

# GENETICALLY ENGINEERING PEOPLE: A JEWISH LAW ANALYSIS OF PERSONHOOD

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## PREFACE

The relationship between modern technology, biomedical ethics, and Jewish law (*halakha*)<sup>1</sup> has been well developed over the last fifty years. As

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<sup>†</sup> Professor Broyde very graciously and with little notice provided this extremely informative paper to complement our other submissions for this Symposium issue. The St. Thomas Law Review remains in Professor Broyde's debt.

1. Jewish law, or *halakha*, is used herein to denote the entire subject matter of the Jewish legal system, including public, private, and ritual law. A brief historical review will familiarize the new reader of Jewish law with its history and development. The Pentateuch (the five books of Moses, the *Torah*) is the historical touchstone document of Jewish law and, according to Jewish legal theory, was revealed to Moses at Mount Sinai. The Prophets and Writings, the other two parts of the Hebrew Bible, were written over the next 700 years, and the Jewish canon was closed around the year 200 before the common era ("B.C.E."). From the close of the canon until 250 of the common era ("C.E.") is referred to as the era of the *Tannaim*, the redactors of Jewish law, whose period closed with the editing of the *Mishnah* by Rabbi Judah the Patriarch. The next five centuries was the epoch in which the two Talmuds (Babylonian and Jerusalem) were written and edited by scholars called *Amoraim* ("those who recount" Jewish law) and *Savoraim* ("those who ponder" Jewish law). The Babylonian Talmud is of greater legal significance than the Jerusalem Talmud and is a more complete work.

The post-Talmudic era is conventionally divided into three periods: (1) the era of the *Geonim*, scholars who lived in Babylonia until the mid-eleventh century; (2) the era of the *Rishonim* (the early authorities), who lived in North Africa, Spain, Franco-Germany, and Egypt until the end of the fourteenth century; and (3) the period of the *Aharonim* (the latter authorities), which encompasses all scholars of Jewish law from the fifteenth century up to this era. From the period of the mid-fourteenth century until the early seventeenth century, Jewish law underwent a period of codification, which led to the acceptance of the law code format of Rabbi Joseph Karo, called the *Shulhan Arukh*, as the basis for modern Jewish law. The *Shulhan Arukh* (and the *Arba'ah Turim* of Rabbi Jacob ben Asher, which preceded it) divided Jewish law into four separate areas: *Orah Hayyim* is devoted to daily, Sabbath, and holiday laws; *Even Ha-Ezer* addresses family law, including financial aspects; *Hoshen Mishpat* codifies financial law; and *Yoreh Deah* contains dietary laws as well as other miscellaneous legal matter. Many significant scholars - themselves 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 categorically prohibited nor categorically permissible. In the eyes of Jewish law they are rather subject to a case-by-case, methodology – by – methodology analysis, of both the consequences of the new technology and the methodology employed. Additionally, both the methodology and the consequences need to be permissible for a new technology to be proper in the eyes of Jewish law. Indeed, every legal, religious, or ethical system has to insist that advances in technologies be evaluated against the touchstones of its moral systems. In the Jewish tradition, that touchstone is the corpus of Jewish law and ethics; as others have noted, this Jewish tradition has had a significant impact on the intellectual development of a number of areas of American law, bioethics, included.<sup>2</sup>

This article is an attempt to create a preliminary and tentative analysis of the technology of genetic engineering from a Jewish law perspective, focusing on three central issues:

- (1) When should humans seek to change the natural state of genetic affairs?
- (2) What are the central characteristics of humanness, so that when genetic engineering takes place, we know whether the products are entitled to rights as humans or not?
- (3) When should genetic information be used by society to treat people, allocate resources or set insurance rates?

Like all preliminary analysis, this paper is designed not to advance a rule that represents itself as definitive normative Jewish law; rather it is an attempt to outline some of the issues in the hope that others will focus on the problems and analysis found in this paper and will sharpen or correct that analysis. Such is the way that Jewish law seeks truth.

In the case of genetic engineering, as with all advances in technology

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important as Rabbi Karo in status and authority—wrote annotations to his code which made the work and its surrounding comments the modern touchstone of Jewish law. The most recent complete edition of the *Shulhan Arukh* (Vilna, 1896) contains no less than 113 separate commentaries on the text of Rabbi Karo. In addition, hundreds of other volumes of commentary have been published as self-standing works, a process that continues to this very day. Besides the law codes and commentaries, for the last 1200 years, Jewish law authorities have addressed specific questions of Jewish law in written responsa (in question and answer form). Collections of such responsa have been published, providing guidance not only to later authorities and to the community at large. Finally, since the establishment of the State of Israel in 1948, the rabbinical courts of Israel have published their written opinions deciding cases on a variety of matters.

2. See Suzanne Stone, *In Pursuit of the Counter-text: The Turn to the Jewish Legal Model in Contemporary American Legal Theory*, 106 HARV. L. REV. 813 (1993).

that can effect and affect reproduction, the Jewish tradition is betwixt and between two ideas and ideals. On one side is the general Jewish obligation to help those who are in need, particularly compounded by the specific obligation to reproduce, thus inclining one to permit advances in (reproductive) technologies that allow those unable to reproduce, to, in fact, reproduce. On the other side is the general inherent moral conservatism associated with the Jewish tradition's insistence that there is an objective morality, and that not everything that humanity wants or can do is proper. This specifically manifests in the areas of sexuality where the Jewish tradition recognizes a number of doctrines which restrict sexual activity.<sup>3</sup> In addition, the Jewish tradition advises one to pause before one permits that which can lead down a variety of slippery slopes whose consequences one does not fully understand, and whose results we cannot predict. It is the balance between these various needs that drives the Jewish law discussion of all assisted reproductive technology—genetic engineering being only the most recent issue.<sup>4</sup>

The central theme and thrust of this article is that Jewish law is comfortable with humans as caretakers of nature, even if that entails "correcting" natural genetic flaws, and that the Jewish tradition has a bi-directional definition of humanness, with one being human either by being from a human mother or by being capable of human thought, and that within those parameters genetic engineering is to be treated like any other form of medical treatment, which is proper when used to benefit humanity.

#### A. THE ROLE OF HUMANS IN CHANGING NATURE

Rabbi Judah Luria (*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

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3. For more on this, see MOSES MAIMONIDES, LAWS OF PROHIBITED SEXUAL RELATIONS Chapters 1 and 2 (1981).

