# SETTING MORAL LIMITS ON TECHNOLOGY

rofessor James Drane (p. 30) has done a masterful job of clarifying the three primary goals for technology that have historically been proposed—understanding, domination, and creation—and he has argued forcefully for returning to the first goal and measuring all contemporary technology by the degree to which it preserves nature. Aside from keeping us from our most destructive uses of technology, Professor Drane proposes this criterion because he believes that an updated Natural Law approach to technology has captured and can still gain the allegiance of religious and secular thinkers alike, with Isaiah Berlin his example of the latter.

As a Jew, I find much to share in Professor Drane's approach. Certainly his awe and respect for nature and for the God who created it, which he desperately wants to restore to contemporary science, echoes multiple Jewish sources, from the opening chapters of Genesis and many chapters of Psalms (e.g., Ps 104) to modern thinkers such as Abraham Joshua Heschel. Moreover, Professor Drane clearly does *not* want to abandon technology altogether, for that would also be religiously impermissible; he instead wants to define limits

The Jewish
Perspective
Differs in
Some Ways
from
Catholic
and
Protestant
Ones

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for technology so that it can be used for our benefit and not for our destruction. In all of this we are at one

Natural Law theory, though, has had a spotty history in Judaism. David Novak, a rabbi and professor at the University of Toronto, endorses it and claims that previous Jewish philosophers have done so as well.1 I am not nearly as convinced that the bulk of classical, medieval, or modern Jewish thinkers can fairly be read as expositors-or even supporters-of Natural Law theory. That requires me, then, to describe how I understand Judaism's approach to these matters, both in theory and in practice. I hope that, as a result of my efforts here, Catholics and others raised on Natural Law theory will come to understand why Jews generally take a more favorable stance toward technological innovation, while yet having a keen interest in preserving the world God has created, a world to which we respond in awe and appreciation. In the end, we may come to our stance from a different theological base, but we face the same issues that Professor Drane raises-namely, how to impose reasonable limits on technology in our time so that we do not make the earth uninhabitable.

But, first, a historical and bibliographical note: Judaism traces its roots back to Abraham (c. 1700 BCE), continuing in both oral and written traditions through Moses (c. 1250 BCE) and the biblical prophets and sages through the rabbis who created the Mishnah (c. 200 CE), Talmud (c. 500 CE), and Midrash (edited at varying times), and on through medieval and modern commentators, philosophers, and judges.\* Because the rabbis of the Mishnah, Talmud, and



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\*BCE stands for "before the Common Era," which Christians call BC. CE stands for "the Common Era," which Christians call AD.

Midrash decided which books would constitute holy Scripture and then interpreted them in what became the distinctly Jewish way, I shall refer to them as "the Rabbis," in contrast to the countless rabbis and thinkers who have since carried on their work. The Rabbis functioned for Judaism in much the same way as the church fathers did for Christianity and the imams did for Islam. Most of the writings of the Rabbis is now available in English translation.

## JEWISH THEOLOGICAL AND MORAL MOORINGS

Why is it important to be aware of varying religious and secular perspectives on moral matters in the first place? Why, in other words, is it the case that morals do not come in one, universal and eternal set of norms but rather differ among religions, societies, and times?

The answer is embedded in the very word "religion." It comes from the same Latin root as the word "ligament," connective tissue. Religions describe our bonds to our family, community, the whole human species, the environment, and the transcendent (imaged in the Western religions as God). That is, religions give us a broad picture of who we are and who we ought to be, and specific moral norms are rooted in such big pictures. Secular philosophies (e.g., Western liberalism, Marxism, existentialism) provide such perspectives as well, and, indeed, what passes for secular ethics in Western countries is rooted in Western liberalism, the product of such people as Locke and Montesquieu. But although secular theories generally are produced by one person or a few people, religions from their very origins are more likely to be tied to a group that endeavors to live out the religion's vision, using rituals, symbols, liturgy, and songs to remind adherents of that perspective and to induce continued loyalty to it.

