



UAHC COMMITTEE

BIO-ETHICS

Program Guide X

CLONING

Summer 1998

UAHC Department of Jewish Family Concerns

TABLE OF CONTENTS

1. Introduction	2
2. Three "thought pieces" on cloning:	4
a. Dr. Stephen M. Modell	5
b. Morton D. Prager, Ph.D.	10
c. Dr. Harvey L. Gordon	13
3. A sampling of articles	17
a. "The Cloning Conundrum": Dr. Alan Meisel	18
b. <u>The Jerusalem Report</u> , April 16, 1998	20
c. "The Ethics of Cloning", <u>Hadassah Magazine</u> June/July 1997.	23
d. <u>Hastings Center Report</u> . September/October 1997 Summary and Selected Responses to National Bioethics Advisory Committee on Cloning	25
e. Excerpt from: "If I Am Only My Genes, What Am I?": Genetic Essentialism and A Jewish Response	30
4. An overview of opinions from the world's religions	37
5. Cloning and reproductive technology: excerpted from: "Assisted Reproductive Technologies" N.Y. State Task Force on Life and Law.	53
6. CCAR Responsa: "Jewish Involvement in Genetic Engineering."	61

*This study guide was prepared with the help of Rabbi Richard F. Steinbrink

DEAR FRIENDS;

SHALOM. RECENTLY, WE HAVE WITNESSED THE DEVELOPMENT OF ANOTHER CHAPTER IN THE EXCITING AND CHALLENGING STORY THAT IS THE REVOLUTION IN GENETICS. THE STORY OF "DOLLY" AND THE SUBSEQUENT OUTPOURING OF INTEREST IN THE POTENTIAL INHERENT IN THIS RESEARCH, SPARKED THE COMMITTEE ON BIO-ETHICS OF THE UAHC, TO DEVOTE ITS¹ REGULAR STUDY GUIDE TO AN INTER AND INTRA-RELIGIOUS LOOK AT THIS ISSUE.

AS EVEN A QUICK READING OF THIS MATERIAL WILL SHOW, THE DEVELOPMENTS IN THE FIELD OF GENETIC RESEARCH AND SO CALLED "GENETIC ENGINEERING" BRING US LITERALLY TO THE EDGE OF A NEW ERA IN THE WAY SCIENCE MAY IMPACT OUR WORLD. THERE ARE SERIOUS RELIGIOUS ISSUES THAT ARE NOW EMERGING IN LIGHT OF THIS RESEARCH. AS MANY OF THE ARTICLES AND THOUGHT PIECES EXPLORE, CLONING IS BUT PART OF A LARGER DISCUSSION THAT OFTEN TURNS ON JUST HOW FAR WE, AS CREATIONS OF GOD, CAN OR SHOULD GO IN WORKING WITH THE BASIC ELEMENTS OF LIFE. THE QUESTION OF WHETHER WE ARE MORE THAN JUST AN ACCIDENTAL COLLECTION OF CELLS AND GENES GOES TO THE HEART OF RELIGION ITSELF. CAN, OR SHOULD THERE BE ANY LIMIT IN OUR ATTEMPT TO SAVE OR ENHANCE HUMAN LIFE? WHO CAN OR SHOULD CONTROL THIS RESEARCH; AND WHAT HAPPENS IF IT IS CORRUPTED?

DOCTORS MODELL, PRAGER AND GORDON ADDRESS THE SCIENCE OF CLONING AND GENETICS WHILE OPENING US UP TO SOME OF THESE RELIGIOUS CONCERNS. THE SELECTIONS THAT FOLLOW THESE "THOUGHT PIECES" ARE DRAWN FROM A BROAD RANGE OF RELIGIOUS AND SECULAR PUBLICATIONS AN ATTEMPT TO FURTHER FOCUS ON MANY OF THE CONCERNS RAISED BY THE INITIAL PIECES. WHAT IS ALSO FASCINATING IS THE COLLECTION OF RESPONSES BY VARIOUS RELIGIOUS TRADITIONS TO THE ISSUE OF HUMAN CLONING. FINALLY, THE COMMITTEE HAS INCLUDED A SMALL SAMPLING OF NEWSPAPER ARTICLES THAT BRIEFLY REFLECT RECENT DEVELOPMENTS IN THE CLONING STORY.

CLEARLY, THIS ISSUE REPRESENTS A CHALLENGE TO OUR RELIGIOUS COMMUNITY. WHAT IS INTERESTING IS THE DISCOVERY THAT THERE SEEMS TO BE MORE UNANIMITY AMONGST THE STRANDS OF OUR COMMUNITY THAN DISAGREEMENT. IF WE COULD ASSESS A CONTEMPORARY "MOOD" IT WOULD BE ONE OF CAUTIOUS ACCEPTANCE. THE VALUE OF "PIKUACH NEFESH" (SAVING A LIFE) SEEMS TO UNDERSCORE THIS FEELING OF CAUTIOUS ACCEPTANCE. DR. MARK WASHOFKY, OF THE HEBREW UNION COLLEGE-JEWISH INSTITUTE OF RELIGION, COMMENTED ON THIS TECHNOLOGY IN A RECENT ARTICLE BY SAYING THAT WE NEED TO DEMONSTRATE "SEICHEL" TO RESTRAIN THE TECHNOLOGY AS OPPOSED TO CALLING FOR AN OUTRIGHT BAN. (HADASSAH : JUNE/JULY 1997.)

THREE JEWISH THOUGHT PIECES ON CLONING

1. “Four Cloning Scenarios from Science and Jewish Tradition”

**Dr. Stephen M. Modell
M.D., M.S.**

**Council on Genetics and Society
Department of Health Management and Policy
University of Michigan School of Public Health.**

2. “Cloning”

Morton D. Prager, Ph.D.

**Professor of Surgery and Biochemistry,
University of Texas, Southwestern Medical
Center. Teaches at Southern Methodist
University-Science, Ethics and Societal
Concerns.**

3. “Human Cloning and the Jewish Tradition”

Dr. Harvey L. Gordon

**Chair of the Jewish Family Concerns
Department of the UAHC, Committee on
Bio-Ethics.**

He is a physician living in Houston, Texas.

Analysis of Four Cloning Scenarios from the Perspective of Science and the Jewish Tradition

Stephen M. Modell, M.D., M.S.
Council on Genetics and Society
Department of Health Management and Policy
University of Michigan School of Public Health

The wisdom of the Jewish tradition and of Jewish medical ethics is just as pertinent to the question of cloning's acceptability as it is to previously developed genetic and reproductive technologies. In my reflections below I apply this body of wisdom to four uses of human cloning cited in the literature: I. correction of genetic conditions; II. perpetuation of an adult person's biological self; III. infertility; IV. manufacture of organs and tissues. I cover the relevant cloning technologies briefly as I go along.

I. Correction of Genetic Conditions

The first scenario I would like to consider in which cloning might be useful is the delivery of a healthy baby from parents who each carry a gene for a serious or lethal genetic condition. As Jews we are especially conscious of the possibility of Tay-Sachs disease occurring in our offspring, a condition which results in death by 3-4 years of age with many hardships up to that point. The proposed procedure is to develop enough clones of the original pre-embryo so that at least one of a culture of cloned cells could succeed in being genetically corrected through gene therapy and developing into an embryo free of the genetic condition. The Jewish view of life is that it is of infinite value and that one moment of life is equal to living seventy years. In Jewish law, all biblical and rabbinic commandments are set aside for the overriding consideration of saving a life. Given that Tay-Sachs is a lethal condition, cloning, were it to be found efficacious, would be commendable for this purpose.

The crucial consideration here is that the procedure represents germ-line gene therapy (GLGT). Gene therapy has been accepted by members of the Jewish bioethical community, though the technique being considered here is more complicated than somatic (body cell) gene therapy. Whatever changes are introduced into the germ line will perpetuate themselves in subsequent generations. For GLGT to be acceptable, it must meet higher levels of stringency than the somatic cell gene therapy now being applied to patients, since an error introduced by the procedure will (in almost a biblical sense) visit itself unto the fourth generation (Exodus 34:7) and beyond. The unique feature of cloning now being investigated by scientists, however, is that the multiplicity of clones allows for the selection of a cell similar to the original with the desired genes either added or removed. There is hope, therefore, that GLGT combined with cloning will one day allow for safe and efficacious gene therapy at the very earliest stage. Until the procedure is fully developed, though, more conventional reproductive options, such as adoption or early prenatal testing (which now can actually be performed right after conception, at the 8-cell stage), are advisable.

II. Perpetuation of an Adult Person's Biological Self

The above type of cloning concerns embryonic cells and has a therapeutic intent. Since the creation of Dolly from an adult sheep udder cell, it has become possible to perpetuate the life of adult cells (and organisms) through multiple generations, conferring a type of immortality. The biblical analogy is God's removal of Adam's rib to create Eve, but here we are considering a human medical intervention. The Jewish view on this life continuation procedure must rest on the risks involved and the purposes for which the procedure is intended.

Articles in the popular literature have proposed various scenarios for those who might wish to perpetuate themselves through cloning beyond the bounds of one's single limited life. There is the businessman who has made hordes of money. Like Pharaoh, after he dies he wants to go on to recoup his riches. The next best thing allegedly would be to clone oneself and have one's exact duplicate come back into a life of wealth. On a different note, there is the brilliant scientist, a modern-day Einstein, who wishes to grace humanity with his brilliance far into the future. A clone would supposedly be able to perpetuate his work, even reach new heights of discovery.

At a minimum we have to look at the technical acceptability of the means used to achieve such ambitions, which governs the ethics of the technology's use. Out of 277 attempts at nucleus transfer for the cloning of an adult cell by the Roslin Institute in Scotland, only one cell developed into a healthy living animal - Dolly. There have also been criticisms that the actual success of the cloning procedure is not proven, i.e., Dolly might be an impostor and not a clone, also that the resulting animal may be susceptible to early aging since the nucleus taken from the donor adult is not free of the occasional genetic mutations that can occur in cells aged by time. Cloning of adult cells is clearly a very investigational procedure at this point. It is important to recognize this fact, which would avoid the rush to market by some self-styled entrepreneurs (Richard Seed(s)). States Rabbi Immanuel Jakobovitz, "It is indefensible to initiate uncontrolled experiments with incalculable effects on the balance of nature and the preservation of man's incomparable spirituality without the most careful evaluation of the likely consequences beforehand" (Rosner, p. 190). The time for this type of maneuver is not yet.