4. For example, see Michael Broyde, *Cloning People: A Jewish View*, 30 CONNECTICUT LAW REVIEW 503-535 (1998).

through nature, it is as if it entered the world to be created. . . .<sup>5</sup>

Rabbi Luria'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<sup>6</sup> is understood in the Jewish tradition as permitting people to modify, conquer, dominate and control nature to make it more amenable to its inhabitants, people. Genetic engineering is but one example of that conquest, which when used to advance humanity is without theological problem in the Jewish tradition.

Rabbi Luria continues, noting that even when Jewish law prohibits a certain activity (such as inter-species crossbreeding, an explicit biblical violation, and the oldest form of genetic engineering) one should not assume that such conduct is immoral or unethical, but merely something Jewish law prohibited to Jews.

There are those who are aghast of the interbreeding of two species. Certainly, this is contrary to Torah which God gave the Jews, which prohibits inter-species mixing. Nonetheless, Adam (the First Person) did this. Indeed, the world was created with many species that are prohibited to be eaten. Inter-species breeding was not prohibited because of prohibited sexuality or immorality . . . Rather it is because [Jews] should not combine the various species together, as this is the way of Torah. As we already noted, the ways of the Torah, and the [permissible] ways of the world are distinct . . . Just like the donkey has within it to be created [but was not created by God] . . . but was left to people to create it. Even those forms of creativity which Jewish law prohibits for Jews, is not definitionally bad. Some are simply prohibited to Jews.<sup>7</sup>

What flows most clearly from this is that there is nothing intrinsically wrong with cross breeding, even if it violates Jewish law. Indeed, Rabbi Loewe nearly states that such conduct by general society is good - after all, we all use donkeys, and eat nectarines.<sup>8</sup>

What then about the possibility of humans playing God? As the late Lord Immanuel Jakobovits stated, speaking for the Jewish tradition:

We can dismiss the common argument of "playing God" or "interfer-

5. Judah Luria of Prague (*Maharal Me-Prague*), BU'IR HAGOLAH 38-39 (Jerusalem 5731).

6. GENESIS 1:26.

7. See Luria, note 5, at 38-39.

8. And Jewish law permits this enjoyment. Such conduct was prohibited by Jewish law because it was not part of the Divine mission for the Jewish people. Jewish law is not a general ethical category governing the conduct of all, but its scope and application is limited to Jews, not merely jurisdictionally, but even theologically. This point of view would seem apparent from the general attitude that the Jewish tradition takes to a number of proselytizing issues. For more on this, see Michael Broyde, *Proselytizing and Jewish Law*, in SHARING THE BOOK: RELIGIOUS PERSPECTIVES ON THE RIGHTS AND WRONGS OF PROSELYTISM 45-60 (John Witte, Jr. & Richard C. Martin, eds. 1999).

ing with divine providence." 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."<sup>9</sup> The Talmud states: "From here we see that the physician is given permission to heal."<sup>10</sup>

This articulation of the Jewish view is deeply rooted in Jewish law and ethics. The world was not created a perfect place - people are responsible for their own conduct and condition and need not be accepting of the conditions of nature around them - indeed, people are charged with improving on the handiwork of the Creator. The classical code of Jewish law states simply:

Jewish law gives the doctor the license to heal, and it is a good deed, and within the category of life saving activity. One who withholds medical treatment is a spiller of blood [a murderer].<sup>11</sup>

In the Jewish tradition, people were put on this earth to "improve the world in the image of the divine,"<sup>12</sup> and not to accept the perilous condition of the world, whatever it might be. Tampering with nature is part of the human mission in the Jewish tradition - curing illness is one facet of that mission. Genetic engineering - the making of better people - is no less a fulfillment of this religious mandate than is the healing of the sick.

## B. GENETIC ENGINEERING: PERMITTED OR PROHIBITED?

The previous section's analysis was limited and abstract. How to respond to specific attempts at genetic engineering concretely is more complex and requires a certain amount of categorization and analysis. Enhancement of the human gene pool has not less than three different permutations, each with its own set of issues and complexities. These are:

(1) Gene enhancement can take place in the somatic (non-reproductive) cells of people (or fetuses). This form of therapy would introduce genetic material into a person with the goal of changing this person's cell line to provide some missing chemical or enzyme, needed by this person.<sup>13</sup>

9. Exodus 21:19.

10. *Will Cloning Beget Disaster?*, THE WALL STREET JOURNAL, Friday, May 2, 1997, at A 14.

11. See Shulchan Aruch, Yoreh Deah 336:1.

12. This exact phrase *letaken olam bemalchut shadai* is taken from the daily alenu prayer, which is recited thrice daily in the traditional prayer liturgy.

13. See Leroy Walters and Julie Gage Palmer, THE ETHICS OF HUMAN GENE THERAPY (1997); see also PRESIDENT'S COMMISSION FOR THE STUDY OF ETHICAL PROBLEMS IN MEDICINE AND BIOMEDICAL AND BEHAVIORAL RESEARCH: SPLICING LIFE 25-30 (1982).

(2) Gene enhancement can take place in the germ (reproductive) cells of people (or fetuses). This form of therapy would introduce genetic material into a person with the goal of changing the reproductive cells of the person, such that their progeny have characteristics that they lack, or lack characteristics that they have.<sup>14</sup>

(3) Gene enhancement can take place through genetic testing for specific genes with the results from the testing being used to prevent reproduction by the bearers of specific (bad) genes. This can be done through selective abortion, voluntary or mandatory restrictions on who one may marry, and even forced sterilizations.<sup>15</sup>

Somatic cell enhancement seems to be the easiest to address from a Jewish point of view. These genetic enhancements, grounded in health care tools derived from genetic engineering, would appear to be a form of medical therapy aimed at treating the sickly, and this is a proper activity in the eyes of the Jewish tradition.<sup>16</sup> Treating a type I diabetic by daily injection of insulin or by injection monthly of insulin producing cells, or by a once in-a-lifetime treatment of gene therapy with insulin producing genes seems to be, from a Jewish ethical perspective, identical. Medical treatment, once it is a proven form of medical therapy that effectively treats an illness, is mandatory in the Jewish tradition.<sup>17</sup> Until the point where such treatment is well accepted medically, such treatments (so long as they are designed to be medically palliative for each particular patient) are permitted to be used according to Jewish law or ethics, although they are not mandatory.<sup>18</sup> While undoubtedly some will ob-

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14. *Id.*

15. *Id.* See also Wilder J. Leavitt, Note, *Regulating Human Gene Therapy: Legislative Overreaction to Human Subject Protection Failures*, 53 ADMIN. L. REV. 315, 320-321 (2001).

16. See J. David Bleich, *The Obligation to Heal in the Judaic Tradition*, in JEWISH BIOETHICS (J. David Bleich & Fred Rosner eds., Hebrew Publishing Company 1979).