The various religions of the world, then, articulate their own particular views of how people are and ought to be. Each suggests a particular pair of eyeglasses, as it were, through which we should look at life. The Jewish and Christian lenses have much in common, but they differ in significant ways too, and these differences explain and motivate some of the ways in which Judaism disagrees with Catholic Natural Law theory in understanding our place in life and what we should do with modern technology.

**Technology in General** Adam and Eve are told in the Garden of Eden "to work it and to preserve it" (Gn 2:15). Judaism has ever since tried to strike a *balance* between using the world for human pur-

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poses while still safeguarding and sustaining it. We are not supposed to desist from changing the world altogether: "Six days shall you do your work" is as much a commandment as "and on the seventh day you shall rest" (Ex 23:12).

In changing the world to accomplish our ends, though, we must take care to preserve the environment. That is true whether we are practicing medicine, farming, traveling, or doing anything else. This balance is demanded because, in the end, we do not own the world; God does.<sup>2</sup> We are but tenants in God's world, with a lease on life and on the world.

During the time set by that lease, we may and should act as God's agents to improve it. God, in fact, intended that we function in that way. This is probably most starkly stated in a rabbinic comment about, of all things, circumcision. If God wanted all Jewish boys circumcised, the Rabbis ask, why did He not create them that way? The answer, according to the Rabbis, is that God deliberately created the world in need of fixing so that human beings would have a divinely ordained task in life, thus giving human life purpose and meaning.3 We are, then, not just permitted but mandated to find ways to bend God's world to God's purposes and ours-as long, again, as we preserve God's world in the process. However, just because we can do something does not automatically mean that we should do it; to determine whether we should, we must measure its effects against the broader picture of our own good and that of God's world.

Thus technology, in and of itself, is not good or bad: It depends upon how we use it. If we employ it to assist us in shaping the world to achieve morally good ends while yet preserving the world, our use of technology is theologically approved and morally good. If, on the other hand, we disregard our duty to preserve the world when using technological tools, we are engaged in a theologically and morally bad act. Consistent with Natural Law theory as articulated by Professor Drane, though, Judaism does not presume that the world that God created is ideal in its present state. In Judaism, God created the world to be fixed, and we humans need to determine when and how to aid God in that process.

**Biotechnology** When we turn specifically to biotechnology and to the branch of it relating to health care, several underlying principles emerge from Jewish sources. Because God owns our bodies (as well as our minds, emotions, wills, and spirits), we have a fiduciary responsibility to God to:

Safeguard our life and health<sup>5</sup>



- · Avoid sickness and injury
- Do everything possible to save other human lives (*pikkuah nefesh*), a commandment in the Torah that takes precedence over all but three others

A certain rabbinic story indicates that the Rabbis recognized the theological issue involved in medical care (and in the use of technology generally), but it also indicates the traditional Jewish belief that using technology for good purposes such as producing food and preserving health is legitimate and, in fact, obligatory. The story goes like this:

It once happened that Rabbi Ishmael and Rabbi Akiva were strolling in the streets of Jerusalem accompanied by another person. They were met by a sick person. He said to them, "My masters, tell me by what means I may be cured." They told him, "Do thus and so until you are cured." The sick man asked them, "And who afflicted me?" They replied, "The Holy One, blessed be He." The sick man responded, "You have entered into a matter that does not pertain to you. God has afflicted, and you seek to cure! Are you not transgressing His will?"

Rabbi Akiva and Rabbi Ishmael asked him, "What is your occupation?" The sick man answered, "I am a tiller of the soil, and here is the sickle in my hand." They asked him, "Who created the vineyard?" "The Holy One, blessed be He," he answered. Rabbi Akiva and Rabbi Ishmael said to him, "You enter into a matter that does not pertain to you! God created the vineyard, and you cut fruits from it."