Metaphysical questions also exist in procedures of this type. Is it wise to perpetuate one's somatic cell line to reproduce oneself? I am reminded of the 90th Psalm, a prayer of Moses: "O Lord ... You return man to dust; You decreed, 'Return you mortals!' For in Your sight a thousand years are like yesterday that has past, like a watch of the night. You engulf men in sleep; at daybreak they are like grass that renews itself; at daybreak it flourishes anew; by dusk it withers and dries up." In Judaism God is viewed as the ultimate timekeeper of individual lives. God also has the wisdom to know why events happen to us when we ourselves do not know why, a wisdom which contains knowledge of the beginning and end of our lives and the reasons. Do we have a "sight [of] a thousand years" to see what the result of perpetuating ourselves through asexual reproduction will be?

III. Infertility

The third purpose envisioned for the cloning of adult cells is to grant children to those who are sterile from birth, accident, or old age. States Rabbi Moshe Tendler, "Show me a young man who is sterile, whose family was obliterated by the Holocaust and who is the last in a genetic line. I would advise cloning him to create a descendent" (Tendler, 1997, p. A22). Rabbi Tendler's point of view is understandable given the Jewish view that abortion, for Tay-Sachs, for example, may be permitted in circumstances of extreme duress making life unbearable for the mother. Though the point in life is different, the circumstances are similar to the story of Abraham and Sarah, who gave birth to Isaac when they were 100 and 90, respectively. Isaac went on to become the heir to the Jewish faith for the people of his time. The distinction from Rabbi Tendler's scenario is that Isaac's birth depended on divine intervention, and it was birth from an embryo, i.e., sexual (albeit divinely inspired) reproduction. One could argue that the cloning procedure is justifiable from the example of God extracting Eve from Adam's rib, but the analogy misses the biblical intent - to show that God intended reproduction to occur through the union of male with female. The main reason I emphasize the importance of sexual reproduction in Jewish lore is that it also has a natural function - to recombine genetic material and avoid deleterious genetic mutations, a protection the cloning of nuclei from adult cells lacks. The procedure, though well intended, avoids just as much the renewal of genetic material between the old and the new generation as it does the preparation of a soul by God for birth into the world, a soul which in the Jewish tradition is pure by virtue of its coexistence with God before birth. In the circumstance where a procedure with unsure consequences and uncertain implications is the only way to produce progeny, liberal Judaism offers several ways to continue to pass one's endowment to future generations - through charitable acts and donations, creations such as books and music that we leave behind, and the memories with which we grace others.

Sterility is just one form of infertility, however; sometimes the problem can be corrected with less ethically questionable means. The techniques used in cloning can be used to enable pregnancy with eggs that have been fertilized, overcoming the above ethical objections. For example, a subset of persons considered infertile have fertilizable eggs that die before they can implant in the uterus. Cloning scientists have used a basic technique also employed in the cloning of nuclei from adult cells - transfer of the fertilized nucleus into a fresh cell lacking a nucleus - to "jump start" eggs affected by this problem. There are various Jewish laws prohibiting cross-breeding and the production of chimaeras, but these laws would only apply in a weak sense if at all since there is no combining of genetic material. The kind of research needed to establish success of this technique poses no problem from the Jewish perspective since it takes place within the first forty days after conception (some rabbinic authorities consider the fertilized egg during this period to be nothing more than fluid), and it serves a good cause, both from the medical and Jewish perspective - the command to "be fruitful and multiply".

In couples where infertility has been connected with implantation problems in the mother's uterus, splitting or twinning of the mother's embryos has been proposed to increase the odds of a successful implant. This form of cloning, also known as "blastomere separation" since it involves division and multiplication of the egg soon after it is fertilized, emerged from the work of researchers at George Washington University Hospital in 1993. The hope with this technique is that at least one of the clones will make it through to a successful birth. In considering the technique from an ethical standpoint, one must ask, "What happens to the other clones?". One answer is that some of them simply do not make it through -- they fail to implant in the mother's uterus or do not develop successfully. This situation is somewhat like the "wasting of seed" that Jewish bioethicists have talked about when considering the ethicalness of contraception or in-vitro fertilization. Rosner cites biblical sources outlawing emission of seed for naught, but it is permitted under valid circumstances connected with sterility (Rosner, pp. 74,5). The other possibility is that the extra embryos do "make it through", and the mother ends up with a multiple gestation. The question of acceptability of this method of cloning then boils down to whether termination (also known as "multifetal reduction") of more than two fetuses is permissible under Jewish law (the risk of mortality increases after two). The general consensus is that the procedure is acceptable before forty days, and after that time for more than two fetuses. There have been metaphysical arguments against the splitting of embryos due to belief in the uniqueness of souls. The major counter-argument is that the procedure and result is not much different from the natural process of forming identical twins. In the religious sense, this type of cloning might be considered a justifiable act of co-creation along with or facilitation of an act of God.

IV. Manufacture of Organs and Tissues

The final situation I wish to address is the use of cloning for organ and tissue manufacture and transplant, a possibility recently voiced by Tendler: "... show me a child whose survival depends on transplantation of bone marrow. I would advise cloning to save the child's life. A child produced for this purpose would then be doubly loved" (Tendler, p. A22). It must be recognized that this situation is vastly different from the previous one, since twins born to a previously infertile couple will be on equal footing in essentially every sense when they are born, unlike the situation where parents intentionally create a clone to donate an organ or tissue to a sibling. It is a cardinal principle of Judaism that one may not sacrifice one life to preserve another. The words of Moses Maimonides are illustrative here: "Logic dictates that in regard to taking the life of an Israelite to cure another individual or to rescue a person from one who threatens violence, one may not destroy one human life to save another human life" (Mishneh Torah, Hilchot Yesodei Hatorah 5:7).

One might argue this principle does not apply to the current situation since the donor clone will continue to live after contributing bone marrow. Let us suppose, however, that the cloned person is to be considered a constant source of bone marrow for the original sib, which might occur, say, in a case of chronic leukemia. Continuing the aforementioned biblical reference, this condition is not unlike the relationship between Isaac and his brother Ishmael. There were natural rivalries between Sarah and Hagar (Ishmael's

mother) and between Isaac and Ishmael, so that eventually Abraham banished Hagar and Ishmael and patriarchy to Isaac. Who is to say that a child born to service another will not be taken for granted or gain a lesser status in parental eyes if their contribution to a brother or sister is a recurrent necessity? There is also the question of the emotional impact on the cloned, developing child. Jews, who have had to be sensitive to the self-stigmatization that can follow Tay-Sachs testing, should bear this in mind. One can also envision gray areas in which clones are harvested at a fetal stage or half-beings are created, but these possibilities only introduce a horde of criticisms associated with creating golems. The weight of the above arguments militates against use of cloning to provide donor organs and tissues.

In terms of policy options, I am in agreement with recommendations made by Rabbi Elliot Dorff to the national cloning commission (Dorff, 1997, pp. 7-9). Research should continue; there should not be a total, permanent ban; regulations through professional organizations and institutions are preferred to government interventions; but legislation may be needed in some circumstances. This line of reasoning can help stem the rise of a black market, can allow refinement of techniques that might one day find application in actual practice, and can keep contained those techniques whose difficulties lie unresolved. Part of the initial filter for deciding which cloning technologies should be advanced is whether they meet the standards of reasonable ethical criteria, both secular and religious.

Address Correspondences to:

Stephen M. Modell, M.D., M.S.; Council on Genetics and Society; SPH-II, HMP, M3048; 109 S. Observatory; Ann Arbor, MI 48109-2029; e-mail: mod@umich.edu.

REFERENCES

Dorff, Elliot. Presentation to the National Bioethics Advisory Commission. Los Angeles: University of Judaism; 14 Mar 1997: 9 pp.

Rosner, Fred. *Modern Medicine and Jewish Ethics*, 2nd Edition. New York: Yeshiva University Press / Ktav Publishing House; 1991.

Tendler, Moshe. *The Right Situation* (op-ed.). New York Times 12 Dec 1997: A22.

CLONING

Morton D. Prager, Ph.D.

The announcement of producing Dolly, a sheep clone, by inserting DNA from an adult sheep into an enucleated sheep egg excited both the scientific world and the lay public. Cloning with embryonic cells was achieved about ten years ago, but this was the first report of the feat being accomplished with DNA from an adult. When sperm and egg unite, DNA of the fertilized ovum is totipotent, i.e., it is capable of supporting development of all the cell types needed for a complete individual. Adult cell DNA has lost totipotency; it has undergone modification in keeping with the specialized function of the cell in which it appears; when a liver cell reproduces, it makes new liver cells, not kidney or lung cells. Thus Dolly represents something entirely new in reproductive technology.

It is easy to see great advantages of cloning for agriculture and animal husbandry. One can imagine the creation of prize flocks of high milk producers, fine quality wool, animals or plants that produce drugs or needed human proteins for therapeutic application, animals and agricultural products resistant to disease. Cloning might even be used to preserve endangered species.

Human cloning, however, raises a host of questions for which there are as yet no answers. There are those who look upon the possibility of human cloning as a way to aid infertile couples who desire children. A patient needing a bone marrow or other organ transplant could be helped by having a cloned fetus as a donor, thereby eliminating the rejection problem. However, cloning from adult DNA remains at best highly inefficient, Dolly being the only sheep produced

from 277 trials. At worst, despite early optimistic talk of other laboratories having success, experiments confirming the Dolly experience have not been reported in any scientific journal. The marked uncertainty of the process itself should urge caution in extending cloning to human beings. To those who think of a clone as an organ donor, Jewish tradition views each human life as sacred; no one exists for the sake of another. There are certainly alternatives for the childless couple which are more acceptable. More importantly, production of a healthy individual is highly questionable. A serious unsolved issue is the quality of the DNA taken from an adult. DNA undergoes mutation, and when it is extracted from tissue, one cannot be sure it has not undergone alteration predisposing toward disease. For example, the offspring might develop cancer at an early age and suffer premature death. Many other disorders resulting from mutation of a single gene might be passed to the offspring. The more the donor has aged the greater the likelihood that the DNA has undergone alteration. It could not be guaranteed that the offspring would not be born prematurely aged. We have no right to take such risks for an individual unable to speak for itself. Sexual reproduction carries the promise that each individual represents something new, something unique that may enhance the species. Cloning involves asexual reproduction so that a totally unique offspring cannot be produced. Cloning can carry some of the same concerns as eugenics which presupposes that we know how to build in those characteristics that are most desirable. But these are the very qualities of character that are not the products of single genes, and we do not know how to select for specified virtues. Genetics provides a slate upon which experience writes, and even identical twins do not have identical characters because they have differing experiences. Therefore, we cannot confidently predict what the character of the cloned

individual might be.