17. See for example Shulchan Aruch, Orach Chaim 328 and comments of Magen Avraham 328:6. The observation of Rabbi Yakov Emdem, *Mor Uketzia* 328 is worth noting:

A person is obligated to be treated . . . only when the doctor is using a well established medically effective cure which has been proven reliable. When it has, a person in danger may be treated against his will.

*Id.*

18. The exact line when one can claim that a specific medical treatment is mandatory is a matter in dispute and the same is true with regard to how risky a medical treatment has to be before it is prohibited. Consider the case of a dying person who has a course of treatment which can restore long term health, unless the treatment kills the patient more quickly, which is the more likely result. May the patient use the treatment? Must the patient use the treatment? Is the treatment prohibited? Rabbi Hayim Ozer Grodzinsky in *Acheizer Yoreh Deah* 16 rules that a patient may (but need not) undertake such a treatment. Rabbi Moses Feinstein in *Iggrot Moshe Yoreh Deah* 3:36 quotes *Mishnat Chachammim* as prohibiting such treatment. Indeed, Rabbi Feinstein's view is itself unclear as in *Iggrot Moshe, Yoreh Deah* 2:58 he formulates a rule different than the one he formulates in *Iggrot Moshe, Yoreh Deah* 3:36.

ject to gene therapy by pointing to the unknown or the possibility of abuse, these objections are no more persuasive in this form of medical treatment than in any other - that is not to say that significant abuse is impossible, but absent clear definitive evidence of harm, improving the human lot by providing effective medical care is part of the human mission, and should be engaged in.<sup>19</sup> One should not stop medical treatments and scientific advances merely because of the unknown, uncertain and not quantifiable possibility of abuse.

So too, the use of genetic engineering to develop genetic tests is not inherently problematic in Jewish law. That, of course, begs the question of what will the tests be used for, and that remains the crucial question that can only be answered with a great deal of uncertainty. As others have noted, amniocentesis is a genetic test which independent of the value of the test itself, must be evaluated in the context of the possibility of abortion. Presumably, the correctness of a fetal genetic test very much depends on what one does with the data after the test is done. Genetic tests designed to induce abortion when the 'wrong' genotype is found as a result of the test, would presumably violate Jewish law unless one is in one of the few situations where abortion was permitted.<sup>20</sup> On the other hand, the exact same test - when its results are used for treatment or therapy of the fetus or child, or merely to address pastoral concerns of the parents - is without any intrinsic Jewish law controversy.<sup>21</sup>

Indeed, many have argued that the moral problems with genetic engineering have nothing to do with the technical issues relating to it; rather, it is the fear that the individuals produced through genetic engineering will:

give rise to two related problems. The first is the problem of social inequality. Enhanced individuals will achieve social success more easily than those who remain un-enhanced. For example, studies show that people who are tall and physically attractive are more likely to be hired and promoted than people who are short or unattractive. Although Western democratic societies can accommodate a certain degree of inequality, the difference in prospects between the enhanced and the un-enhanced could become so pronounced that serious social instability would ensue. Taken to the extreme, enhancements could be installed by manipulating germ lines, resulting in social advantages

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19. Consider for example human growth hormone. While undoubtedly there will be abuses of such a substance, few would claim that we ought not ever allow such a substance to be developed and used to address the consequences of children lacking in enough growth hormone. This example is particularly important, as one is hardpressed to call being short a "health hazard" yet, human growth hormone is a drug that is given to children to assist them in becoming more "normal" and thus permitted according to Jewish law.

20. See sources cited in note 77 and see, J David Bleich, *Abortion in Halakhic Literature*, in *CONTEMPORARY HALAKHIC PROBLEMS* 325, 325-72 (1977).

21. For more on this, see *infra*, text accompanying note 68 to 78.

that are inherited by succeeding generations. This could eventually create a political system dominated by a genetic aristocracy, or "genobility," that possesses a lock on wealth, privilege, and power.

The second problem created by wealth-based access to genetic enhancement is the individual unfairness that would arise at the micro level if genetically enhanced individuals competed for scarce resources, or found themselves in conflicts of interest, with persons who were un-enhanced. Genetic enhancement could confer a decisive advantage in social interactions.<sup>22</sup>

In essence, this argument posits that the advances genetic engineering will provide will lead to a number of gross violations of normative [Jewish] laws and ethics.

The correctness or incorrectness of this assertion of prospective ethical violation of the societies' rights as humans is difficult to evaluate in the Jewish tradition, but in the end, simply cannot be accepted as grounds for halting all scientific progress and advancement. Many medical advantages initially accrue to the benefit of the wealthy or privileged and allow certain advantages to go to those who have better access to health care. While one can express some social sadness of the inequitably of the division of resources, and even seek increased social justice to insure the proper division of the right to medical care, solving this problem by preventing the development of genetic engineering and related tests or procedures (as some explicitly advocate<sup>23</sup>) seems to deny the fundamental Jewish obligation to cure people of illness, something which genetic engineering can (we hope) do. Retrospectively insisting that the development of insulin to treat diabetics was unethical because the initial beneficiaries of the development for insulin were the wealthy, who could pay for insulin,<sup>24</sup> seems unethical - we instead hope that treatments that were once expensive become available to all, and that is a better alternative

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22. Maxwell J. Mehlman, *The Law of Above Averages: Leveling the New Genetic Enhancement Playing Field* 85 IOWA L. REV. 517 (2000).

23. See George J. Annas, *The Man on the Moon, Immortality, and other Millennial Myths: The Prospects and Perils of Human Genetic Engineering*, 49 EMORY L.J. 753 (2000) who states:

On the national level, I (and others) called for moratorium on human gene transfer experiments, what are more commonly (and incorrectly) referred to as "gene therapy" in early 2000. Many experiments were halted, but others continued, as does the debate about whether we know enough at this time to use them on humans. Formal moratorium or not, we must have a national (and international) debate on the goals of the research, and whether the lines between somatic cell and germline research, or between treatment and enhancement research are meaningful. My own view is that the boundary line that really matters is set by the nature of the species itself, and that species-altering experiments should be outlawed.