He said to them, "Do you not see the sickle in my hand? If I did not plow, sow, fertilize, and weed, nothing would sprout."

Rabbi Akiva and Rabbi Ishmael said to him, "Foolish man! . . . Just as if one does not weed, fertilize, and plow, the trees will not produce fruit, and if fruit is produced but is not watered or fertilized, it will not live but die, so with regard to the body. Drugs and medicaments are the fertilizer, and the physician is the tiller of the soil.8

The Rabbis quite explicitly, then, understand God to depend upon us to aid in the process of healing and of improving life generally through such acts as producing food. We are, in the talmudic phrase, God's partners in the ongoing act of creation.<sup>9</sup>

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## THREE APPLICATIONS OF THESE PRINCIPLES

Professor Drane is particularly worried about cloning, stem cell research, and genetic engineering of foods, and I share his concerns. Ultimately, though, while I applaud his call for limits, I would support scientific efforts to do all those things. I would put the limits elsewhere.

## GENE THERAPY, GENETIC ENGINEERING, AND CLONING

Gene therapy remains very new and limited in its applications. For example, its techniques are currently used to cure hydrocephalus while the fetus is still within its mother's womb. Rabbis generally agree that the legitimacy of human intervention to effect cure extends to procedures within the womb as well. If used in this therapeutic way, genetic engineering—which is still only a theoretical possibility—will also be seen as an unmitigated blessing.

However, the same techniques might potentially be used to screen out traits that are not manifestations of a disease at all but merely characteristics deemed undesirable by certain individuals or groups. If, for example, we begin to use abortion to eliminate "defective" fetuses, we may arrive at the slippery slope whereon the definition of defective soon becomes so broad as to allow only "perfect" children to be born, the goal being a master race. Genetic engineering gives us even more sophisticated tools toward this end. Once we have become capable of changing not just the genes of a particular fetus but even its germ line as well, we will be in a position to alter human descendants for all generations to come. That holds out the promise of rooting out genetic tendencies toward heart disease, alcoholism, and a host of other medical problems, but it also will enable us to change the genetic traits that cause shortness, merely average intelligence, skin coloration, and perhaps homosexuality. Moreover, genetic engineering will eventually allow us to create new organisms, a possibility posing real risks to human beings and to the environment.

Although cloning has been much more thoroughly discussed in the media, it actually presents fewer moral problems for Jews than genetic engineering does. Cloning, after all, does not introduce into the environment a new organism; it just replicates an organism that already exists, thus posing lesser risks. If cloning is used to overcome infertility, to aid in the research of diseases, or, in the case of plants and animals, to produce food for starving people, it will be a very positive thing. On the other hand, cloning to avoid the intimacy of sexual intercourse, to gain immortali-

ty (as if that were possible through this technique), to replicate oneself without any admixture of someone else's genes, or to produce generations of slaves—these would be illegitimate uses of the technique. They smack of self-idolization and of the denial of human mortality; they thus make the moral and theological error of confusing human beings for God.

Our moral doubts about genetic engineering and cloning do not mean that research into these techniques should stop; the potential benefits to our life and health are enormous. Doubts should prompt us, however, to exercise care in how we use our new capabilities. The problems are not just medical and technological; they are also moral and theological, requiring us to reexamine the very ways we understand ourselves as human beings, our relationships to others and to God, and the limits inherent in being human. We must, then, as Professor Drane suggests, establish forums in which people with different perspectives can be heard and can strive to reach consensus on whether specific applications should take place or not, and, if so, under what conditions. That is, we Americans need to develop our social expertise in morals to keep pace with our technological advances.

