However, R. Shlomo Zalman Auerbach ruled that the airspace contained in a crockpot is not enough to be considered equal to an oven.³¹ Therefore, the only way for a crockpot to be permissible is if it would be classified as partial *hatmana* (which is subject to a dispute between the *Acharonim*), the exact definition of which is somewhat unclear.

Another possible reason that *hatmana* would not apply is

K'lal 2, #5, says that one may not place a pot in something which adds heat even though it is only partially covered as we are afraid that one might come to cover it completely. In *K'lal* 20:22 he says that as long as it is not most of the pot, it would not present a problem. A slight problem arises since the *Mishnah Berurah* in 257:43 says that one should not place sand around a pot even though it is not covering the entire pot because one might later cover the whole pot. Thus it seems that the *Mishnah Berurah* agrees with the *Chaye Adam*. Perhaps even the *Mishnah Berurah* would agree that if the heat is increased by this procedure, even if the lid remains open it would be not permissible. However, in a case where that is not so, he would permit it although just the lid is uncovered.

27. *Shabbat* 48 uh/hzs v"s.

28. In "yhntr vnc 'i", no. 2.

29. *Orach Chaim* 257.

30. The terminology of the Rosh and the *Tur* is "vcwv white", but Tosafot write only just "white". The *Mishnah Berurah* in *Sha'ar HaTzion* 257:47 says that it need only be "white /mq" and *Magen Avraham* (253:17) and *Shulchan Aruch Harav* (257:10) both say that it is forbidden only if the walls of the oven are touching the pot.

31. *Moriah*, Nissan 5755.

that the *hatmana* (or enclosure of the pot) takes place in the same location in which it was cooked. The Rosh³² tries to justify the practice of covering food in sand in order to keep it warm. He argues that since it remains in the same place as it was originally cooked, it was not placed there for the purpose of *hatmana*; moreover, it is not normal practice to keep food in dirt. According to that reasoning, since we leave the inner pot of a crockpot in the place where it was cooked, it would not involve *hatmana*. However other *Rishonim* use only the loophole of partial *hatmana* and not the leniency of the Rosh. It appears therefore that they do not agree with the Rosh on this point. Furthermore, the opinion of the Ramo³³ permitting partial *hatmana* is limited to a case in which the pot is still on the fire, in the place it was cooked. Consequently, it appears that one may not rely on the leniency of the Rosh.

II. *vhvha* – *Sh'heah*

Another problem arising from the use of crockpots is that of *sh'heah*. If the food in the crockpot is not at least³⁴ 1/2 or 1/3 cooked³⁵ (*hextws yc kfen*) or, according to some opinions,³⁶ if it is not completely cooked, then in order to leave it on the fire,

32. In 'c xc' yhntr vnc 'i.

33. 253:1.

34. This measure is the least cooked a piece of food might be in order to be edible. "*Ben Drusai*" refers to a robber who was always on the run and did not have time to completely cook his food. Therefore, whatever would be considered edible for him is the "least cooked" food can be and still be considered edible, according to Ramo in 253:10.

35. *Mishnah Berurah* in 'jk q"x d"bw 'x.

36. This is the first opinion of R. Karo in *Shulchan Aruch* 253:1. *Biur Halacha* *tdvbt v"s* states that the food should be completely cooked before the arrival of Shabbat.

the fire must be "*garuf v'katum*", i.e. the coals must be removed or covered.³⁷ Even though in modern times it is rare to actually cook with coals, the prohibition of *sh'heah* nevertheless applies to any uncovered heat source.³⁸ To accomplish *garuf v'katum* for a normal stove, one would need to cover the fire and/or the knobs with a cover.³⁹

A simple way to avoid the problem of *sh'heah* would be to place a piece of raw meat in the pot before sunset.⁴⁰ By virtue of this device, there is no fear of stirring the coals (u^hkjdc v/jn) since moving the coals will not make the food edible as it will not be ready until the next day,⁴¹ and therefore the rabbis permit putting a pot with raw food directly on the "fire" just before the onset of Shabbat.

Arguably there is no need to place a *blech* on a crockpot in order to avoid *sh'heah*. Since the actual heating element of the crockpot is encased in the wall of the outer pot, it should already be considered covered. A hot plate, which has an enclosed heating element like that of a crockpot, does not need to be

37. The reason for this edict is to make sure one will not come to enlarge the fire, in order to hasten the cooking of the food.

38. Rabbi M. Feinstein says that a stove top is considered like a *kira* (a certain kind of stove) and therefore one must cover the heat source. *Iggerot Moshe, Orach Chaim I*, #93.