24. See SEALE HARRIS, *BANTING'S MIRACLE: THE STORY OF THE DISCOVERY OF INSULIN* (1946).

than halting medical advancement and preventing cure.<sup>25</sup>

Yet others fear that society will mislabel such genetic engineered individuals 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 utilized 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, genetic engineering should not be engaged in until such time as the appropriate educational activity can be embarked on to teach people that genetic engineering is a form of medical treatment and products of genetic engineering are human beings entitled to be treated with full and complete human dignity.<sup>26</sup> However, this type of prophylactic rule which argues that permitted activity should be prohibited in light of the ethical failures of the times is not the same as asserting as a normative rule of Jewish law that such conduct is prohibited. Rather, it is a temporary measure to prohibit that which is intrinsically permissible.<sup>27</sup>

The same is true about arguments against genetic engineering grounded in efficiency. Some have argued that Jewish law should prohibit genetic engineering because so much human reproductive material has to be expended to produce a single successful genetic engineering cure.<sup>28</sup> Whatever the mer-

25. For a fine volume on this topic, see *THE ORTHODOX FORUM PROCEEDINGS VI: JEWISH RESPONSIBILITIES TO SOCIETY*, (D. Shatz & C. Waxman eds., 1997).

26. It has been reported to this writer that such is the position of Meir Lau, the current chief rabbi of Israel, although I have been unable to verify these reports. News reports state that "Israeli Chief Rabbi Meir Lau said . . . The 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, at 3 - News in Brief.

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

Ann Rodgers-Melnick, *Cloning A Difficult Issue For Churches*, PITTSBURGH POST GAZETTE, March 1, 1997, at A1.

28. Robert Langreth, *Cloning Has Fascinating, Disturbing Potential*, THE WALL STREET JOURNAL, February 24, 1997 states that:

its of this argument, it is likely that the march of scientific progress will vastly reduce the inefficacy of this process.

It could be argued that genetic engineering should be prohibited based on the various talmudic dicta that seem to praise the importance of genetic diversity.<sup>29</sup> This, however, seems to paint with too broad a brush. Eliminating the Tay Sachs gene or the sickle cell anemia gene reduces genetic diversity in a positive way, in that it is part of the divine license to heal people - indeed, genetic cures can be more permanent and thus a more effective cure. It is clear that the Jewish tradition views the natural process of genetic diversity as some sort of ideal, for a variety of reasons including that it allows for expressed genetic diversity - and thus intense genetic engineering, for a variety of reasons, falls far short of the ideal and should not be used absent illness or significant need. However, to claim that a single case or single category of genetic engineering as an alternative to children being born with significant health problems should be prohibited based on this analysis is no more persuasive than to claim that Jewish law should forbid artificial insemination or in vitro fertilization since it is less than ideal. The correct response should be that these less than ideal methods should only be used in circumstances where the ideal method does not or cannot work. The talmudic dictum about genetic diversity stand for the proposition that wholesale genetic engineering should be discouraged, and nothing more.

More generally, Jewish law denies the authority of the post talmudic rabbis to make prophylactic decrees permanently prohibiting that which is permissible on these types of grounds.<sup>30</sup> This is even more so true when such a decree would permanently prohibit an activity which is, in some circumstances, the only way a person can fulfil the obligation to cure themselves of a life threatening illness and could in a variety of circumstances have overtly positive results.

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

— Researchers took mammary-gland cells culled from an adult sheep, put them into a test tube and forced the cells into an inactive state by limiting their intake of nutrients.

— Next, they took unfertilized eggs from female sheep and mechanically removed the DNA-containing nucleus from each egg.

— They then used standard lab techniques to insert 277 of the adult DNA cells into 277 eggs.

— Of these fused egg cells, only 29 survived for a few days and were surgically implanted into the wombs of 13 ewes.

— One of the 13 sheep became pregnant and gave birth to a lamb that was an exact genetic replica of the adult donor, carrying none of the mother's genes.

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

29. See SANHEDRIN 38a and BERACHOT 58a. Luria also indicates that genetic diversity is part of the divine plan; see his *DERECH CHAIM* 4 at page 204.

30. MENACHEM ELON, *JEWISH LAW: HISTORY, SOURCES PRINCIPLES*, 1103-1204 (1996).

So too, the Jewish tradition would not look askance on the use of genetic engineering to produce individuals because these reproduced individuals can be of specific assistance to others in need of help. Consider the case of an individual dying of leukemia in need of a bone marrow transplant who agrees to participate in a cloning experiment with the hopes of producing another like him or her who, in suitable time, can be used to donate bone marrow and save the life of a person (and even more so, the donor himself as well as possibly the clone). The simple fact is that Jewish law and tradition view the donation of bone marrow as a morally commendable activity, and perhaps even morally obligatory such that one could compel it even from a child.<sup>31</sup> Jewish law and ethics see nothing wrong with having children for a multiplicity of motives other than one's desire to "be fruitful and multiply." Indeed, the Jewish tradition recognizes that people have children to help take care of them in their old age, and accepts that as a valid motive.<sup>32</sup> It recognizes a variety of motives for people to have children; there is no reason to assert that one who has a child because this child will save the life of another is doing anything other than two good deeds, having a child and saving the life of another.<sup>33</sup> The same thing is true for a couple who conceive a child with the hopes that the child will be a bone marrow match for their daughter who is dying of leukemia, and is in need of bone marrow from a relative. While the popular press condemns this conduct as improper, the Jewish tradition would be quite resolute in labeling this activity as completely morally appropriate. Having a child is a wonderful blessed activity; having a child to save the life of another child is an even more blessed activity. Such conduct should be encouraged rather than discouraged. Motives for genetic engineering ought not to be seen as so important.

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31. See J. David Bleich, *Compelling Tissue Donations*, 27 TRADITION 4, 59-89 (1993). The rationale for this being 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 compulsory activity in the same way one must jump into the water to save one who is drowning, if one knows how to swim and such activity poses no danger.

32. See Yevamot 64a; Shulhan Aruch, Even Haezer 154:6-7 and Yechil Michel Epstein, Aruch HaShulhan, Even Haezer 154:52-53.

33. The birth of the child itself is a fulfillment of the mitzvah to be fruitful and multiply, and the donation by the child of bone marrow or blood or other replenishable body serums that can save the life of another, particularly of a parent or older sibling, is a second and maybe third good deed.

## C. HUMANNES AS A JEWISH LAW DOCTRINE.

One continuously discussed issue in genetic engineering is the question of introducing non-human genes into humans or introducing human genes into animals. Is a pig that produces human insulin, human? Is a human that has animal genes inserted for medical reasons, still human? People will be present in society with expressed animal genes and animals with expressed human characteristics. Genetic engineering compels the discussion of what makes a person human?<sup>34</sup>

Jewish law treats being human as a special and unique status; while animals have the right not to have pain unnecessarily inflicted on them,<sup>35</sup> people (without regard to religion one belongs to) have much greater rights than animals. They have the right not to be killed for any reason, they have the right to access to a justice system, they can own property, marry and so on.<sup>36</sup> Humanness is an extensive and important category. Not being a member of the human race would pose significant problems to a "persons" full and regular participation in society, as basic rights are granted only to human beings, and not to animals, plants or the earth itself - in the Jewish tradition, rights and morality are anthro-centric, and humans are the moral focus of the creation process. Indeed, the Talmud notes:

Initially, the world was created with but one human in it, in order to teach that any person who kills even a single person, it is as if they have killed the whole world and whomever saves a single person, it is as if they have saved the whole world.<sup>37</sup>

The crucial question thus becomes "what makes one human?"