President Clinton's National Bioethics Advisory Commission made the following recommendation. "Federal legislation should be enacted to prohibit anyone from attempting, whether in research or in a clinical setting, to create a child through somatic cell nuclear transfer." While cloning domestic animals may permit development of flocks with desired characteristics more rapidly than by the more traditional methods, the Commission's recommendation regarding human cloning expresses a wise caution given the present state of knowledge, and there is no present justification for such experimentation with human beings.

Human Cloning and the Jewish Tradition

Harvey L. Gordon, M.D.

Society's response to the idea that scientists might clone humans has been overwhelmingly negative. From the halls of Congress to the pulpit, from editorial page to back fence conversation, voices rise in opposition. But other voices caution against too rapid a dismissal of cloning. There are philosophers and ethicists, scientists and religious spokespersons, whose opinions cover a wide spectrum. Some, while wary of the ethical implications, grant that there could be situations where cloning is appropriate. Others find it the ethical equivalent of any other mode of assisted reproduction. Respected Jewish thinkers have not categorically rejected the cloning of humans. Our historic texts, written in earlier times, don't address "cloning" directly, but one author, in a flight of scholarly imagination, considers Eve, created from the rib of Adam, the first human clone. (Gen. 2:22).

Do we find guidance in text? Let's examine the "Eve hypothesis". Having at most one "parent", Eve wasn't "conceived" in the ordinary sense. Rather, she seems to have been created *asexually*. Cloning is an *asexual* process because the genetic complement of the offspring is an exact duplicate of a single parent, while in sexual reproduction, genes are inherited from two genetically distinct progenitors. It's not just animals, but fruits and flowers too that can reproduce sexually; both pollination and copulation accomplish the pooling and recombination of genes.

Genes are bits of DNA located on chromosomes in the nucleus of a cell. They determine our biologic identity. Most of our cells are *somatic* cells, having a complement of 44XX

chromosomes if we are female, or 44XY chromosomes if we are male. The exceptions are *the gametes*, eggs having 22X chromosomes, sperm having either 22X or 22Y. With fertilization the gametes fuse, pooling their chromosomes to provide a full somatic complement for the resulting offspring.

Theoretically, we could clone people using, *somatic cell nuclear transfer*, the technique by which Dolly was produced. The nucleus of a somatic cell of the parent, with its full complement of chromosomes, is transferred to a specially prepared egg from which the nucleus - containing all of the chromosomes of the egg - has been removed. Thus you have an egg similar in most ways to one that has been fertilized, but that has received its entire chromosomal complement from a single parent. It can then be induced to begin dividing, as if it were a normally fertilized egg. Implanted into a uterus, it will develop into an offspring with the exact genetic makeup of the parent from whom the somatic cell, with its full genetic complement, was derived.

So what does that tell us about the creation of Eve? Being a male, Adam had 44XY chromosomes. Eve, who is a female had 44XX. The essence of cloning is *genetic identity*. So, having her own unique genetic complement, Eve is no clone.

In creating Eve, God is working outside the laws of nature. We, however, have to live and work within those laws. A Jewish view of nature's laws is that they are a manifestation of God, part of the unfolding plan of creation. We can assume that God's commanding Adam and Eve to 'Be fruitful and multiply' (Gen. 1:28) is part of the divine plan. The question is, does the divine plan include cloning people?

If God's goal is to populate the earth with men and women who are exact genetic copies, the commandment could mean, "*Replicate yourselves*", and cloning, would fit the bill. But look around you - we are clearly not genetic replicas of each other. The diversity of our species suggests that what God has in mind is not replication, but *reproduction*. Children are not genetic replicas of either parent. They are a *product* of their union; genetic heirs of both parents, they are genetically unique.

Replication makes an exact genetic copy of the original. Reproduction has the potential for a virtually infinite number of genetic recombinations. The diversity that characterizes our species could not have come about through replication. Dolly may be cloned - and Her clones cloned - and every clone will be a copy of Dolly. But every descendant of Adam and Eve - from Cain and Abel, to you and me - has been a unique individual-

The Rabbis of the Talmud saw that the plan was good. They taught, "Man was created alone... to proclaim the greatness of the Holy One. For if a man strikes many coins from one die, they all resemble one another; in fact they are exactly alike. But though the king of kings, the Holy One, blessed be He, fashioned every man from the die of the first man, not a single one of them is like his fellow. Hence, each and every person should say, "The world was created for my sake" (B. Sanh. 38a).

It's understandable that an infertile Jewish couple, responding to the *mitzvah*, 'Be fruitful and multiply', might rather make a child with the genes of one parent than introduce the genes of a donor. Or were each a carrier of a defective gene, they might rather clone than risk conceiving a child a child with Tay-Sachs disease. Advances in biotechnology are morally

neutral; it is the use to which we put them that can be unethical. There can be little doubt that there will be ethically compelling reasons to clone people.

My point is not that it is unethical for Jews to be cloned, but that there is a Jewish dimension to human cloning. From a Jewish perspective, cloning - genetic replication - is not just another means of assisted reproduction. Jews accept that *mitzvah* - commandment is one way to know what God requires of us. It is nothing new for Reform Jews to look beneath the surface for the deeper meaning of *mitzvot*. Words like, *P'ru ur'vu* - "Be fruitful and multiply", must be studied and contemplated in order to understand their meaning. Perhaps we gain insight when we look at the world around us. Each of us is created in God's image, yet each of us is unique. It's clear that *genetic diversity* is an important part of God's plan. That is the course set out upon by Adam and Eve. To that extent, human cloning does not respond to the first *mitzvah* given to our original ancestors, "Be fruitful and multiply".

A Sampling of Opinions

- 1. Dr. Alan Meisel, University of Pittsburgh**

- 2. Jerusalem Report: April 16, 1998**

- 3. Hastings Center Report: September/October 1997**
 - a. Executive summary of National Bio-Ethics Advisory Commission**

 - b. Response by Dr. Susan M. Wolf**

- 4. Excerpt from: "If I am Only My Genes, What Am I? Genetic Essentialism and a Jewish Response" Dr. Paul Root Wolpe**

THE CLONING CONUNDRUM

BY

Alan Meisel

Professor of bioethics and law and director of the
Center for Medical Ethics at the University of Pittsburgh

From The Jerusalem Report – April 16, 1998

Sheep are fine, but are people divine? A leading expert on medical ethics, **Alan Meisel**, examines the questions raised by cloning — and argues for continued scientific exploration

Dolly, the cloned sheep, took pretty much everyone by surprise. Yet cloning itself isn't very new. Scientists have been cloning bacteria for decades, and they cloned tadpoles in the 1970s. This set everyone abuzz wondering if eventually scientists could clone people. But the controversy died down about 15 years ago because the idea of cloning a large animal, let alone a human, was said by the best authorities to be impossible.

Just a few years ago, scientists cloned a mouse, not a very large animal but still much bigger than bacteria and tadpoles, so this once again set off a furor about whether humans could be cloned. This time the controversy died down even more rapidly than after tadpoles were cloned, probably owing more to the shortening of the average adult's attention span by CNN than to the improbability of the feat. So on we went paying even less attention to the possibility of cloning people than to the media's current scare fad — whether it is an asteroid wiping out the Earth or the polar ice caps melting and creating beachfront property in Harrisburg.

That's why last Sunday morning's front page headline in whatever newspaper we happened to be reading — because they all had essentially the same one — provided many of us with the wake-up jolt usually achieved only by several cups of coffee. Not since Mary had a little lamb has a news story about sheep grabbed so much attention. Although the headlines read "Scientists Clone Sheep" or something like that, it might as well have said "Scientists Clone Human" because the subtext couldn't have been clearer. The news of the birth of a sheep, even by unconventional means, doesn't mean too much to most of us; rather it was the headline's unspoken possibility that grabbed our attention.

We can skip over the discussion about whether cloning a human is possible. Regardless of what the experts tell us, it's going to happen. Just look at all the things that couldn't happen that did in this century alone: radio, television, airplanes, space travel, organ transplantation, cloning a mouse, cloning a sheep, desktop computers, laptop computers, palmtop computers,

even wristwatch computers. Well, a wristwatch computer is probably pushing it a bit; we could never do that, just as we could never clone a sheep.

The potential dangers of cloning people are enormous and far-reaching, so much so that it is mind-boggling to conjure up all the possibilities. Let's look at a few. If cloning ourselves became commonplace, the risk of inbreeding might significantly increase as would the attendant genetic dangers. When we clone a sheep, we choose one that has already been bred to get rid of bad sheep qualities and to enhance good sheep qualities, and so we are likely to create many with the best qualities in all of sheep-kind. But if people can clone themselves, they will create another with not only the good but also the bad genetic qualities that all of us possess.

Unless, of course, we first breed people, like sheep, to get rid of these bad genetic qualities. Apart from the moral qualms that we have about breeding people, that could actually turn out to be worse because it would reduce genetic diversity. When a potato blight strikes today, a large proportion of our crop can be wiped out because of the lack of genetic diversity. It would be a shame to see people go the way of potatoes.

There are lots of other knotty problems that we can foresee. If I were able to clone myself, could the first me make the second me into a servant, or would he be an independent person? Would cloning be limited to self-cloning, or would we allow others to decide to clone us? For example, when I was a child, could my parents have cloned me if they had liked me so much that they would have preferred another me to my sister? Could an employer or the government require some people to be cloned to preserve their potential for future generations, such as cloning another Thomas Edison? Or what about creating a slave class of particularly intelligent but obedient humans to serve the rest of us?