39. *Ibid.*; see also *Mishnah Berurah* 253:103 n. 81. Although the *Chazon Ish* does not normally permit the use of a *blech*, the *Tzitz Eliezer*, in vii, 15:3 says that *Chazon Ish* would allow a *blech* to satisfy *sh'heah*.

40. *Shulchan Aruch*, *ibid.*

41. *Kitvei R. Yosef Eliahu Henkin II*, p. 15., says that nowadays we *only* apply this leniency with regard to a crockpot. Apparently, he bases the leniency on the fact that the crockpot will not be used for any purpose until Shabbat afternoon. A metal plate covering the fire.

covered in order to avoid the problem of *sh'heah*.⁴² The reason for the lenient ruling for the hotplate also relies on the fact that it is not the ordinary manner of cooking (*ktahc lws*).⁴³ This leniency is also based upon the fact that a hotplate does not have a mechanism to raise and lower the temperature. Where the temperature can be adjusted, which is common for crockpots, one must cover the knob. The same may well apply to hotplates with adjustable temperature knobs. With regard to a crockpot, it is arguable that since one can (and often does) cook this way even during the week, i.e. on Friday one cooks *chulent* in the crockpot (as opposed to cooking in another pot and then before Shabbat transferring the crockpot), it might well be considered the "normal method" of cooking. Therefore, there might be a distinction between a crockpot and a hotplate. Rabbi Chaim Pinchas Scheinberg⁴⁴ says that the heating element of a crockpot is considered *garuf v'katum*, i.e., covered.⁴⁵

To avoid any possible problem of *sh'heah*, metal or aluminum foil⁴⁶ can be inserted between the inner pot and the outer element, thereby "covering" the heating element.⁴⁷

42. *Shmirat Shabbat Kehilchata* 1:25 no. 71 and *Har Zvi* I, 136.

43. *Ibid.*

44. See *Sefer Otzrot HaShabbat* p. 519.

45. Although he cites the *Chazon Ish* (37:9) who rules that a pot cannot be in contact with any heat source (even indirectly), he argues that *Chazon Ish* would acquiesce in the case of a crockpot.

46. *Iggerot Moshe*, *ibid.* The *Chazon Ish Orach Chaim* (37:15) rules that even with a metal plate in place one would not be able to return the pot.

47. This is the position of R. Feinstein, that even if the knobs of the stove are covered, one still has to cover the flame (*Iggerot Moshe*, *ibid.*) According to R. Ahron Kotler as cited in *The Halachos of Shabbat* (Eider), footnote 800, one only needs to cover the knobs and not the actual flame; thus, taping the knob would suffice.

III. xhdn & vwzj – *Megiz* and *Chazara*

The last issues concern removing food from the inner pot on Shabbat. This would generally present one of two problems – *chazara*, returning the pot after removing it from the fire and *megiz*, the prohibition of stirring or serving food that is on the fire.

Returning a pot to the fire on Shabbat is not permitted because of a rabbinic enactment.⁴⁸ One⁴⁹ of the conditions for permissible return is that the fire must be covered (*garuf v'katum*). One may use the solution of placing a metal insert⁵⁰ or lining the inside with aluminum foil, thereby fulfilling the requirement of *garuf v'katum*.⁵¹ Obviously if one were not to return the pot this would pose no problem.

If we accept the comparison of the heating element in a crockpot and a hotplate, the entire problem of *chazara* is avoided. R. Shlomo Zalman Auerbach ruled⁵² that there is no problem of *chazara* in regard to a hotplate.⁵³ Relying on this, one could

48. The reason for this enactment is that it appears that one is cooking on Shabbat.

49. There are four other conditions for permissible *chazara*: The pot may not be put down, but must be held in one's hand; one has to have in mind that he is planning on returning the pot; the food must be completely cooked; and it must still be slightly warm.

50. See footnote 47.

51. Although metal conducts heat, the purpose of an insert is not to lower the heat. Rather, it is a remainder so that one will not come to raise the temperature. *Ran*, *vwhf qwi sg v"s*, and *Mishnah Berurah* 263:81.

52. *Shmirat Shabbat Kehilchata* 1, 71.

53. This view is not unanimous. *Har Zvi* rules that there would be no prohibition of *sh'heah* with regard to a hotplate, but is of the opinion that there would still be a problem of *chazara*.

remove the inner pot and return it as often as one pleases. R. Moshe Stern⁵⁴ does not permit *chazara* with a crockpot.