The most basic definition of "Who is human?" is found in the modern classical work, *Encyclopedia Talmudit*, which states:

A person who is born from another person - in the womb of a woman - is prohibited to be killed.<sup>38</sup>

A person who is born from a human being is a person and when such a person is born, whether they be mentally retarded, profoundly handicapped, or other-wise outside the parameters of 'normal' humans, there is no doubt at all

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34. This discussion is an expansion of that which is found in my article *Cloning People: A Jewish View*, 30 *CONNECTICUT LAW REVIEW*, 503-535 (1998).

35. Shulchan Aruch, Choshen Mishpat 272:9 and Even Haezer 5:14.

36. For a discussion of basic human rights in the Jewish tradition see *HUMAN RIGHTS IN JUDAISM: CULTURAL, RELIGIOUS, AND POLITICAL PERSPECTIVES* (Michael Broyde & John Witte, eds., 1997).

37. Babylonian Talmud Sanhedrin 37a.

38. *ENCYCLOPEDIA TALMUDIT*, *Adam* 1:165.

that they are human according to Jewish law. Nearly all of Jewish law's principles are suspended in the face of a threat to life,<sup>39</sup> and it does not matter whether the person in question is an adult or a child, mentally competent or profoundly retarded, insane or sane, the fact that they are of human descent validates their status as human, and compels one to violate Jewish law to preserve their life.<sup>40</sup> Membership in humanity is not measured by ability (intellectual or physical)<sup>41</sup> but by lineage and by human descent in Jewish law.

That, however, is not the sole definition of human. The Jewish tradition contains within it considerable discussion of the legends about *golems*, artificial anthropoids created by mystical means according to the Jewish tradition. These stories tell of figures made from dirt brought to life by reciting one of the names of the Divine or by placing a piece of parchment with God's name (or the word *emet* ["truth"]) on the forehead. The Talmud recounts:

Rabbi created a man and sent him to Rabbi Zera, the rabbi spoke to him, but he did not answer; Rabbi Zera exclaimed "you are artificial: return to dust". . . . Rabbi Hanina and Rabbi 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.<sup>42</sup>

So, too, 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.<sup>43</sup> As 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."<sup>44</sup>

The Jewish responsa literature contains a clear discussion of whether an artificially created person (a *golem*) is human or not, whether it may be killed, whether it counts in a religious quorum, whether it can be ritually slaughtered

39. Other than sexual violations, murder and idol worship, all of Jewish law is suspended in the face of threat to life; See Shulchan Aruch, Yoreh Deah 157.

40. See Mishnah Berurah, *Biur Halacha* 329 s.v. *ela lefi sha* who notes that this is true whether the person is going to live even only for a few minutes, as it is the intrinsic sacredness of life that drives this result. Similar such results can be found throughout Jewish legal history, from era to era; see e.g. Rabbi Judah the Pious, *Sefer haChasidim* 186 (13th century); Eliezer Fleckeles, *Teshuvah Me'Ahava* 1:53 (19th century), Eliezer Waldenberg, *Tzitz Eliezer* 13:88 (21st century).

41. As noted in *Biur Halacha*, supra note 40, there a number of different rationales for why one may violate the Sabbath to save a life, some of which, if applied would limit saving of people to cases where people will live to the next Sabbath, or otherwise do *mitvat* (good deeds)—however, the vast overwhelming preponderance of sources flatly reject any of these rationales and structurally limit the rationales for saving lives to the intrinsic sanctity of human life.

42. SANHEDRIN 65b.

43. For more on *golems* in the Jewish tradition see MOSHE IDEL, *GOLEM: JEWISH MAGICAL AND MYSTICAL TRADITIONS ON THE ARTIFICIAL ANTHROPOID* 213-32 (1990).

44. Chaim Steinmetz, *Creating New Species*, (1996) (Unpublished manuscript on file with author.) My thanks to Rabbi Steinmetz for sharing his article with me.

and so on. The *Encyclopedia Talmudit* states: "A being which is created through a mystical process or through a mixing of divine letters is not prohibited to be killed."<sup>45</sup>

The crucial question is why may these creatures be killed? Many different answers are provided to this question. One small group adopts the view that artificially created people cannot be human, simply because the exclusive definition of humanness is "from a human mother."<sup>46</sup> As noted by Rabbi Gershon Leiner, carried to its logical extreme this analysis produces certain startling results, one of which is that Adam (of the Genesis story) was not really human.<sup>47</sup> Indeed, most Jewish law authorities reject this view and this result is far from normative - rather, there is a diverse literature on which particular aspects of the artificial arthropod make it non-human.

Most Jewish law authorities do not focus on whether the origins of these artificially created "people" (*golems*) are non-human, or are divinely created (and thus not human), but rather adopt alternative explanations of the issues, focusing on the level of functionality of the *golem* (they are, by tradition, deaf-mute and profoundly lacking in human form and function) and not of human origin.<sup>48</sup> Indeed, Rabbi Samuel Adels<sup>49</sup> 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.<sup>50</sup>

Support for the proposition that "humanness" is determined by human function in cases where alternative definitions of humanness, where birth from a human mother does not apply, can be found in an explicit discussion of humanness in the Jerusalem Talmud. That source states:

Rabbi Yasa states in the name of Rabbi Yochanan: if [a creature] has a human body but its face is of an animal, it is not human; if [a creature] has an animal body, but its face is human, it is human.<sup>51</sup>

45. ENCYCLOPEDIA TALMUDIT, *Adam* 1:165.

46. This is the opening view of Rabbi Tzvi Ashkenai in Chacham Tzvi 93 and is accepted as correct in Rabbi Moses Cordovero, *Pardes Rimonim* 24:10, and Rabbi Chaim Yosef David Azulai (Chida) *Machzik Beracha* OC 55:1. This view, it is argued, can be exegetically derived from the biblical verse in Genesis 9:6, in which the Hebrew word '*ba-adam*' could be translated as requiring people to come from within (i.e. through the birthing process) of other people. This view, in truth, is hard to accept as Jewish law itself rejects this exegetical reading of the text as the basis for the prohibition of feticide in Jewish law, but limits the prohibition to Noachide law.