# STEM CELL RESEARCH

Because human embryonic stem cells can be procured from aborted fetuses, something needs to be said about the status of abortion in Judaism. Jewish law understands gestation developmentally: A fetus in its first 40 days is "as if it were simply water"; later, and until birth, it becomes "like the thigh of its mother"; only at birth does it become a full-fledged human being. Therefore, abortion is required to preserve the life or health of the mother. It is permitted but not required should the pregnancy constitute a growing risk to the mother beyond that of normal pregnancy, even if the risk is not a clear and present danger. In normal circumstances, abortion is forbidden, not because it is an act of murder but because it is an act of self-injury. The upshot of the Jewish stance on abortion, then, is that if a fetus has been aborted for legitimate reasons under Jewish law, the aborted fetus may be used to advance efforts to preserve the life and health of others.

However, stem cells for research purposes can also be procured from donated sperm and eggs mixed together in a petri dish and cultured there. Genetic materials outside the uterus have no legal status in Jewish law, for they are not even a part of a human being until implanted in a Genetic materials outside the uterus have no legal status in Jewish law. woman's womb, and even then, during the first 40 days of gestation, their status is "as if they were simply water." Abortion is prohibited during that time except for therapeutic purposes, for in the uterus such gametes have the potential of growing into a human being; but they have no such potential outside the womb. Frozen embryos may therefore be discarded or used for reasonable purposes, and so may stem cells procured from them.

There are, however, other factors that must be considered. The articles in a 1999 issue of *The Hastings Report* discuss some of them; here I will note only two things about them from a Jewish perspective.<sup>12</sup>

Access and Profit The Jewish tradition sees the provision of health care as a communal responsibility, and so the justice arguments in The Hastings Report have a special resonance for me as a Jew. Especially because much of the basic science in this area was funded by the government, the government has the right to require private companies to provide their applications of that science to those who cannot afford them at reduced rates or, if necessary, even for free. At the same time, the Jewish tradition does not demand socialism; and for many good reasons, we Americans have adopted a modified capitalistic system of economics. The trick, then, will be to balance access to applications of the new technology with the legitimate right of a private company to make a profit on its efforts to develop and market applications of stem cell research.

Medicine and Eugenics The potential of stem cell research for creating organs for transplant and cures for diseases is, at least in theory, both awesome and hopeful. Indeed, in light of our divine mandate to seek to maintain life and health, one could even argue that from a Jewish perspective we have a duty to proceed with that research. We must, however, draw a clear line between the technology's uses for cure, which are to be applauded, and its uses for enhancement, which must be approached with extreme caution. Jews have taken the brunt of campaigns of positive eugenics both in the United States and in Nazi Germany, and as a result we are especially sensitive to efforts to create a model human beingone, for example, resulting from the genetic engineering that stem cell applications will involve.13

Moreover, when Jews see a disabled human being, we are told not to recoil from the disability or count our blessings for not being disabled in that way; we are rather commanded to recite a blessing thanking God for making people different.<sup>14</sup> In light, then, of the Jewish view that all human beings are created in the image of God, regardless of their levels of ability or disability, it is imperative from a Jewish perspective that the applications of stem cell research be used for cure and not for enhancement.

My recommendation as a Jew, then, is that we take the steps necessary to advance stem cell research and its applications in an effort to take advantage of its great potential for good. But we should do so with stipulations that, on one hand, enable all Americans who need its applications to have access to them, and, on the other hand, prohibit applications intended to make all human beings into any particular model of human excellence. Through this technology—and all others—we should seek to cure diseases while simultaneously retaining our appreciation for the variety of God's creatures.

#### THE ENVIRONMENT AND FOOD PRODUCTION

Judaism's appreciation of the world as belonging to God would require us, in modern times, to create less waste than Americans in general tend to do, to recycle, and to use our new technology to reduce and, if possible, prevent pollution. Professor Drane, arguing from his Natural Law perspective, undoubtedly would agree with all of this.

But what about using genetic engineering to produce species of foods that will, first, resist pest infestations—and without, at the same time, incurring the risks involved in using insecticides—and, second, may produce the quantity of food needed to feed the earth's starving masses? Here Judaism would have some narrow and some broad concerns.