Possibilities such as these seem very undemocratic. There are many out there right now saying that we should never have let the sheep-genie out of the bottle, but now that we have we can't put it back. The lesson to be learned is keep the human-genie in the bottle. In other words, we must take strong steps right now to prevent the cloning of a human being.

THE CLONING CONUNDRUM

I admit to having strong sympathies with this line of thinking until I consider the difficulties with some of the possible solutions. There is no stopping human inquisitiveness, and once we begin to ask questions, it's only a matter of time before we begin to take steps to answer them and then to act on the answers.

Couldn't we pass a law that says, in effect, "sheep yes, people no"? Of course we could, but there are serious questions about the constitutionality of such a law if it is aimed at stopping the creation and acquisition of knowledge. To be constitutional, a law would have to be aimed at stopping the translation of knowledge into practice, but that brings us up against the question of enforceability, which is probably impossible except in a police state. And in a police state, it is possible that the state would want to clone more police.

•
Even if such laws were constitutional, would they be a good thing for society?

In the middle ages, the Catholic Church tried to impose similar measures on scientific investigation, excommunicating scientists such as Galileo who propounded the outrageous and dangerous notion that the Earth was spherical and rotated around the sun. Rather than submit to censorship, many continued their scientific investigations and accepted the punishments meted out. And it's a good thing they did. Europe would have remained in the Dark Ages even longer than it did had it not been for these brave law-breakers.

Another problem with outlawing a practice is that if it does continue surreptitiously, it cannot be monitored and regulated, in the end possibly creating greater abuses. If we try to ban experiments on cloning humans, we're going to run the risk of getting cloned humans anyway, but without a supervised and monitored development process.

Rather than avoiding a Frankenstein, we could wind up getting one because we did not allow, indeed because we did not require, an orderly scientific development process. This is not the kind of thing we want people doing in their garage.

There are certain inevitabilities in life, and I'm afraid that this is one of them. Passing laws to prohibit the practice won't work. We need to face up to the challenge and try to assure that science and technology work for us rather than sabotaging us. That should be the aim first of public debate and then of law.

Surprisingly, rabbis and Jewish ethicists are giving their approval, in principle, to human cloning. Indeed, they are already grappling with its staggering implications for Jewish law.

Peter Hirschberg

BARELY A YEAR AGO, HEADLINES around the world heralded the birth of Dolly the sheep, the first-ever successful clone from an adult mammal.

Well, perhaps the second.

The first-ever cloning, some would say, took place 5,758 years ago.

As the earliest published lab report puts it: "The Lord God cast a deep sleep upon the man; and, while he slept, He took one of his ribs and closed up the flesh at that spot. And the Lord God fashioned the rib that He had taken from the man into a woman" (Genesis 2:21-22).

While the cloning of Adam to create Eve passed without too much moral hand-wringing — they were, after all, the only two humans around — Dolly's birth has sparked worldwide debate over whether human cloning is ethically acceptable, or a dangerous step beyond human limits. The debate only intensified in January this year, when maverick Chicago physicist Richard Seed announced he planned to clone a child within two years.

The common, often strident criticism is that cloning constitutes "playing God." The Vatican, in what may be the most publicized religious response to the possibilities raised by Dolly's arrival, called for a blanket ban on the cloning of humans, with Pope John Paul II denouncing "dangerous experiments" that could undermine human dignity.

But experts on Jewish medical ethics are much less unnerved. In principle, say the rabbis and doctors who spoke to The Jerusalem Report, human cloning is acceptable under halakhah, Jewish religious law. It poses no danger to the distinction between God and human, no threat to the divinity of Creation. The consensus crosses denominational lines, with top Reform and Conservative bioethicists joining Orthodox colleagues in approving the procedure in principle.

And, indeed, while the experts all oppose human cloning at present, because of the dangers of untested biotechnology and a host of other factors, they are already grappling with the most down-to-earth questions: Under what circumstances is cloning justified? How far must science advance before it can be tried? What does it mean in practical terms for a person to be a clone — carrying DNA that's close to identical to another human being's genetic make-up? Who are a clone's parents? What does cloning mean for the family structure?

Some of the questions now being debated by Jewish medical ethicists are universal; others are specifically halakhic: How will the rules on marriage and incest apply to a clone? Does bringing a clone into the world satisfy the first Commandment in the Torah, to be fruitful and multiply?

Human cloning, says Rabbi Richard Address, director of the U.S. Reform movement's Department of Jewish Family Concerns, "will happen sooner rather than later. We have to put guidelines and boundaries on ourselves."

Is cloning permissible?

Yes, but not yet — that's the most prevalent opinion.

Human cloning would involve removing the DNA from a cell of a mature being, treating it so that it will behave like the DNA in an embryonic cell, and then implanting it in a human ovum. The egg cell would then be inserted into a woman's womb, where it would develop like any other embryo. The DNA could come from the woman who bears the child, from her spouse — or from a complete stranger. The child, genetically, would be the near-identical twin of the donor, differing only slightly because of a small amount of DNA in the ovum.

Most rabbis and Jewish experts who specialize in medical ethics say that the process is not only theoretically permissible, but that there may even be an imperative to use it, where it would provide a clear medical benefit — such as solving infertility problems, or creating tissue-matched donors. Prof. Avraham Steinberg of Jerusalem noted, in a February lecture to an international conference on Jewish medical ethics in San Francisco, that the Jewish stance concerning any untried scientific or social innovation "is a cautious, conservative one." But then Steinberg,

director of the Center for Medical Ethics at Hebrew University's Hadassah Medical School and a pediatric neurologist at Shaare Zedek Medical Center, went on to cite the classic Mishnah commentary, Tiferet Yisrael: "Anything for which there is no reason to forbid is permissible with no need for justification, for the Torah has not enumerated all permissible things, rather forbidden ones."

Of those interviewed by The Report, only Lord Immanuel Jakobovits, the former chief rabbi of England, was unwilling to say today that there would be circumstances justifying human cloning in the future. He notes that "we are dealing with a very delicate area — the

creation of human life. The tiniest error could be utterly disastrous over generations." And he argues that people must know when to restrain their creative ability. "Characteristically, the Jewish Sabbath recalls not God as the Creator, but as He who knew when to cease creating and to retain control over what He had created. On that capacity, even more than on human creativeness, may human survival ultimately depend."

Does cloning undermine belief in the Creator?

No.

By cloning, humans are not playing God, or replacing God, experts say. The divine creative process, they note, entailed creating "something out of nothing." With cloning, one is creating "something out of something."

Like all other reproductive technologies, Steinberg said in his lecture, cloning involves "the unearthing of pre-existing factors in the nature of Creation. Using our knowledge of nature for various purposes in no way constitutes a new creation... Only the Creator of the universe is able to



create a world *ex nihilo*. These technologies do not solve the mystery of life or disclose life's basic, fundamental essence."

Jewish ethicists have also discussed whether cloning might constitute "meddling" in God's creation, in some way that should be forbidden. But again, the standard response is that it does not.

Unlike the Catholic view, which warns against any tampering with nature, Judaism considers it a mitzvah to master and harness nature for the benefit of humanity. That commandment appears in Genesis 1:28, where God issues the blessing: "Replenish

the earth and subdue it."

"We are obliged to have dominion over the world and the animal kingdom for the benefit of mankind," says Fred Rosner, an expert on Jewish medical ethics and professor of medicine at the Mt. Sinai School of Medicine in New York. "Maimonides, in his introduction to his commentary on the Mishnah, asks why did God put the [thousands of] species of insects on the earth? Why did God create elephants? Who needs all of this? It's all to serve mankind. Therefore, whatever we can use for the benefit of mankind is fine, and within God's command to us."

"God is still the ultimate healer," agrees Rabbi Elliot Dorff, vice chair of the Conservative movement's Committee on Jewish Law and Standards, "but the physician is God's agent."

Among the world's medical ethicists, the tampering-with-creation debate once raged around in-vitro fertilization. Now, says Rosner, "IVF is fine." Some day, he adds, "it will be the same thing with human cloning — it won't be an issue anymore."

The Reform movement's Address is the one expert who expressed some theological discomfort. "Human cloning could potentially detract from the divine in creation... the sense of mystery, call it God, call it the divine spark." Still, he sees that as reason not for banning cloning, but for "measured, slow research."

Is cloning permissible under all circumstances? Are there red lines?

Some have compared cloning to the advent of nuclear energy — a development with the potential both for enormous benefit and terrible destruction. "The position of halakhah," says Orthodox Rabbi Pinchas Lipner, dean and founder of the Institute for Jewish Medical Ethics in San Francisco, "is that we should proceed cautiously and develop moral and ethical guidelines for the research. We must be careful not to create monsters and not to create havoc."

Some point to the legend of the Golem — a nonhuman creature supposedly produced with kabbalistic methods by the 16th-century Maharal of Prague — as instructive. According to the legend, the Maharal was ultimately forced to destroy the Golem when it turned on him.

But that cautionary parable doesn't appear to have spooked Jewish medical ethicists. The rule of thumb, most say, is that cloning is permissible if it has clear medical benefits, and if the benefits outweigh the costs and risks. Such criteria, they note, immediately rule out any form of eugenics (an effort at genetic "race improvement") — outlawing the creation, for instance, of a society of human beings with super-IQs. "Rabbinic opinion is that it would not be appropriate to use human cloning to tailor-make your offspring," adds Rosner. "To have a blue-eyed blond child, for instance."

Among the experts, only Jakobovits said that he was unwilling to state that there would be circumstances justifying full human cloning: "To give a ruling on the basis of insufficient data on a contingency in five or ten years... is running before we can walk." Other Jewish medical ethicists say that once the technology is perfected, there are definite situations in which it would be acceptable to produce a human clone.

Take, for example, an infertile couple who have been unable to have a child with the assistance of any of the existing reproductive techniques. Theoretically, cloning might provide a solution. Similarly, parents who are both Tay-Sachs carriers could avoid the risk of having a doomed child. A clone, a genetic copy of one parent, would be a carrier, but wouldn't have the disease.