47. *Sidrei Taharot*, *Ohalot* 5a.

48. Compare Tzvi Hirsch Shapira, *DARKHEI TESHUVA* on *Yoreh Deah* 6:11; Samuel Adels, *MAHARSHA* commenting on *SANHEDRIN* 65a; Gershon Henoch Leiner, *SIDRAI TAHAROT* *Ohalot* 5a; Yosef Rozin, *TZAFNAT PANEACH* 2:7; Daniel Trani, *Ikrai Dinnim*, *Orach Chaim* 3:15.

49. Samuel Adels, *MAHARSHA*, commenting on *SANHEDRIN* 65a.

50. For more on this, see Azriel Rosenfeld, *Human Identity: Halakhic Issues*, 16 *TRADITION* 3, 58-74 (1977) and Azriel Rosenfeld, *Religion and the Robot*, 8 *TRADITION* 3, 15-26 (1966).

51. *Jerusalem Talmud Niddah* 3:2.

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 studying Jewish law? Can one say to it “come and be slaughtered”? [Rather one cannot]. Or consider if it is entirely animal like, but its face human, and it is plowing the field [acting like an animal] do we come and say to it, “come and perform levirate marriage and divorce”?<sup>52</sup> [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 Jewish law (differential equations would do fine for this purpose, too) or is it at the pulling end of a plow? By that measure, a genetically engineered person, even one fully incubated artificially, would be human, as it would have human intellectual ability, and human attributes.<sup>53</sup> While one can read the Jerusalem Talmud as advocating a rhetorical question related to the technical matter at hand,<sup>54</sup> the phrasing of the question seems directly to posit that higher level intellectual activity generates “humanness” - ability to be obligated in Jewish law, which is a *sin quo non* for human ability - animals can neither convert to Judaism nor be born Jewish.

Consider two talmudic hypothetical discussions which buttress this view. There seems to be a talmudic discussion<sup>55</sup> about mythological mermaids, and whether they would be human or fish. Rabbi Shlomo Yitzchaki (Rashi)<sup>56</sup> who has a slightly different version of the text, states that the Talmud is referring to “fish in the sea who have half human and half fish features, called ‘sirens’ in old French.” Rashi seems to claim that these mermaids can be impregnated by humans, and thus seem to have the legal status of humans.<sup>57</sup> Rashi appears to posit that because these creatures can breed with humans, they are human. So too, there is a mishnaic discussion of the humanness of creatures known (in Hebrew) as *adnei hasadeh*, perhaps orangutans or monkeys.<sup>58</sup> Both Maimonides in his classical commentary on

52. *Id.*

53. NIDDAH 3:2. This might however, indicate that a fully incapacitated genetically engineered person not born of a human mother might not be human. See Moshe Hershler, *Genetics and Test Tube Babies*, HALAKHA UREFUAH 4:90-95 (5745).

54. A question of purity laws related to childbirth impurity.

55. BECHOROT 8a.

56. Bechorot 8a, s.v. *benai yama*,

57. However both the *tosefta* and the talmud, in the versions we have, seem to understand the discussion as being about how long dolphins carry their young to term, with no reference to mermaids, pseudo-humans, or inter-species pregnancies.

58. KILAYIM 8:5.

the Mishnah and Rabbi Israel Lipshitz writing in his commentary *Teferet Yisrael* grant these creatures human status with regard to certain issues, based on the fact that they have some sort of human features, and engage in some sort of language based conversation.<sup>59</sup> This is seconded by the famous remarks of Akiva Eiger, writing 150 years ago, concerning gorillas, where he indicates genuine doubt as to whether such animals have human status or not, as they seem to have some form of “human” characteristics.<sup>60</sup> Both of these sources and their medieval and modern interpreters support the possibility that humanness need not be defined solely with reference to a human parent, but has a clear - independently gauged and graded - functionality test. Either is sufficient to make one human according to Jewish law.

While one could shrug off these sources and limit them to discussions of whether these neo-human creatures have human ancestors to them, that approach, I would suggest, is fundamentally deficient on a number of different levels; first and foremost, the rabbinic texts themselves do not phrase the question that way - they seem to be dealing with cognates to humans, and not decedents of humans. Second, there is a quest by the commentators to ascribe human intellectual traits and abilities to these creatures as an explanation as to why they might be human, something which would be unneeded when dealing with decedents of humans (even if mutated), as all decedents of humans are human.<sup>61</sup> Consider, for example, the precise phrasing of Maimonides when questioning the status of *adnei hasadeh* - he states “There are creatures comparable to humans.”<sup>62</sup> Finally, intellectual activity is the way classical Jewish source understood the unique status of humans. Thus, the oldest commentary on the bible extant - the translation into Aramaic commonly called *Targum Onkelos* from more than 2,000 years ago - translates the biblical phrase “and He [God] breathed into his [Adam’s] nostrils the breath of life (*nephesh chaya*)”<sup>63</sup> (which denotes in the Jewish tradition the unique ability of humans and that which distinguishes humans from non-humans) as “the power [or spirit] of speech [or thought].” It is not the presence of hands or feet, mouths or tongues - but of human reasoning which indicates the presence of the Divine which is the calling card of all humans. That is - as an alternative definition from “deriving from a human mother” - a fully valid definition

59. Rabbenu Shimshon, in his commentary *ad locum*, disagrees and seems to be limiting this issue to ritual law matters, with no issue of human status at stake. This approach is seconded as well by Ohr Zaruah 1:288 in laws of crossbreeding.

60. See GLOSSES OF R. AKIVA EIGER on Yoreh Deah 2 s.v. *kof*, where Rabbi Akiva Eiger seems to assert that a gorilla has the ability to produce “force from a person” (*koach gavra*) and is not allowed to engage in ritual slaughter because he is a gentile!

61. See sources cited in notes 38 and 39.

62. Commentary to the Mishnah, *Kilaim* 8:5.

63. Genesis 2:7.

for humanness in the Jewish tradition.

However, it appears to this writer that these stories about fully artificial people are of no relevance in cases of cloning or genetically engineered children that derive from a fertilized egg, which is implanted in the uterus of a woman, who gives birth to a child, and who is the legal mother, at least according to Jewish law.<sup>64</sup> Thus, a genetically engineered child born to a woman, no less than any other "born" child, meets the prima facie test for humanness and is to be considered human. Indeed, the definition of humanness found in the *Encyclopedia Talmudit* should be enough to "prove" that all humans are - without a doubt - human when born to a human mother.<sup>65</sup> 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 Samuel Adels, Maharsha, above, that discussion will have to wait for the invention of a full human incubator, thus allowing a child to be born without any implantation into any human.<sup>66</sup>

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64. See Michael Broyde, *The Establishment of Maternity and Paternity in Jewish and American Law*, 3 NATIONAL JEWISH LAW REVIEW 117-52 (1988).