Megiz, or stirring food to hasten the cooking process, is a Torah prohibition.⁵⁵ Some *poskim* do not permit removal of food from a pot on the fire as one might stir the food in the process.⁵⁶ The *Chazon Ish* presents a possible solution to this problem. In a case where it is *assur* to perform *chazara*, one may rely on the opinions that removing food does not pose a problem of *megiz*.⁵⁷ Thus, if use of a metal insert is not feasible, then, assuming that *chazara* is prohibited, one would theoretically be allowed to serve directly from the pot.

IV. Conclusion

In conclusion, use of a crockpot may involve either complete *hatmana* or partial *hatmana*. The permissibility of partial *hatmana* involves a disagreement between *Shulchan Aruch* and Ramo.

There also may or may not be a problem of *sh'heah* and *hatmana* depending on whether a crockpot is considered to be similar to a hotplate. R. Shlomo Zalman Auerbach ruled that it

54. *Piskei Hilchot Shabbat* III, chap. 6, par. 18. He does give another solution to completely avoid the problem of *chazara*. He advises placing the crockpot on a timer to shut off during the time one removes the inner pot.

55. *Beitza* 34a. *Kol Bo* #31 says that *megiz* applies to completely cooked food. He gives no reason for this. R. Feinstein explains that perhaps there are some pieces that were not cooked and by stirring one will be cooking those pieces (*Iggerot Moshe* O.C. IV, #74).

56. The *Mishnah Berurah* (318:117) says that one may remove food directly from the pot if it is *not* on the fire. Therefore it seems it would not be permissible if the pot were actually on the fire. Even if one were to place a *blech* in the crockpot it would not help as it is still considered that the pot remains on the fire.

57. O.C. 37:15.

would not be permissible to use a crockpot, since the inner pot is either entirely or mostly covered,⁵⁸ raising the problem of *hatmana*. R. Elishav also ruled that a crockpot is not permissible. R. Moshe Feinstein, R. Scheinberg, and R. Vosner have ruled that a crockpot is permissible.⁵⁹

To satisfy all the opinions, there are two possible solutions. If one were to use a one-piece crockpot (that is, the heating element and pot are one and the same), then it would pose no problem at all. The *Shulchan Aruch*⁶⁰ rules that with regard to the pot itself there is no question of *hatmana*. Therefore, since there is only the one pot, it would pose no problem, nor is there a problem of *chazara*, as one cannot "return" the pot since it cannot be removed. However, the problem arises how to remove the food and avoid the problem of *megiz*. The *Chazon Ish* rules⁶¹ that whenever *chazara* is not a possibility, one may rely upon the *Poskim* who permit removing food from the pot while it is directly on the fire. Since everyone would agree that there is no alternative, then according to the *Chazon Ish* one could directly remove the food from the pot. If one did not want to rely upon the *Chazon Ish*, one could pour out the food.

Another option would be to have enough airspace between the inner and outer pot, thereby removing the problem of *hatmana* according to everyone.⁶² R. Shlomo Zalman Auerbach⁶³ gives a simple way to accomplish this by placing an empty can between the inner pot and outer pot.

58. Refer to footnote 26.

59. In *Sefer Otzerot Shabbat*.

60. O.C. 257:2.

61. *Loc. cit.*

62. Because then it would be considered like an oven.

63. *Moriah*, *ibid.*

Letters To The Editor

To The Editor:

The distinguished editor of the *Journal of Halacha and Contemporary Society*, Rabbi Alfred S. Cohen, twice refers to an unpublished responsum (*teshuva*) of Rabbi Moshe Feinstein, *zt"l*, concerning the issue of Women's Prayer Groups (Journal volume XII page 12 and volume XXX page 34).

For the sake of the historical record it must be stated that this responsum was penned by Rabbi Feinstein's grandson, Rabbi Mordecai Tendler. It was written more than fourteen years ago, in 5743, on the stationery of Rabbi Feinstein in response to a *sh'eilah* posed by Rabbi Mayer Fund of Brooklyn.

Rabbi Tendler writes, "if it were possible to find a group of righteous women whose intention is purely for the sake of heaven, then one could not prevent them from praying together." Rabbi Tendler concludes that they may also read from the Torah scroll.

Many in the halachic community, including Rabbi Feinstein's family, are astounded that Rabbi Mordecai Tendler's letters are being triumphed as a *heter* by Rabbi Moshe Feinstein, *zt"l* for the new phenomenon of Women's Prayer Groups.