"Infertility is an illness and God commanded us to overcome illness," says Rosner, referring to rabbinic tradition that the words "*rapo yerapeh*" ("he will surely heal") in Exodus 21:19 are a general injunction to heal the sick. "We are commanded to heal, therefore we are not tampering with life."

Human cloning could also save the life of a leukemia sufferer unable to find a bone-marrow donor. It would be permissible to manufacture a child — cloned from the patient to ensure a tissue match, says Dorff, as long as "it is loved and treated as a full human being." The clone, reassuringly adds Rabbi Moshe David Tendler, a professor of Jewish medical ethics at Yeshiva University and chair of the biology department at Yeshiva College, "would be doubly loved — for itself and for the fact that it saved its sibling."

For now, the rabbinic authorities applying cloning to humans in any circumstances because, says Tendler simply, "risk-benefit ratio is negative." What would an, asks Tendler, "would agree to be planted with an egg when the odds are that it will produce a monster?" Steinberg notes that the social risks — for instance, to the family structure — must be weighed, and the Conservative movement's Dorff points out that cloning could pose a risk to natural diversity in the human species — "a critical factor in biology for overcoming disease."

But Tendler and Steinberg enthuse about the potential benefits, and thus strongly encourage continued research — toward hoped-for medical breakthroughs that, for now, fall short of creating a cloned human being. They speak of using cloning techniques in the possible treatment of Alzheimer's and Parkinson's diseases, for example, in which specialized brain cells have been damaged. These cells, says Steinberg, "could be revitalized."

What's more, cloning might also provide a solution to the shortage of transplant organs. "We're desperately short of organs for transplants," says Jakobovits, who is more open to such a partial cloning technique. "Cloning individual organs would be an enormous contribution."

And while cloning of whole organs may be some time off, Tendler says it could be possible within five years to make muscle cells that could then be transplanted into the heart to replace damaged tissue. Of course, notes Dorff, cloning a full human being to harvest his organs and then killing him would be totally forbidden.

The research could also deepen understanding of cancer — and perhaps even yield a capability to curb the proliferation of cancerous cells. "The study of cloning, up to the actual cloning of a human being," says Tendler, "holds the greatest hope for the study of oncology... Heavy emphasis must be put on the research potential."

What issues does cloning raise for the family?

One of the most vexing problems is establishing who exactly are the clone's mother and father. That has implications for a whole range of halakhic issues: Does cloning create the danger of incest? How does a clone observe the commandment to respect and honor parents? How is inheritance established?

"In halakhah," said Steinberg, "the sperm donor is the father, whether he is the mother's husband or not. We don't have a definition of paternity when the contribution to the fetus is genetic material, like a mature cell's nucleus, and not sperm."

Motherhood already became a question with surrogacy, with experts divided over whether the halakhic mother is the ovum, the woman who bears the child, or perhaps even both. Cloning now opens up mind-boggling issues regarding motherhood and fatherhood, most of which have yet to be resolved:

- Take a case where the nucleus is taken from a woman's mature cell and implanted in her own ovum, and the embryo is returned to her uterus. Here, said Steinberg, the woman is clearly the mother, "since she contributed the genetic material, was pregnant and gave birth to the fetus." But who's the father? Maybe there is no father. Maybe it's the maternal grandfather, suggested Steinberg, "since he supplied the male genetic information to the mother's cells." But then, the mother may also be the father since the fetus originated solely from her.

"This last possibility," said Steinberg, grappling with the hitherto fantastic, "seems halakhically unlikely, since a woman is never found to be viewed as a 'father.'" Attributing paternity to the child's grandfather also seems unlikely, he says, since his contribution was indirect. "It therefore seems sensible that this child will have no father at all," concluded Steinberg.

- What if the husband contributes the nucleus, and his wife provides the ovum? The husband is then clearly the genetic father, but does that make him the halakhic father? That, said, Steinberg, "depends on whether donation of genetic material is sufficient to determine fatherhood, or if only the sperm donor can be considered the halakhic father." This question, too, remains open.

- How about a situation where the ovum donor is a married woman, and a Jew other than her husband provides the mature cell. Under Jewish law, which regards the child of an adulterous relationship as a *mamzer* (bastard), will that be the unfortunate status of the cloned child?

Tendler is unequivocal: "You cannot commit adultery with a hypodermic syringe," he scoffs. "Even if a woman uses donor sperm against the will of her husband, it has no consequences for the child."

- What if the DNA donor is a non-Jewish woman, but the ovum comes from a Jewish woman who bears the child? Maternity determines Jewishness — but who's the mother? Steinberg says it could be the non-Jewish donor, but not necessarily. "If it is, you might need a conversion, but that's not so terrible."

Resolution of the "who's the parent" question is crucial in determining who would later be off-limits to the cloned child under the prohibitions of incest. Then there's the matter of whether a clone would have the right of inheritance from the person who donated the DNA. What would Jewish law say in the event of an inheritance battle between a cloned child and a naturally conceived brother or sister? And what about *cohen* status? Is it passed on to a clone — an issue that has bearing on marriage, since according to Jewish law a *cohen* cannot marry a divorcee.

For religious parents, there's a further question: Is the obligation of "Be fruitful and multiply" satisfied through cloning? The answer, said Steinberg, "depends on a debate among the halakhic authorities. Some maintain that the mitzvah is satisfied only by full, natural conjugal relations, while others maintain that the mitzvah depends on the birth of a viable newborn."

Another concern that Rosner raises is the effect of cloning on the family structure, immensely valued in Judaism. The Talmud, he says, describes "the creation of a human being as a triple partnership between a father and a mother and God." With cloning, he suggests, that partnership is undermined. "The basic institution of marriage seems to be thwarted by all these technologies. So there are moral, although perhaps not legal, reasons not to do this. That's why I'm saying to go slow."

Is a clone a human being? Does cloning threaten human individuality?

A clone is definitely human. "A human being is defined in halakhic terms as someone who is born out of a mother's womb," says Rosner. "So a Golem cannot be counted for a minyan, whereas a cloned human being could be." All we are doing, laughs Tendler, is "mechanizing the human body. The uterus is only an incubator and the husband is only a stimulator."

Jewish tradition, however, stresses the uniqueness of every human being. Doesn't cloning undermine that aspect of the human condition?

The fact is, say the experts, cloning will not lead to the creation of identical human beings. A whole gamut of factors — starting with conditions in the uterus, and continuing with the environment in which the clone grows up, will ensure that he or she differs in many ways from the donor.

Take the idea of cloning Albert Einstein, Tendler muses. Even assuming that the cloned "Einstein" is brilliant, the environment in which he grows up could lead him to choose to use his genius for destructive goals. "He could end up as the most effective drug-importer in the world. Production of a clone does not restrict free will."

Indeed, free will — ever since Adam and Eve — has been the mark of a human being. Cloning, most Jewish ethicists say, may change the process of reproduction, but not the essence of the product. ●

Knesset Prepares Its Guidelines

A LAW WENDING ITS WAY through the Knesset will forbid cloning human beings, but will allow cloning research to continue, says its sponsor, Labor's Hagai Meirum.

The task of establishing the research guidelines and limitations, says Meirum, will fall to a special committee to which anyone engaging in cloning research will have to submit a work plan for approval. "We want scientists to be able to do everything to promote the health of human beings," says Meirum, "but we also want to prevent irresponsible steps, attempts to change the human race." Meirum's bill has gained initial Knesset approval, and is now before the Science Committee for further consideration.

Both of Israel's chief rabbis have declared that the rabbinate does not reject cloning, but that limits must be placed on its use. "The desire to create a superior human being is familiar to us from the darkest regimes in the history of mankind," Ashkenazi Chief Rabbi Yisrael Lau, a Holocaust survivor, told the Science Committee last year. He also warned of the dangers of destroying the "family unit" and of undermining the uniqueness of each human being.

Sephardi Chief Rabbi Eliahu Bakshi-Doron told the committee there was "no need to rush. It is better to wait a year or two to see in which direction genetic engineering and cloning develop in the world. The State of Israel does not have to be a pioneer in this field." ●

Peter Hirschberg

THE JERUSALEM REPORT APRIL 16, 1998

By Barbara Trainin Blank

The Ethics of Cloning

The possibility of replicating humans through asexual means has long fired the imagination. Victorian writer Mary Shelley may have invented Frankenstein, but the idea of a physical form miraculously endowed with life by man's action had already taken hold among Jews in the Middle Ages. The most famous such golem was created by Rabbi Judah Loew in the sixteenth century to protect the Jews of Prague.

Cloning is also a popular subject in science fiction. In his book *The Boys From Brazil* (and the movie derived from it), Ira Levin speculated about the horrors of cloning Hitler. In more humorous terms, Woody Allen's film *Sleeper* depicts a futuristic world in which a past leader is to be cloned from his nose.

In myth and literature human cloning has been associated with a loss of dignity and freedom. So when Scottish scientist Ian Wilmut announced in February that he had cloned a sheep, many people reacted with trepidation. Wilmut fused an udder cell (which had been kept in suspended animation to ensure its DNA would be working after transplant) with an immature egg cell (without a nucleus). After an embryo formed it was transferred to the womb of a ewe—and five months later Dolly was born. Few scientists doubt the ability to clone humans as "time-delayed twins" will follow. And few ethicists doubt that human cloning presents moral dilemmas that should be considered now, before that technology is implemented.

Those dilemmas are many. What does cloning say about the uniqueness of God and His creation? Is it ethical to replace dying children with copies or have clones just to provide precisely matched organs for transplant? Would cloning deal a further blow to the traditional family—

encouraging more unmarried women to have children? Does it mean a loss of freedom because human beings can be cloned without their knowledge or permission, say, as a result of a routine blood test? Does cloning smack of horrific medical experiments such as those perpetrated by the Nazis in the name of eugenics?

If there is one word to describe the attitudes of many

Jewish scientists, doctors and religious leaders toward human cloning, it is ambivalence. In Israel, the Ashkenazic chief rabbi called for a ban on it; the Sefardic chief rabbi did not. The Knesset Committee on Science and Technology is studying the issue. Even those opposed may believe the research leading up to it should not be banned because studies on gene-altered animals can bring new medicines, improved treatment of genetic diseases and hearts for transplants.