65. *Supra* note 51-53 and 61.

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

D. THE USE OF GENETIC INFORMATION TO SCREEN PEOPLE<sup>67</sup>

This section will analyze, when and how, from a Jewish law view, genetic information about people ought to be shared with those people themselves, with others around them, and with society as a whole. Two very basic points need to be made in this area that effect and affect the Jewish view of this topic. In both regards, the Jewish view is different from that of normative modern American law.

First, in the Jewish legal tradition, the goal of medicine is to cure disease and make people healthier.<sup>68</sup> Individuals have no choice but to cure themselves when they can, the providing of medical therapy by one who is competent to provide such is a mandatory good deed, and such therapy when demonstrably effective may be imposed on patients against their will.<sup>69</sup> These

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67. 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 or to have genetic sequences taken from him or her. Cells could be extracted without a person's consent, or even, 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; *See* SHULCHAN ARUCH, Choshen Mishpat 420:1-3. However, the right to control one's own genetic information absent a physical intrusion is much harder to justify exactly in the Jewish law 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 Jewish law 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, although 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, theft, implied conditions, limited sales, secular law, common commercial practice, and other commercial law concepts. For a survey of these issues in the context of patenting a non-human life form, *see* Arie P. Katz, *Patentability of Living within 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.

However, a strong case can be made that (no matter who has a legal ownership interest) Jewish law absolutely voids drug sale contracts that are predicated on high sale prices due to the needs of the patients. Thus, no matter who owns genetic sequences that are valuable, there would be an obligation to license them at a reasonable cost. Shulchan Aruch 336:3 states simply:

One who has pharmaceutical supplies and another is sick and needs those supplies, it is prohibited for the owner of the supplies to raise the prices more than customary; not only that, but if the supplies were sold for more than that, due to the needs of the patient and a shortage of medicine, only the fair market price is actually owed [and the overcharge needs to be refunded.]

68. *See generally* FRED ROSNER, *MODERN MEDICINE AND JEWISH ETHICS* (1986) and Shulchan Aruch Yoreh Deah 336:1-3.

69. *See* note 18. Only in cases where the course of treatment is medically unclear or substan-

set of values stand in sharp contrast to the normative American model of patient autonomy and choice, which grants people the right to decline needed treatment, intentionally opt for substandard care, and otherwise manage their medical care in whatever way they wish, so long as they are adults and mentally competent.

Second, information about people may only be shared with others when the information is relevant to the one who is receiving the information. Truthful information may not be shared with people merely because it is true - true information may be shared with people only when they have a genuine need to hear such information. Relevance is the central test for information sharing in Jewish law.<sup>70</sup>

These two points inform what genetic information can and should be used for. One can consider, painting with a broad brush, three different uses:

- (1) Genetic information may be used to provide a cure to a genetic illness from which a particular person is suffering.

Gene therapy, while now technologically in its infancy,<sup>71</sup> is on the horizon of being a significant form of medical therapy, and is already being tested, albeit without uniformly positive results.<sup>72</sup> Once gene therapy is a realistic possibility, and a method of established treatment, there is no doubt that genetic information will need to be shared in the course of treatment. However, such information will be shared based on a need to know analysis, with genetic information treated like all other patient information. "The main purposes of gene therapy are to cure disease, restore health and prolong life, all

tially risky is patient autonomy a significant value in the Jewish tradition; see note 68 for an elaboration on this and see generally *JEWISH BIOETHICS* (J. David Bleich & Fred Rosner eds., Hebrew Publishing Company, NY 1979).

70. In order for a person to repeat damaging information about another, most authorities mandate that a five-part test must be satisfied. These five parts are:

- 1)The person must not exaggerate the truth and must repeat the information only to those who need to hear it;
- 2)The person must be motivated by a desire to aid another;
- 3)The least damaging means to share this information must be employed;
- 4)The repeater of the information must instruct the listener not to repeat this information to others; and
- 5)The repeater of the information must contemplate his course of conduct considerably and only recount information that needs to be repeated.

R. Israel Meir Kagan, *Hafetz Hayyim, Rekhilut* 9:1-15 and *Lashon Hara* 10:1-17. There is no requirement of personal knowledge, and reliable hearsay may be repeated.

71. See Sandra Blakeslee, *Gene Therapy is Performed in Bid to Halt Alzheimer's*, *NEW YORK TIMES*, April 11, 2001, at National Desk.

72. See Sheryl Gay Stolberg, *Despite Ferment, Gene Therapy Progresses*, *NEW YORK TIMES*, June 6, 2001, Section F Page 1 Column 3. Indeed, a case can be made that given the current state of technology, Jewish law prohibits the use of gene therapy in situations where alternative treatment is available.

goals within the physicians' divine license to heal."<sup>73</sup> However, it is important to emphasize that in the Jewish tradition a patient does not have the right to decline to treat illnesses that can be cured, unless there is a significant risk to the treatment.<sup>74</sup> Gene therapy thus could become the mandatory form of treatment for certain illnesses, once it becomes the established medical norm - and a patient does not have a privacy or autonomy right great enough to decline effective treatment.

(2) Genetic information may be needed to provide statistical modeling for where services should be provided, and where educational or medical research ought to be invested in.

Inevitably, genetic information about a large population as a whole provides a statistical portrait about societal details which effect and affect a whole host of decisions. Thus, society or government might decide at some future date, when wholesale genome mapping is efficient and understandable, to embark on statistical testing of large segments of the population so as to allow for the better allocation of medical care. Thus, for example, among the factors one might wish to consider when deciding what areas of basic or advanced genetic research society ought to fund, one might consider how many people suffer from illnesses that any particular therapy might address. So too, genetic information of this type might be helpful in deciding where to send education material about the consequences and treatments for specific illnesses.<sup>75</sup>

However, merely because one has information about the genetic portrait of the whole population (which comes through many individual genetic portraits) does not necessarily mean that one shares that information with each particular person in the community. It is quite possible that there will come a time when society needs a genetic census - but there are excellent reasons related to the privacy values found intrinsically in Jewish law, in which one might not share specific information about individuals (rather than statistical information about the whole) with anyone, even the person themselves who is being surveyed - after all, the crucial test is one of relevance. The need to know information about the statistical portrait of the whole community does

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73. FRED ROSNER, *MODERN MEDICINE AND JEWISH ETHICS* 181 (1986).