The issue of the reading of the *Sefer Torah* at the Women's Prayer Groups is halachically problematic. Rabbi Moshe Feinstein did not look with favor on the practice of some synagogues to take out the *Sefer Torah* from the ark for the purpose of reading *Parshat Zachor* for women only. (See Rabbi Aaron Felder, *Moadai Yeshurun*, pages 47 and 64).

Rabbi Moshe Feinstein was of the opinion that women could fulfill the mitzva of *Parshat Zachor* by reading from a printed *Chumash*. Therefore, to remove a *Sefer Torah* from the ark and read the *Parsha* from the scroll was unnecessary. Rabbi Feinstein

concluded that such an act was a *vwt/k ythzc*, an act of disrespect to the scroll of the Torah.

Obviously, the reading of the Torah at the Women's Prayer Groups is not an act of public reading of the Torah which requires a male *minyan*. The only possible reason for reading the Torah would be for *limud haTorah*, the study of Torah. It is true that there was a period in Jewish history when Jews studied the Torah from a *Sefer Torah*, but this method of *limud haTorah* fell into disuse with the invention of the printing press. Today our fulfillment of the mitzva of Torah study is through the printed *Chumash*. Just as the mitzva of *Parshat Zachor* can be fulfilled by women reading from a printed *Chumash*, so too can the study of Torah be fulfilled through the use of a printed *Chumash*. Since Rabbi Feinstein considered the removal of a *Sefer Torah* from the ark for the purpose of reading *Parshat Zachor* exclusively for women unnecessary, would we not be correct in assuming that he would apply the same reasoning to the act of removing a *Sefer Torah* from the ark for the study of Torah by Women's Prayer Groups?

RABBI BERTRAM LEFF

* * *

Rabbi Cohen responds:

Your letter raises a delicate question which, potentially, may be quite troubling. If indeed it was the policy of R. Moshe Feinstein to instruct his grandson and others who were helping him in his correspondence, in broad terms rather than by specific dictation, this is an issue which will have to be clarified. It might possibly render the later *teshuvot* less authoritative than his earlier ones.

However, in our particular case it is a moot point: the letter written to Rabbi Fund does not contain any new ideas but merely reiterates the contents of R. Moshe's earlier *teshuva* (*Iggerot Moshe, Orach Chaim* 4:49) written in 1976 by Rav

Feinstein personally. There, in response to a question whether a woman may put on *tzitzit*, Rav Feinstein expressed his opinion that generally when a woman wants to perform a mitzvah in which she is not obligated, "it is not done with the right intention (*kavana*), but rather arises out of 'complaints' against the Almighty and His Torah." Consequently, in this performance of the ritual, there is no mitzvah at all. A close reading of R. Moshe's *teshuva* clearly indicates that he was of the opinion that in most cases, the proper motivation was lacking. However, he added, if it were possible to find sincerely-motivated truly righteous women who wanted to perform mitzvot which are generally performed only by men, it would be permissible.

As for the comparison to taking out a *Sefer Torah* for women to read *Parashat Zachor*, I see no reason why Rav Moshe would not have used the same yardstick in ruling on that question – if they were sincerely-motivated, righteous women, he had no reason to prohibit it. On the other hand, if they were doing it because they had an axe to grind, he would probably not have allowed it for *Parashat Zachor* nor for any other Shabbat.

What does seem clear to me is that Rav Moshe Feinstein was a *rodef shalom*, one who "pursues peace". He did not want to cause a rift in the community and felt that the best way to handle the situation was not to precipitate a confrontation by definitively prohibiting an action which might, under certain circumstances, be defensible. Therefore, he intentionally chose a middle ground.

Unfortunately, the wisdom of that great sage is no longer evident in the current imbroglio concerning the women's prayer group. It has become a cause celebre, with inflammatory ads appearing in newspapers, as partisans apparently seek to create a halachic consensus on demand. Without expressing an opinion on the issue *per se*, it strikes me as anomalous that some rabbis who are usually quoted as advocating that all Jews in a community should pray together, who decry the

appearance of countless *shtibels* which siphon off congregants from their synagogues and splinter the community – should nevertheless be passionate advocates of women's prayer groups, which cater to a relatively small group of worshippers who choose to separate from the larger congregation. What ever happened to "*berov am hadrat melech*", the principle that there is greater glory to the All-mighty King when His people worship Him in great throngs?