"I am against the cloning of human beings," says Dr. Yossi Shenkar, head of the Department of Obstetrics and Gynecology at the Hadassah Medical Organization and chairman of the ethics committee of the

World Federation of Gynecologists. "There is the danger it could be misused by dictators. But allowing scientists to take the steps that may lead to cloning, as in organ transplantation, is important. Continuing such experiments may help in the treatment of cancers, some of which are genetic. I wouldn't want a ban to be placed on experiments, even though the end process of transferring a uterus to a human being creates ethical problems."

Concern about a ban was also expressed by Dr. Jon Gordon, Mather Professor of Geriatrics and professor of obstetrics and gynecology at the Mt. Sinai School of Medicine. "Cloning research is not specifically tied to actually



trying to clone an animal," says Dr. Gordon, who developed a technique for injecting genes into fertilized eggs. "But taking cells from adult animals and fusing them with eggs to create embryos under specialized conditions relates to gene therapy, which in turn can be used for treating enzyme deficiencies and such neurodegenerative diseases as amyotrophic lateral sclerosis [Lou Gehrig's disease]. It can also be relevant to the treatment of cancer, hemophilia and diabetes. There's thinking we could graft skin on burn victims from genetically engineered cells that couldn't possibly be rejected."

Dr. Gordon believes the likelihood of human cloning is small because it would be "challenging and costly" to find women willing to undergo transfer of cloned embryos. Nonetheless, he admits, some Jewish patients might use cloning to replace a child dying of, say, Tay-Sachs disease. "It may be possible to grow cells in a culture, replace the defective gene with a normal gene, and the next child won't have Tay-Sachs. That's one application of cloning. But if the couple has another child to replace the first, the next child will be completely different. There's no advantage to it." Scientists agree a human clone couldn't be an exact duplicate of the parents because of differences created by environment, temperament and even cell changes over time.

From a religious standpoint cloning presents a special challenge. Since it has not yet taken place, to what degree are there halakhic precedents?

"It's one of those issues for which there is very little explicit in the sources we can use as analogy," says Rabbi Mark Washofsky, chair of the responsa committee of the Central Conference of American Rabbis. "We're just beginning to work on the subject. How you feel depends on one's general position on reproductive technology, whether you think it's positive or not with the proper safeguards. In general when it comes to issues like artificial insemination and in-vitro fertilization, we've tended to follow the premise that scientific advancement is a good thing—if it meets a good need. The question is, why are we looking to copy human beings who are already here? Perhaps in cases of infertility, but beyond that?"

Still, Washofsky admits, his committee is not likely to issue a religious ban on cloning. "We can prohibit it on the grounds of what it might do or be more permissive and trust ourselves to have enough *seikkbel* [sense] to restrain it."

Even without clear-cut halakhic references there are "precedents for the issue of man meddling in the speciation of the world, if it is meddling," explains Rabbi Moshe D. Tendler, professor of talmudic law, the Rabbi Isaac and Bella Tendler Chair in Jewish Medical Ethics and chair of biology at Yeshiva University. "At the end of *Parshat Vayishlah*, Anah is described as the first person to make a mule. The Talmud comments that he was a blemished soul and therefore brought blemished animals into the world.

Why were the rabbis so angry at Anah? My understanding is that he didn't know how to behave like a guest. God gave us mastery of the world, but as guests."

Such admonitions aside, the Jewish attitude toward scientific progress is often positive, he adds. "We've been impinged upon by Catholic doctrine that the unnatural is always bad. But in the Jewish world the unnatural can be a mitzva."

The more basic question is for whose benefit cloning would take place. "Show me a man who's the last of his line, who lost everyone in the Holocaust and is sterile," Tendler continues. "I would probably clone him to give his genetic line a chance. If we're ready to interrupt construction of a dam so as not to interfere with a bird or fish species, I would take a risk to preserve a Jew. Each Jew is a species unto himself."

In the absence of clear-cut halakhic guidelines cloning must be viewed as an example of human beings' aggregation of power, asserts Rabbi David Wolpe, assistant to the chancellor and professor of modern Jewish thought at the

Jewish Theological Seminary. "Cloning is another blow to the necessary sense of humility we should have in dealing with the mysteries of life."

At the same time, cloning is susceptible to abuse, not horrific in and of itself. "I feel suspicious of anyone who's comfortable with revolutionary changes," he comments. "On the other hand cloning is not yet giving me sleepless nights. Religion has nothing to fear from science. You can't make an exact replica of a human being because a human being has something unfathomable—no matter what technology is used. The great divide is between the

materialists, who think physical matter is everything, and those who think human beings contain something intangible. The premise that if you clone 50 Stalins you get 50 Stalins works only if you're a materialist."

Dr. Shenkar agrees. "Cloning only involves something somatic. It does not give the clone what is called the *beriya u'nesbama*, the breath and soul of a human being."

Some scientific advances must be avoided, Tendler says, following the talmudic exhortation "Neither your honey nor your sting." But not cloning. "There is a statement in Midrash Rabbah: 'The sword and the book came down to the world intertwined,'" he says. "It's a double helix. Every significant sphere of human activity has the potential for good or evil. There are no long-term studies of offspring of genetically manipulated conceptions and [the] data on animal embryo splitting—that each piece of the embryo is pluripotent—gives cause for concern. But we have a responsibility to help people and advance science."

Regardless of their religious viewpoint or affiliation, Jews are likely to be torn between the "sword" and the "book" of cloning for some time. "Until agreement sets in," says Washofsky, "ambivalence will be the feeling in a lot of camps."

'Cloning is another blow to the necessary sense of humility we should have in dealing with the mysteries of life.'

Executive Summary

From *Cloning Human Beings: The Report and Recommendations of the National Bioethics Advisory Commission* (Rockland, Md., June 1997)

The idea that humans might someday be cloned—created from a single somatic cell without sexual reproduction—moved further away from science fiction and closer to a genuine scientific possibility on February 23, 1997. On that date, *The Observer* broke the news that Ian Wilmut, a Scottish scientist, and his colleagues at the Roslin Institute were about to announce the successful cloning of a sheep by a technique which had never before been fully successful in mammals. The technique involved transplanting the genetic material of an adult sheep, apparently obtained from a differentiated somatic cell, into an egg from which the nucleus had been removed. The resulting birth of the sheep, named Dolly, on July 5, 1996, was different from prior attempts to create identical offspring since Dolly contained the genetic material of only one parent, and was, therefore, a “delayed” genetic twin of a single adult sheep.

This cloning technique is an extension of research that had been ongoing for over 40 years using nuclei derived from non-human embryonic and fetal cells. The demonstration that nuclei from cells derived from an adult animal could be “reprogrammed,” or that the full genetic complement of such a cell could be reactivated well into the chronological life of the cell, is what sets the results of this experiment apart from prior work. In this report we refer to the technique, first described by Wilmut, of nuclear transplantation using nuclei derived from somatic cells other than those of any embryo or fetus as “somatic cell nuclear transfer.”

Within days of the published report of Dolly, President Clinton instituted a ban on federal funding related to attempts to clone human beings in this manner. In addition, the President

asked the recently appointed National Bioethics Advisory Commission (NBAC) to address within ninety days the ethical and legal issues that surround the subject of cloning human beings. This provided a welcome opportunity for initiating a thoughtful analysis of the many dimensions of the issue, including a careful consideration of the potential risks and benefits. It also presented an occasion to review the current legal status of cloning and the potential constitutional challenges that might be raised if new legislation were enacted to restrict the creation of a child through somatic cell nuclear transfer cloning.

The Commission began its discussion fully recognizing that any effort in humans to transfer a somatic cell nucleus into an enucleated egg involves the creation of an embryo, with the apparent potential to be implanted in utero and developed to term. Ethical concerns surrounding issues of embryo research have recently received extensive analysis and deliberation in our country. Indeed, federal funding for human embryo research is severely restricted, although there are few restrictions on human embryo research carried out in the private sector. Thus, under current law, the use of somatic cell nuclear transfer to create an embryo solely for research purposes is already restricted in cases involving federal funds. There are, however, no current federal regulations on the use of private funds for this purpose.

The unique prospect, vividly raised by Dolly, is the creation of a new individual genetically identical to an existing (or previously existing) person—a “delayed” genetic twin. This prospect has been the source of the overwhelming public concern about such cloning. While the creation of embryos for research purposes alone always raises serious ethical questions, the use of somatic cell nuclear transfer to create embryos raises no new issues in this respect. The unique and distinctive ethical issues raised by the use of somatic cell nuclear transfer to create children relate to, for example, serious safety concerns, individuality, family integrity, and treating children as objects. Consequently, the

Commission focused its attention on the use of such techniques for the purpose of creating an embryo which would then be implanted in a woman's uterus and brought to term. It also expanded its analysis of this particular issue to encompass activities in both the public and private sector.

In its deliberations, NBAC reviewed the scientific developments which preceded the Roslin announcement, as well as those likely to follow in its path. It also considered the many moral concerns raised by the possibility that this technique could be used to clone human beings. Much of the initial reaction to this possibility was negative. Careful assessment of that response revealed fears about harms to the children who may be created in this manner, particularly psychological harms associated with a possibly diminished sense of individuality and personal autonomy. Others expressed concern about a degradation in the quality of parenting and family life.

In addition to concern about specific harms to children, people have frequently expressed fears that the widespread practice of somatic cell nuclear transfer cloning would undermine important social values by opening the door to a form of eugenics or by tempting some to manipulate others as if they were objects instead of persons. Arrayed against these concerns are other important social values, such as protecting the widest possible sphere of personal choice, particularly in matters pertaining to procreation and child rearing, maintaining privacy and the freedom of scientific inquiry, and encouraging the possible development of new biomedical breakthroughs.

To arrive at its recommendations concerning the use of somatic cell nuclear transfer techniques to create children, NBAC also examined long-standing religious traditions that guide many citizens' responses to new technologies and found that religious positions on human cloning are pluralistic in their premises, modes of argument, and conclusions. Some religious thinkers argue that the use of somatic cell nuclear

transfer cloning to create a child would be intrinsically immoral and thus could never be morally justified. Other religious thinkers contend that human cloning to create a child could be morally justified under some circumstances, but hold that it should be strictly regulated in order to prevent abuses.