74. See J. David Bleich, *The Obligation to Heal in the Judaic Tradition*, in *JEWISH BIOETHICS* (J. David Bleich & Fred Rosner eds., Hebrew Publishing Company, NY 1979).

75. For example, based on current information concerning phenotypes of two specific illnesses, educational material about the need for regular breast cancer screening would be more appropriate for a public service announcement to synagogue members than information about sickle cell anemia. For more on this and a generally thoughtful review of the issues related to genetic screening, see Elliot N. Dorff, *Jewish Theological and Moral Reflections on Genetic Screening: The Case of BRCA1*, 7 *HEALTH MATRIX: JOURNAL OF LAW-MEDICINE* 65 (Winter 1997).

not necessarily validate the need to share specific information about any individual with anyone - that type of information may only be shared when it is relevant to the person who is asking for the information.<sup>76</sup> Thus, there might be a time when there is a medical need for a genetic database - but access would have to be profoundly controlled to prevent the sharing of irrelevant information with people.

(3) Genetic information may be used to encourage or discourage specific people - based on their unique genetic information - from pursuing specific job opportunities, marital options or other rewarding possibilities.

Genetic information provides people with information about their predispositions. Consider that some Jews are carriers of a specific gene call the Tay-Sachs gene; being a carrier is itself harmless. When two carriers marry, statistically, one in every four of their children will suffer from Tay-Sachs disease and die before the age of five. Should society set up a mechanism for alerting people to this possibility? Should it perhaps even prohibit these marriages? Consider as well the possibility that certain people will prove genetically more resistant to certain specific illnesses; do we want to let employers test for these resistances, and only hire those employees for specific jobs where exposure to this illness is higher? What about letting professional basketball teams screen young players for the presence of the many different genes for height, and offer younger athletes who are genetically predisposed to tallness training subsidies by professional basketball teams, in return for contractual rights?

All of these cases, in my view, are analyzed through the dual rubric of (1) whether these types of tests produce a health benefit or not; and (2) whether they unfairly stigmatize people in ways that suppress the expression of the inherent human free will to grow and be different, without a valid medical reason. Such would be a violation of Jewish law, when such screening takes place in a way that marginalized or imposes significant burdens on individuals who are tested by society.<sup>77</sup> Many of the more trivial cases would seem not to past this muster. In addition, one has to worry that such tests will be used to examine fetuses for the presence of "correct" genetic traits and will then be used as grounds for abortions. Particularly when addressing issues of genetic selection for trivial characteristics (choice of gender, as one example) one has to factor in the possibility that information provided by genetic

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76. See *supra* note 70 and accompanying text.

77. What exactly is the violation of Jewish law is an interesting question, but as noted by Rabbi Feinstein in Iggort Moshe, Even Haezer 4:10, the process of genetic screening has within it a great deal of difficulty and burden which can be traumatic and unpleasant.

screening will prove to induce abortions in naked violation of Jewish law.<sup>78</sup>

A much harder case is the question of whether genetic information of this type can be used in making cost determinations for health insurance. If genetic information may be used in insurance cost determinations, insurance companies would (as the technology permits this) compel individuals to undergo genotype analysis to determine predisposition to health problems and use that information in rate calculations, just as life and health insurance agencies now require a person to undergo a physical before a policy is issued.<sup>79</sup>

This issue raises a number of more complex questions, and does not provide for simple answers. At first blush, one could readily advance the argument that insurance is a private contract between the insurance company and the insured and Jewish law ought to be tolerant of any conditions one side or the other imposes on the contract - if the other side does not like the contract, they can decline to sign it. However, upon further analysis one sees that health insurance contracts have a central role in allowing people to be medically treated and that a claim can be made that health insurance policies are simply a societal tool for allocating health care costs and even access to health care generally. In that model, depriving people of access to health insurance frequently is identical to depriving them of access to reasonable care, and thus is fraught with significant problems in the Jewish tradition - which imposes an obligation to heal the sick both on the individual and on society as a whole. Looking at such genotyping from that view, one must be careful to realize that access to health care is a religious duty and depriving one of such access is a violation of Jewish law. Based on this analysis, one could conclude that genetic screening for health insurance purposed is an activity that runs fundamentally contrary to the obligation to cure.

Having said that, one must realize that this result is, one hopes, a temporary one - technologically, we are now at the stage where we can diagnose many more genotypes than we can cure through gene therapy. This makes revealing genetic information to be, in fact, profoundly invasive of privacy

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78. When exactly are abortions permitted according to Jewish law remains a matter of controversy, with two basic schools of thought, one of which treats the fetus as a life and one of which treats abortion as a grave matter, but the fetus is not a life. In neither of these views, however, is abortion considered an option in all but the most serious of situations. Compare Immanuel Jakobovits, *Jewish Views on Abortion*, in *JEWISH BIOETHICS*, 118-33 (Hebrew Publishing Company, NY 1979) with J. David Bleich, *Abortion in Halakhic Literature*, in *JEWISH BIOETHICS*, 134-177, and with DAVID M. FELDMAN, *BIRTH CONTROL IN JEWISH LAW*, 251-94 (Third Edition, NYU, 1995).

79. Currently pending in Congress is the "Genetic Nondiscrimination in Health Insurance and Employment Act (SENATE BILL 318 and HOUSE RESOLUTION 602) which would prohibit discrimination in both insurance and employment based on genetic testing.

with little or no health care upside to the particular person. As that changes - because the technology allows for cures to be provided based on the information collected, genetic information will be treated no differently than any other health care data and will be provided based on the health care judgments and needs of the patient.

### CONCLUSION

The Jewish tradition pursues medical cures when they are effective in prolonging human life in this world, and views such cures themselves as manifestations of the Divine presence. Humans were put on the earth, with their free will and their capacity to make the world a better place or destroy it, in the Divine hope that we would chose the former and eschew the latter. Genetic engineering is yet another tool in the human toolbox. Like all tools, whether it is used for evil or good is not a function of the tool itself, but of the one who wields it. As the technology develops, genetic engineering can be a wonderful therapy that cures many different medical conditions, both phenotypically and genotypically. The Jewish tradition welcomes these developments in medical technology, and hopes that the ethical sensitivity needed to use these technologies is present as well. The Jewish legal tradition is ready for a brave new world - but really it is not so new; "Jewish law authorized the physician to cure and it is a good deed to do so. It is under the rubric of saving lives and one who withholds medical treatment is a murderer."<sup>80</sup> Genetic therapy is simply a new technology to allow us to cure fellow human beings.

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80. Shulchan Aruch 336:1.