When we contemplate all the enemies of the Jewish people, ranging from Swiss bankers to Arab terrorists, one would think that we would be searching for ways to strengthen our unity and love for one another rather than creating divisiveness. It is painful to witness the present spectacle of people using a mitzvah as a ploy in their own agenda, rather than as a means of expressing love for Hashem and a desire to serve Him.

RABBI ALFRED COHEN

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To The Editor:

I found Dr. Irving Levitz's poignant article on "Talking During Tefillah" (JHCS, XXXIII, Pesach 5757) to be both informative and insightful and his analysis of the sources and motivations for people talking in shul perceptive.

I wondered, however, why Dr. Levitz failed to mention one of the most obvious sources of *shul* tumult. I speak specifically of the many unruly children who run about freely in most Orthodox synagogues, playing, crying, talking loudly, and making the rounds from candyman to candyman. Though they are certainly acting appropriately for young children, their ruckus nevertheless creates an atmosphere both unconducive for prayer and inappropriate for a *makom kadosh*.

Furthermore, anyone who raises this matter in an attempt to restrict children's behavior in their synagogue runs the risk of

being unjustly accused of having an "anti-child" bias, and the issue becomes distorted.

A CONCERNED READER

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Dr. Levitz responds:

The traditional rationales for bringing young children to synagogue even prior to their having the ability to engage in communal prayer, is seemingly rooted in the parental obligation of *chinuch banim* (the need to educate children in the ways of Torah). Since this includes responsibility for teaching children how to *daven* and training them in proper synagogue deportment, even very young children tend to be brought to the synagogue in order to absorb the spiritual atmosphere and becomes familiar with congregational ways.

In support of this practice, the talmudic discussion of *hakhel* in tractate *Chagiga* 3a is often cited. The Gemara asks, "*Taf lama ba-in?*", "Why are children brought [to *hakhel*]?" "*Keday litain schar le-mevi-aihen.*" "In order to confer reward upon those who bring them!" Tosafot conclude that this is the apparent basis for bringing young children to the synagogue.¹

Rabbi Menachem Lanzano, a 17th century Jerusalem scholar, seemed less enthused about young children in the synagogue. He might just as well have observed a modern-day Orthodox synagogue when he wrote:

In these days children are taken to the synagogue to inflict punishment upon those who bring them. The child comes to desecrate the sanctity of the house of

1. Another talmudic reference speaks of Rabbi Yehoshua Ben Chananya of whom it was said that his mother took him to the *Beit Midrash* while he was yet in his cradle so that his ears would become accustomed to the sounds of Torah (*Yerushalmi, Yevamot*, 1:6).

our Lord and to play as in the city streets. They rise to laugh one with the other. This one plays with that one; this one hits that one; one sings, one cries, one talks, one shouts, one runs hither the other thither.

The current practice of bringing young children to the synagogue along with bags of snacks, games, and playthings, and the distribution of sweets by "candymen", are all, on the surface, *chinuch* guided attempts at reinforcing the child's synagogue attendance by making the experience more pleasurable. Children, indeed, tend to be given a wide berth of acceptable behavior and are allowed to move about, play unimpeded, and socialize freely. Only on those occasions when their hustle disturbs either the rabbi's sermon or a designated sacred period, such as the silent *Shemonah Esrai*, will their behavior be controlled. In effect, children learn the adult guidelines of synagogue behavior where special sacred moments are interspersed with social interaction. They also come to view the synagogue as a social touchstone much as their parents do.

A coalition of factors have combined in recent years to bring about a seeming increase in the number of very young children who are brought to the synagogue on a regular basis. The widespread use of community *eiruvim*, for example, has allowed very young children who in the past were restricted from coming to shul because of distance, to be transported by carriage. With the emergence of egalitarian parenting arrangements, fathers are often expected to bring their children to synagogue on Shabbat morning in order to give their wives a respite from weeklong mothering responsibilities. The tendency for modern parents to manifest less control over their children's behavior, and the general decline of parental authority, has also been a factor in children running about unfettered throughout the synagogue during services. It has prompted one rabbinic authority to comment that: "One should be prudent in *not* bringing children to the

synagogue who cause disturbance."² He goes on to say that bringing young children to synagogue before they are able to maintain themselves is a misguided perception of *chinuch banim* and a grave misunderstanding of the halacha. He derides the current practice of bringing young children to synagogue and considers it a sinful act committed by parents." Young ones, particularly those who cry, disturb not only their parents but the entire congregation... the father becomes very distracted when he needs to attend to his children and is simply unable to pray with *kavanah*." His contentions are poignantly underscored in *Sefer Derech Chaim*, that contrary to Tosafot's understanding of the talmudic dictum that children brought to synagogue bring reward to their parents, "today children taken to synagogue bring punishment to those who bring them."³

In a similar vein, when Rav Samson Rafael Hirsch was chief rabbi of Moravia, he wanted to ensure that the atmosphere of each synagogue under his jurisdiction befit its status as a *mikdash me'at*, (a miniature sanctuary). Among the decrees that he issued to every congregation was the directive that children under the age of five not be brought to the synagogue so that adults would not be disturbed during *tefillah*.