Some special problems for Jews in such technology revolve around two groups of the Torah's laws: dietary restrictions and prohibitions against mixing seeds. Jewish dietary laws (kashrut, "keeping kosher") restrict both the kinds of fish, fowl, and animals that Jews may eat and the way they are killed, prepared, and served. The Torah also forbids mixing seeds (kilayim).15 An established principle of Jewish law, though, is that if a substance is so chemically changed that it cannot be reconstituted in its original form, it is a "new thing" (davar hadash) and, as such, has lost any characteristics of its origins.16 Assuming that their chemistry has been sufficiently changed, bioengineered foods may therefore be eaten in accordance with Jewish dietary laws, even if the original substances were not kosher. Similarly, Jews may engage in bioengineering new foods without

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The harder and broader concern is the one that Professor Drane raises—the potential threat to the environment. In addition to his example of corn that kills birds because of the insecticide engineered into its genes, I would point out another danger: the loss of biodiversity. If all tomatoes, say, are of the one species that has been engineered to resist spoilage and infestation, what happens when that particular species is attacked by a new bug of some sort? We will very quickly have a world without tomatoes. Many of our medical cures are based on new uses of substances in nature, and if we reduce what exists in nature, we could find ourselves not only without some foods but also without the ability to produce new medicines.

Should we then abandon all bioengineering of foods? I do not think so, especially given the millions of starving people who could be fed with such food. We must, though, actively maintain species that we are not producing commercially to enable us to preserve the biodiversity that God has created. We need, in other words, to shape our policies in food production with the words of the Psalmist ringing in our minds: "How many are the things You have made, O Lord; You have made them all with wisdom; the earth is full of Your creations" (Ps 104:24).

#### CONCLUSION

Professor Drane and I, rooted as we are in our respective Catholic and Jewish faiths, share an urgent call for thoughtful, considered restrictions on the new technology that is currently leaping ahead of all moral consideration. Because much of this technology is being developed in the United States, we Americans have a special duty to undertake a serious, multidimensional, moral conversation about how it can be used to help and not to harm us.

Judaism, based on a view of the world as requiring human fixing, is more sanguine about human endeavors to do just that, but it shares with Catholicism—and, indeed, with all sensible people—the critical need to restrict technology to those areas in which the risks involved have been considered carefully and are therefore minimal. We also need to promptly build in mechanisms to stop any line of research that produces any indication of dangerous effects. We must, that is, make

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not simply with actions but also with what such actions reflect or express about a person's moral character. In this respect, the question Protestant theological ethics raises is: What kind of people do we need to be in order to wield such powers for good rather than ill?

#### NOTES

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- T. Peters, Playing God? Genetic Discrimination and Human Freedom, pp. 5-10.
- See R. Cole-Turner, ed., Human Cloning: Religious Responses, Westminster/ John Knox Press, Philadelphia, 1997.
- See G. Meilander, BioLaw II, 1997, pp. 114-118.
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sure that researchers' interests in profits, professional advancement, and reputation do not get in the way of controlled and safe experimentation. With all such precautions, however, we must use our God-given talents to help God make our world a more hospitable world for all of us.

#### NOTES

In the following, M stands for Mishnah (edited c. 200 CE); T for Tosefta (edited c. 200 CE); J for Jerusalem Talmud (edited c. 400 CE); B for Babylonian Talmud (edited c. 500 CE); MT for Maimonides's Mishneh Torah (1177 CE); and SA for Joseph Karo's Shulhan Arukh (1565 CE) with the glosses of Moses Isserles.