The public policies recommended with respect to the creation of a child using somatic cell nuclear transfer reflect the Commission's best judgments about both the ethics of attempting such an experiment and our view of traditions regarding limitations on individual actions in the name of the common good. At present, the use of this technique to create a child would be a premature experiment that would expose the fetus and the developing child to unacceptable risks. This in itself might be sufficient to justify a prohibition on cloning human beings at this time, even if such efforts were to be characterized as the exercise of a fundamental right to attempt to procreate.

Beyond the issue of the safety of the procedure, however, NBAC found that concerns relating to the potential psychological harms to children and effects on the moral, religious, and cultural values of society merited further reflection and deliberation. Whether upon such further deliberation our nation will conclude that the use of cloning techniques to create children should be allowed or permanently banned is, for the moment, an open question. Time is an ally in this regard, allowing for the accrual of further data from animal experimentation, enabling an assessment of the prospective safety and efficacy of the procedure in humans, as well as granting a period of fuller national debate on ethical and social concerns. The Commission therefore concluded that there should be imposed a period of time in which no attempt is made to create a child using somatic cell nuclear transfer.¹

Within this overall framework the Commission came to the following conclusions and recommendations:

I. The Commission concludes that at this time it is morally unacceptable

for anyone in the public or private sector, whether in a research or clinical setting, to attempt to create a child using somatic cell nuclear transfer cloning. We have reached a consensus on this point because current scientific information indicates that this technique is not safe to use in humans at this time.

Indeed, we believe it would violate important ethical obligations were clinicians or researchers to attempt to create a child using these particular technologies, which are likely to involve unacceptable risks to the fetus and/or potential child. Moreover, in addition to safety concerns, many other serious ethical concerns have been identified, which require much more widespread and careful public deliberation before this technology may be used.

The Commission, therefore, recommends the following for immediate action:

- A continuation of the current moratorium on the use of federal funding in support of any attempt to create a child by somatic cell nuclear transfer.
- An immediate request to all firms, clinicians, investigators, and professional societies in the private and non-federally funded sectors to comply voluntarily with the intent of the federal moratorium. Professional and scientific societies should make clear that any attempt to create a child by somatic nuclear transfer and implantation into a woman's body would at this time be an irresponsible, unethical, and unprofessional act.

II. The Commission further recommends that:

- Federal legislation should be enacted to prohibit anyone from attempting, whether in a research or clinical setting, to create a child through somatic cell nuclear cloning. It is critical, however, that such legislation include a sunset clause to ensure that Congress will review the issue after a specified time period (three to five years) in order to decide whether the prohibition continues to be needed. If state

legislation is enacted, it should also contain such a sunset provision. Any such legislation or associated regulation also ought to require that at some point prior to the expiration of the sunset period, an appropriate oversight body will evaluate and report on the current status of somatic cell nuclear transfer technology and on the ethical and social issues that its potential use to create human beings would raise in light of public understandings at that time.

III. The Commission also concludes that:

- Any regulatory or legislative actions undertaken to effect the foregoing prohibition on creating a child by somatic cell nuclear transfer should be carefully written so as not to interfere with other important areas of scientific research. In particular, no new regulations are required regarding the cloning of human DNA sequences and cell lines, since neither activity raises the scientific and ethical issues that arise from the attempt to create children through somatic cell nuclear transfer, and these fields of research have already provided important scientific and biomedical advances. Likewise, research on cloning animals by somatic cell nuclear transfer does not raise the issues implicated in attempting to use this technique for human cloning, and its continuation should only be subject to existing regulations regarding the humane use of animals and review by institution-based animal protection committees.
- If a legislative ban is not enacted, or if a legislative ban is ever lifted, clinical use of somatic cell nuclear transfer techniques to create a child should be preceded by research trials that are governed by twin protections of independent review and informed consent, consistent with existing norms of human subjects protection.
- The United States Government should cooperate with other nations and international organizations to en-

Ban Cloning? Why NBAC Is Wrong

by Susan M. Wolf

In its report on cloning, NBAC recommended a ban of unprecedented scope.¹ Based on commission consensus that human cloning would currently be unsafe, NBAC called for congressional prohibition throughout the public and private sectors of all somatic cell nuclear transfer with the intent of creating a child. President Clinton promptly responded by proposing legislation to enact such a ban for five years.

NBAC was wrong to urge a ban. Cloning undoubtedly warrants regulation. But the ban proposed will not yield the sort of regulation required. Instead, it will reduce cloning to a political football in Congress, raise serious constitutional problems, and chill important research. NBAC defends its ban as a limited one, prohibiting somatic cell nuclear transfer (not all forms of cloning), when used to create a child (not in research), and for three to five years (not indefinitely). A congressional ban, however, is likely to be far broader.

NBAC erred by taking cloning out of context. Like any technology, cloning needs to be safe before used. But that counsels regulation, not a ban, which merely slows development of safe procedures. And cloning demands we deal with issues beyond safety on which NBAC achieved no consensus, issues bound up in the ethics of human experimentation and reproductive technologies.

A better approach would extend human subjects protection into the private sphere and regulate reproductive

technologies effectively, with a central advisory body for novel issues such as cloning. By failing to tackle private research and reproductive technologies, NBAC avoided the real job and instead proposed an isolated and misguided response to cloning.

The Regulatory Challenge

Human cloning clearly requires regulation. Indeed, some regulation already applies. President Clinton has barred all federal funds for cloning, covering both research and clinical application.² Earlier prohibitions on the use of federal money to create human embryos for research purposes would also impede cloning research with federal funds.³ And federal regulations protecting human subjects would seem to block cloning in research covered by those regulations because cloning remains unsafe, at least for now.⁴ This leaves two regulatory gaps that properly troubled NBAC: private sector research outside federal oversight and private clinical activity, especially infertility programs using reproductive technologies.

But by responding to these worries with a congressional ban, NBAC missed the target. Protecting human subjects in private research and regulating reproductive technologies are both long overdue. A ban on cloning just suppresses one technology, while these two systemic problems guarantee the development of other technologies in need of regulation. Some would argue that somatic cell cloning deserves to be singled out as the most threatening possibility. But that assumes a conclusion we have

not had time to reach, that Dolly-style cloning raises radically more difficult problems than, for example, cloning by embryo splitting (which can also lead to a delayed twin, with cryopreservation).⁵

NBAC admits that protecting human subjects in private research offers advantages over a ban on cloning (pp. 99-100). Yet the commission balks. It first complains that extending human subjects protections requires legislation and thus delay. But Senator John Glenn (Dem., Ohio) has already proposed legislation,⁶ and enacting a congressional ban involves delay as well. The commission further complains that human subjects legislation would rely on decentralized institutional review boards (IRBs). But others have suggested creating a national IRB for novel questions,⁷ and NBAC ought to be considering this among other improvements in human subjects protection anyway. Moreover, IRBs are actually part of a larger mechanism providing centralized federal agency review when needed. The commission's final objection is that human subjects legislation would not reach beyond research activity to clinical use, as in infertility clinics. But this merely counsels supplemental regulation of those clinics.

NBAC's report, in fact, suffers from minimal consideration of infertility programs and reproductive technologies.⁸ The commission acknowledges that the federal statute requiring fertility clinic reporting would seem to require reporting of cloning (p. 88).⁹ But it ignores the broader issues plaguing reproductive technologies: the inadequacy of federal and state regulation, state-to-state inconsistencies, and conflicts of interest inherent in industry self-regulation. The report overlooks the burgeoning literature on those problems and, indeed, reflects little input from infertility programs.¹⁰

Instead of developing a legal response to cloning that addresses the core problems of private research and underregulated reproductive technologies, NBAC simply called for a ban of cloning itself. That skirts the central problems, while adding new ones.

Susan M. Wolf, "Ban Cloning? Why NBAC Is Wrong," *Hastings Center Report* 27, no. 5 (1997): 12-15.

The Error in a Ban

No other bioethics controversy has been addressed by a ban as broad as the one NBAC advocates and the president now proposes. Its prohibition reaches all public and private institutions, whether or not federal money is involved or FDA approval is required. Limits on the use of federal money are common, but federal prohibitions on medical and scientific work in the private sector are not.

Moreover, the ban threatens substantial damage. The president's bill prohibits "somatic cell nuclear transfer with the intent of introducing the product of that transfer into a woman's womb or in any other way creating a human being," and would impose significant fines. Though NBAC insists it does not want to tamper with research in the private sphere, merely baby-making, this ban cannot avoid the former. The policing necessary to enforce the ban will require intruding into labs and monitoring the "intent" of scientists. Research will thus be chilled. It will be chilled further by the vagueness of a prohibition that is meant to ban baby-making, but seems to reach intent to "transfer," even if a researcher knows no child will result, plus the intent to create a human being in any unspecified "other way."

Beyond the ban's breadth and potential damage, NBAC and the president have placed this weapon in the wrong hands. The ban is to be imposed by Congress itself, not a regulatory body poised to respond to developments in the technology. That turns cloning into a political football. Past congressional brawls over the related areas of embryo research and abortion predict the same for cloning. This means that although the president and NBAC would ban private-sector application not research, Congress is likely to ban research too, as one of the pending federal bills seems to propose.¹¹ And though the president and commission would ban only somatic cell nuclear transfer, Congress may well include other technologies such as embryo splitting (which, after all, is another form of cloning and may also pro-

duce a delayed twin). Two of the three federal bills pending appear to do exactly that.¹² But embryo splitting may allow a woman undergoing in vitro fertilization to avoid repeated exposure to drugs inducing superovulation, which may reduce her risk of ovarian cancer later in life. Finally, though NBAC and the president would limit the ban to five years, there is little reason to expect Congress to develop the political bravery to lift the ban at that point.