It seems apparent then, that there is no mitzvah in bringing children to the synagogue if they are too young or insufficiently mature to either *daven* or be minimally self-contained. Having children view the synagogue as an informal social setting, or as an arena for fun and frolic may not only be the antithesis of *chinuch banim*, but the perpetuation of an halachically prohibited pattern of behavior into yet another generation.

2. Rabbi Avraham Wasserman, *Techumin*, [Halachic Anthology] 13, *Hotza'at yeled bocheh mibait haknesset*, Tsemet Press, Alon Shvut, Israel, 1992-1993 pp. 194, 1991.

3. Ibid.

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To the Editor:

I was intrigued by Dr. Irving Levitz' article, "Talking During Tefillah" [JHCS XXXIII, Pesach 5757, Spring 1977]. He was at pains to argue the inconsistent points that psychological drives lay behind the pervasive and historically common disregard of the halakhic prohibition of talking during *tefillah* and that we must find ways to quash this tendency in favor of the halachic standard.

I wonder, given his analysis, why he did not argue "*halacha v'ein morin ken*" or more powerfully, "*gezerah she-ein hatzibbur yechol la'amod bah*". If after "centuries of Rabbinic censure" Jews have still not gotten it, perhaps it is time, humbly, to accept "*ma d'ama d'var*".

Sincerely,

RABBI AVRAM ISRAEL REISNER

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Dr. Levitz responds:

Rabbi Reisner wonders why I did not argue "*halacha v'ein morein kein*" or "more powerfully *gezerah she'ain hatzibur yachol la'amod bah*". Since the laws of *sicha betailah* (idle talk in the synagogue) are halachic prohibitions that are so pervasively violated, and ones which people apparently cannot comply with, it might be prudent, he suggests, to invoke the principle of *halacha v'ein morin kein* and not teach or publicize them altogether. In a similar vein, he questions whether we might not argue "*gezerah she-ain hatzibur yachol laamod bah*" and consider revoking these prohibitions against talking in shul entirely. Evidently, if Rabbi Heisner's talmudic principles were applicable to the laws of talking during *tefillah*, it would obviate the need to ever change or even confront these non-halachic practices in our synagogues.

Neither of these principles are very relevant here, however. "*Halacha ve'en morin kein*" applies only to those matters that are, in fact, halachically *permissible*, but because of concern that the permissible act could lead to transgression, it is neither taught nor publicized. Thus, for example, even though one is halachically permitted to sharpen a knife on *yom tov*, the Gemara concludes *halacha ve'en morin kein*", (*Baitzah*, 28b). Similarly with regard to wearing *tefillin* at night, despite its halachic permissibility, we apply "*halacha ve'en morin kein*" lest someone fall asleep while wearing *tefillin*.⁴ The laws of talking in shul (*Sicha betailah bevait haknesset*) on the other hand, are *issurim* (halachically *prohibited*), similar to *chilul shabbat*, or *lashon hara*. Contrary to Rabbi Reisner's reasoning, therefore, it is imperative to both teach and publicize these *issurim*. The degree to which talking in shul is an ingrained *issur* seems irrelevant. If this were not the case, surely the *Chafetz Chaim* would not have conducted so vigorous a campaign for *shmirat halashon* in light of its pervasive and widespread practice.

Rabbi Reisner similarly suggests that the prohibition of *sicha betailah bevait haknesset* be considered a "*gezerah she'ein [rov] hatzibur yecholin la'amod bah*", i.e. a rabbinic edict which most people are unable to abide by. The major problem with this contention is that *sicha betailah* is not a *gezera* but rather a *din* in *kedushat beit heknesset*. Whereas a *gezera* is a rabbinic edict disallowing a permissible act so that one not come to violate a prohibited one (i.e. an *issur*), *sicha betailah*, on the other hand, is itself an *issur* (halachic prohibition). *Issurim* such as *loshon harah*, or *sicha betailah bevait heknesset* are neither additional stringencies (*chumrot*), regional customs, (*minhagim*), or *gezerot*. They are *dinim* (halachic laws) and are therefore not contingent on public compliance as are *gezerot*. So that even if it were true (and the contention is questionable) that most Jews are incapable of observing the laws of *kedushat beit haknesset* (synagogue sanctity), those laws could

4. *Menachot*, 36b; see also Rambam *Hilchot Tefillin*, 4:11

nevertheless not be treated as *gezera* and are not subject to rabbinic annulment.