- David Novak, Natural Law in Judaism, Cambridge University Press, Cambridge, England, 1998.
- 2. See, for example, Deuteronomy 10:14 and Psalms 24:1. See also Genesis 14:19, 22 (where the Hebrew word for "Creator" [koneh] also means "Possessor," and where "heaven and earth" is a merism for those and everything in between); Exodus 20:11; Leviticus 25:23, 42, 55; and Deuteronomy 4:35, 32:6, 39.
- 3. Genesis Rabbah 11:6 and Pesikta Rabbati 22.4.
- 4. In Elliott N. Dorff, Matters of Life and Death: A Jewish Approach to Modern Ethics, Jewish Publication Society, Philadelphia, 1998, Chapter 2, I identify and discuss seven underlying principles, only three of which are mentioned in this article.
- For example, bathing is a commandment, according to Hillel, Leviticus Rabbah, 34:3. In his code of Jewish law, Maimonides includes rules requiring proper care of the body as a positive obligation (they are not just advice for those seeking to feel good and live a long life).
- B, Shabbat, 32a; B, Bava Kamma, 15b, 80a, 91b; MT, Laws of Murder, 11:4-5; SA, Yoreh De'ah, 116:5 gloss; and SA, Hoshen Mishpat, 427:8-10. Jewish law views endangering one's health as worse than violating a ritual prohibition. See B, Hullin, 10a; SA, Orah Hayyim, 173:2; and SA, Yoreh De'ah, 116:5 gloss.
- 7. B, Sanhedrin, 74a.
- Midrash Temurrah as cited in Otzar Midrashim, J. D. Eisenstein, ed., Hebrew Publishing Co., New York City, 1915, pp. 580-581. See also B, Avodah Zarah, 40b, in which a Rabbi expresses appreciation for foods that can cure. Although

- Jewish tradition does not justify circumcision in medical terms, the Rabbis did maintain (as noted above) that Jewish boys are not born circumcised because God created the world so that it would require human fixing; see n. 3 above.
- 9. B, Shabbat, 10a, 119b. In the first of these passages, it is the judge who judges justly who is called God's partner; in the second, anyone who recites Genesis 2:1-3 (about God resting on the seventh day) on Friday night thereby participates in God's ongoing act of creation. The Talmud in B, Sanhedrin, 38a, specifically wanted the Sadducees not to be able to say that angels (or any beings other than humans) participate with God in creation.
- See, for example, J. D. Bleich, Judaism and Healing: Halakhic Perspectives, Ktav Publishing House, Hoboken, NJ, 1981, p. 106
- 11. B, Yevamot, 69b. Rabbi Immanuel Jakobovits notes that 40 days in talmudic terms may mean just under two months in our modern way of calculating gestation, because the Rabbis counted from the time of the first missed menstrual flow whereas we count from the time of conception, approximately two weeks earlier. See Immanuel Jakobovits, Jewish Medical Ethics: A Comparative and Historical Study of the Jewish Religious Attitude to Medicine and Its Practice, Bloch Publishing Co., New York City, 1959, p. 275.
- The Hastings Center Report, March-April 1999, pp. 30-48.
- 13. See Stephen J. Gould, The Mismeasure of Man, W. W. Norton & Company, New York City, 1996, and George J. Annas and Michael A. Grodin, The Nazi Doctors and the Nuremberg Code: Human Rights in Human Experimentation, Oxford University Press, New York City, 1992.
- For a thorough discussion of this concept, see Carl Astor, "... Who Makes People Different": Jewish Perspectives on the Disabled, United Synagogue of America, New York City, 1985.
- 15. Leviticus 11 and Deuteronomy 14 stipulate the animals that fulfill the dietary requirements. The dietary laws also require a specific mode of slaughter, intended to minimize the animal's pain (based on Dt 12:21), a specific way to drain blood from the meat (Gn 9:4 and Dt 12:23-25), and that meat and dairy meals be separated. The prohibition on mixing seeds can be found in Leviticus 19:19 and Deuteronomy 22.9.
- 16. See Kassel Abelson and Mayer Rabinowitz, "Definition of a Davar Hadash," in Proceedings of the Committee on Jewish Law and Standards of the Conservative Movement, 1980-1985, Rabbinical Assembly, New York City, 1988, pp. 187-190