Though Rabbi Reisner's assumptions may not be halachically viable, his question itself is instructive from a psychological perspective. It reflects both the widespread sense of demoralization that many rabbis and laymen alike experience around this issue, as well as a sense of hopelessness around the possibilities of change. To consider talking during *tefillah* as either a case of *halacha ve'en morin kein*, or *gezera she'en rov hatzibur yecholin la'amod bah*, though psychologically understandable, only serves to rationalize this *issur* and perpetuate it as a transgression of minor consequence in Jewish life. Though rationalization may be a sound psychological defense, it has no place in halachic thinking.

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To the Editor:

Rabbi David Cohen's article, "Taking Risks", in the Spring 1997 issue of the *Journal of Halacha & Contemporary Society*, is a detailed and lucid presentation of an important subject. However, I wish to correct Rabbi Cohen's misinterpretation of Rabbi Moshe Feinstein's Responsa on smoking. Rabbi Cohen asserts that Rabbi Feinstein wrote that "one is permitted to smoke." In neither of his two published Responsa (*Iggerot Moshe*, *Yoreh Deah*, Part 2 #49 and *Choshen Mishpat*, Part 2 #76) does Rabbi Feinstein make such a statement. He clearly advises against smoking and encourages young people not to begin smoking.

In spite of the recognized dangers of smoking, Rabbi Feinstein rules that, for technical reasons, smoking is not halachically prohibited. That is not the same as saying that it is permitted. I discussed this issue with him repeatedly for over two decades. He was deeply chagrined to hear of the hundreds of thousands of deaths due to smoking but reiterated to me

that, although smoking is a pernicious habit which should be strongly discouraged and prevented, there is no formal legal prohibition in halacha. In spite of the considerations of "the Lord preserves the simple" (Psalms 116:6) and "many have trodden in that path" (*doshu bo rabim*), the fact is that lung cancer has claimed the lives of many Orthodox Jews including prominent Roshei Yeshiva (F. Rosner, *Modern Medicine and Jewish Ethics*, 2nd edition, 1991, Hoboken, N.J. and New York, N.Y., Ktav and Yeshiva University Press, pp. 391-403).

More and more rabbis are issuing halachic rulings prohibiting smoking (*Responsa Beer Moshe*, Part 6 #160:9; *Responsa Tzitz Eliezer*, Part 15 #39 and Part 17 #21-22; *Aseh Lecha Rav*, Part 1 #42; Part 2 #1, Part 3 #18, Part 7 #67 and Part 9 #28; *Responsa Mishberei Yam* #97; *Responsa Yechaveh Daat*, Vol. 5 #39; R. Ezra Batzri's *Dinei Mamanot*, Part 4, Pirke Mussar 2; and others). A recent review of the halachic implications of smoking by Rabbi Menachem Slae lists 36 positive and negative commandments which one violates by smoking (M. Slae, *Smoking and Damage to Health in the Halachah*, 1990, Jerusalem, Acharai Publications, 90 pp). More detailed rabbinic opinions concerning smoking are discussed by Rabbi Dr. Abraham Steinberg in his *Encyclopedia of Jewish Medical Ethics* (A. Steinberg, "Eeshun", in *Encyclopedia Hilchatit Refuit*, Vol. 5, 1996, Jerusalem, Falk Shlesinger Institute, pp. 301-332). The dangers of smoking are now being admitted even by the tobacco companies that for decades have denied the addictive properties of nicotine and the direct causal relationship between cigarette smoking and lung cancer. Perhaps under such circumstances, if Rabbi Feinstein were alive, he might issue a prohibitive ruling against smoking. In fact, Rabbi Dr. Mordechai Halperin wrote that "today, when it has been indisputably proven that smoking always causes some physical damage, and the only question is how much, Rabbi Feinstein would probably rule differently, particularly in the light of the shocking number of deaths directly attributable to smoking" (M. Halperin, "Ha' eeshun-Sekirah

Hilchatit," in *Sefer Assia*, Vol. 5, 1986, Jerusalem, Falk Shlesinger Institute, pp. 238-247).

FRED ROSNER, M.D.

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Rabbi Cohen responds:

With all due respect to Dr. Rosner, I do not think that I have misinterpreted the responsa of R. Moshe Feinstein. Dr. Rosner seems to want to create a distinction where none exists. When a *posek* rules that a certain activity "is not prohibited by halacha", that is one and the same as saying that it is permitted. Anything not prohibited by Jewish law, morality, or custom is ipso facto permitted. At the same time, I did note (pp. 64-65) that Rav Feinstein recommended that people should try not to start or continue smoking. This is in line with Dr. Rosner's personal recollections.

Dr. Rosner raises a second point, listing other *poskim* who disagree with Rav Feinstein's position and who do not permit smoking. I also noted this opposition, citing the opinion of *Tzitz Eliezer* (p. 65). I believe this presented a balanced approach, which explained both of the major opinions. It was not my intention to study intensively the question of smoking but rather to analyze the issue in the context of taking risks within the parameters of Jewish law. I thank Dr. Rosner for his additional citations and for his interest in my article.

RABBI DOVID COHEN

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Dear Editor,

In volume 33 of this journal, Rabbi Moshe Bleich presents a comprehensive review of the various views on magic shows. I wish to add several comments to his excellent article.

In my opinion Rambam's view that all forms of illusions

are biblically prohibited follows from his view that "real" witchcraft does not exist. Hence, it follows that the prohibition of witchcraft in the Torah can only refer to illusions. However, since most authorities disagree with Rambam and state that witchcraft does exist, there is no reason to accept Rambam's decision in this matter.

A more basic difficulty that I have with all the authorities is the definition of magic, or illusion. Rav Moshe Feinstein already hints at this problem by quoting the stories of Naphtali and Samson. Expanding this into modern magic, one has a sequence of parlor tricks that vary from natural events to pure sleight of hand to everything in between. Some concrete examples: Breaking huge amounts of blocks with a karate chop; escaping from handcuffs, boxes, etc. by various contortions; bending of spoons (Uri Geller claims he has natural powers to do this). One might have the curious conclusion that an illusion is prohibited but a trick due to special powers (e.g. Samson) is permitted!

Would all forms of extrasensory perception be outlawed under the laws of magic? Tricks that rely on magnetic fields, are these illusions or natural? Performing unusual arithmetic operations? Performing tricks that rely on a photographic memory? Perhaps even juggling should be considered as magic?

As Rav Feinstein suggests, it is difficult to distinguish between sleight of hand and other natural acts. After all, sleight of hand itself is a fully natural phenomenon. Why is a fast hand prohibited but a hard hand that can break bricks permitted? Given that many present day magicians label their tricks as illusions and entertainment, there is certainly no deception and no connection with witchcraft.

I fully agree with Rav Bleich that relatively few *Poskim* take this viewpoint. On the other hand almost no one discusses the details of which tricks are permitted as being natural and which

are prohibited. Once one tries to distinguish one finds it is extremely difficult to make such a distinction.

RABBI ELI TURKEL

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Rabbi Bleich responds:

My thanks to Rabbi Turkel for his response to my article and for providing me the opportunity to clarify the two points he raises.

Although the argument that Rambam's position that illusory acts are prohibited is an outgrowth of his view that "real" witchcraft does not exist is intriguing, it is not borne out by parallel sources. *Sefer haChinnuch*, no. 250, maintains that the prohibition of *me'onein* applies to illusory acts, but *Sefer haChinnuch*, no. 250 and no. 62, also maintains that real witchcraft exists and is included in the prohibition of *mechashef*, (see also page 24 of my article). Moreover, since Rambam's position has been accepted by *Bach*, *Shach*, *Chochmat Adam*, *Pitchei Teshuvah*, *Kitzur Shulchan Aruch* and *Darkei Teshuvah* (as noted in my article, pp. 27-28), it cannot be dismissed on the grounds that it is an individual view not accepted by other authorities.

With regard to the second point, it seems to me that the distinction between illusion and extraordinary strength or skill is quite evident. Any action that requires no explanation, e.g., breaking items with a karate chop or a juggling act is, by definition, not illusory. Such phenomena may be extraordinary but they are clearly natural. Parlor tricks such as secreting a piece of string in one's garment and removing a snake, unless explained to the bystander as sleight of hand, are perceived as acts of magic. Accordingly, even when explained, they are prohibited under the rubric of "*lo te'oneinu*."

RABBI MOSHE BLEICH