The ban proposed thus raises serious constitutional questions. The ban's prohibition of somatic cell nuclear transfer with the wrong intent and its unavoidable chilling effect on research may infringe freedom of scientific inquiry in violation of the First Amendment.¹³ And the ban as proposed by the president may well be unconstitutionally vague in its statement of the prohibited intent.¹⁴ The ban may also represent an unconstitutional infringement on the procreative liberty of infertile couples.¹⁵ In any case, it may exceed the limits of federal power, especially since the regulation of health and clinical practice has traditionally fallen to the states.¹⁶

Beyond the constitutional questions, a ban at this point is bad policy. NBAC's advocacy of this ban contradicts its call for careful study and debate in our pluralistic society. With only ninety days to report on cloning, NBAC admits more analysis is needed. Yet by calling now for a ban that is likely to sweep more broadly and last much longer than NBAC wants, the commission has in effect already yielded to those who claim cloning is wrong in all cases and for the indefinite future. This ends the important deliberation, embraces one absolutist moral perspective, and writes it into law.¹⁷

NBAC defends the ban as a safety measure preventing harm to potential children. But that reasoning does not justify this result. Indeed, the ban may well cause harm. A ban that inevitably chills research will prevent the development of a cloning technology that is physically safe for the children it produces. Some may protest that even physically safe cloning may threaten

psychological harms. But that claim is purely speculative and can ground regulation and research, but not a ban; cloning may in fact save children from psychological difficulties involved in having an anonymous genetic parent through donor egg or sperm.

Moreover, a ban may cause harm to infertile couples, especially if it hardens into an indefinite prohibition. After all, cloning offers potential benefit in infertility cases. NBAC points to a couple each carrying a recessive gene for a serious disorder. Cloning would allow them to avoid conceiving an embryo with the disorder and facing selective abortion. In another case, a woman might carry a dominant gene for a disorder. Cloning would permit her to avoid genetic contribution from an egg donor and thus would keep the genetic parenting between the woman and her partner, something of value to many couples. Other cases would include a couple entirely lacking gametes.

All of these potential uses for cloning are controversial and might ultimately be rejected. But for NBAC to ban cloning because it currently is unsafe, with no agreement on the future benefits and harms if it becomes safe, is ill-advised. Stalling development of reproductive technologies may trap us in halfway measures, such as donors' genetic involvement, that may cause more harm than cloning.

A federal ban on cloning thus misses the big picture. Cloning is only one of many reproductive technologies that should be safe before application, be it intracytoplasmic sperm injection, cytoplasm transfer, or beyond. The task is to devise a regulatory approach that addresses safety while permitting research and progress in a sphere of immense importance to couples. Cloning should spur us to that delicate balancing act. Simply lowering the boom on cloning does the opposite.

A Better Model

There is a better way. Certainly we need improved regulation of assisted reproduction and human subjects

experimentation in the private sphere.¹⁸ But we have to combine that regulation with an advisory body providing oversight for cloning and other novel reproductive and genetic technologies.

The commission, president, and Congress should consider a model we have used before: agency regulation guided by an advisory body able to respond to improvements in the technology over time and more removed than Congress from partisan politics. Though NBAC's report compared policy options, strangely this was not among them.¹⁹

The Recombinant DNA Advisory Committee (RAC) is one example of such a body. RAC was formed over twenty years ago as an NIH advisory panel. When concern later erupted over human gene therapy, RAC (with its Working Group on Human Gene Therapy) showed how an advisory committee can hold the line, by refusing to consider germ-line gene therapy protocols for approval. It used not a legislative ban, but the committee's declared moratorium, continually subject to debate and reconsideration.

RAC's very accomplishments have fed criticism. As some forms of gene therapy became better understood (in part thanks to RAC), the committee's review began to seem an obstacle to scientific progress. The director of NIH restructured RAC earlier this year.²⁰ Now a smaller RAC will advise on ethical issues, surrendering authority to approve protocols to the FDA. Though RAC's authority has been reduced, this is a success story. A mechanism appropriate at the introduction of a controversial technology may require revamping later. What we use now to govern cloning must have the flexibility to evolve.

RAC is merely one example. And it is narrower than what we need for cloning: RAC's jurisdiction has been confined to protocols requiring NIH approval. On cloning, as I have argued, we need to extend human subjects protections to private research and regulate reproductive technologies, with an advisory body for novel issues such as cloning.²¹

Certainly the details of the model can be debated. Indeed, rather than create a new advisory body, using a reinvigorated RAC, another preexisting entity, or NBAC itself (if its mission were restructured) might be considered. And some may argue we need two bodies, one for human subjects and the other for reproductive technologies. But surrendering cloning to a congressional ban, as NBAC suggests, attempts a delicate operation with far too blunt an instrument. It is slim consolation that under the president's proposal, NBAC will be continuing discussion on the sidelines.

NBAC might respond that it favored a limited ban to head off worse proposals in Congress. But a national bioethics commission should call for what is right, not merely what is expedient. Congressional bills in the panicked days after the announcement of Dolly should not drive the national bioethics agenda.

A congressional ban may seem simple and safe. Yet the issues posed by cloning are not simple. We have to balance the promise of research and the potential benefits against the need for regulation and caution. We have to do better than NBAC's ban.

Acknowledgments

My thanks to George Annas, Arthur Caplan, Jim Childress, Alan Fleischman, Jeffrey Kahn, and John Robertson for advice at various stages, including on my related op-ed, "Why the Bioethics Commission is Wrong to Seek a Ban on Cloning," [Minneapolis] *Star Tribune*, 19 June 1997. They bear no responsibility for these views. Ryan Johnson of the University of Minnesota Law School provided able research assistance. Portions of this article are based on the earlier op-ed.

References

1. National Bioethics Advisory Commission, *Cloning Human Beings: Report and Recommendations of the National Bioethics Advisory Commission* (Rockville, Md., June 1997).
2. The White House, Office of Communications, Directive on Cloning, 4 March 1997, 1997 Westlaw 91957 (White House).

3. See "Statement by the President on NIH Recommendation Regarding Human Embryo Research," *U.S. Newsweek* (2 December 1994); Omnibus Consolidated Appropriations Act, 1997, Pub. L. No. 104-208, §512, 110 Stat. 3009, 831.

4. 45 C.F.R. Part 46 (1996). These regulations cover only research that is federally funded, at institutions offering assurances that all research will be subject to the regulations, or on drugs and devices needing FDA approval.

5. NBAC's report leaves unclear the proper policy approach to embryo splitting. Chairman Shapiro's transmittal letter states, "We do not revisit . . . cloning . . . by embryo splitting." However, a report footnote ambiguously "observes that . . . any other technique to create a child genetically identical to an existing . . . individual would raise many, if not all, of the same non-safety-related ethical concerns raised by . . . somatic cell nuclear transfer" (p. iii, n. 1). One would think that "any other technique" could include embryo splitting with cryopreservation to produce a delayed genetic twin. However, the report claims that the capacity to produce a delayed genetic twin is a prospect "unique" to Dolly-style cloning, i.e., somatic cell nuclear transfer (pp. 3, 64). This leaves NBAC's approach to embryo splitting in confusion.

6. S. 193, 105th Cong. (1997).

7. See Carol Levine and Arthur L. Caplan, "Beyond Localism: A Proposal for a National Research Review Board," *IRB* 8, no. 2 (1986): 7-9; Alexander Morgan Capron, "An Egg Takes Flight: The Once and Future Life of the National Bioethics Advisory Commission," *Kennedy Institute of Ethics Journal* 7 (1997): 63-80, at 69.

8. NBAC might respond that its mandated areas of study are human subjects research and genetic information, not reproductive technologies. But one cannot do justice to cloning without considering its most likely use in treating infertility. And a national commission should bring to cloning the necessary bioethics analysis, not just bureaucratically designated topic areas.

9. See 42 U.S.C.A. §§ 263a-1 et seq.

10. NBAC asserts, for example, that most reproductive technologies aside from in vitro techniques for fertilization involve no micro-manipulation as substantial as somatic cell nuclear transfer (p. 32), without even analyzing techniques such as assisted hatching and cytoplasm transfer. The report also makes the startling suggestion that childlessness condemns one to immaturity: "Without reproduction one remains a child . . . With reproduction . . . one becomes a parent, taking on responsibilities for another that necessarily require abandoning some of the personal freedoms enjoyed before" (p. 77). An infertile adult does not automatically remain a "child" and may take on numerous responsibilities requiring self-sacri-

**IF I AM ONLY MY GENES, WHAT AM I?
GENETIC ESSENTIALISM AND A JEWISH RESPONSE***
By
Paul Root Wolpe

*This article is based on the 1997 Isaac Franck Distinguished Memorial Lecture at the Kennedy Institute of Ethics.

Kennedy Institute of Ethics Journal Vol. 7, No. 3, 213-230 © 1997 by Johns Hopkins University Press

PAUL ROOT WOLPE is a faculty associate at the
Center for Bioethics at the University of Pennsylvania

Finally, after setting the genetic stage and painting a portrait of the modern, genetic self, let us turn to Jewish experience and tradition to see what it can add to the discussion. Judaism has a enormous body of literature on a number of bioethical issues, and rabbis and scholars already have begun the task of creating religious responses to modern genetics based on Talmudic law and textual interpretation. Here, however, I will focus on a single problem—the Jewish response to genetic selfhood—and will look to Jewish historical experience, not texts, for insights. In other words, rather than an exercise in Jewish bioethics, the following discussion might be seen as an exercise in the bioethics of Jews.

Judaism has a long history of making problematic the idea of selfhood. In fact, one of the most famous sayings in all of Jewish tradition is explicitly about the nature of the self and is paraphrased in the title to this article. It is the saying of the sage Hillel: “If I am not for myself, who will be for me? And if I am only for myself, what am I? And if not now, when?” Hillel underscores the centrality of the idea of self in Judaism by asking, “If I am not for myself, who will be for me?” We are each responsible for the maintenance and development of selfhood. But he goes on: “And if I am only for myself, what am I?” In Jewish thought, the self is not defined in isolation, but in relation to a community. The genetic self does not fulfill Hillel’s dictum; a genetic self can only be for itself.

Hillel began the long discussion of selfhood that Jews have brought with them through their travels in the Diaspora. But it was their Diaspora experiences that sharpened and defined Hillel’s dictum and imbued Jewish experience with a singular perspective on the self. Three examples may suffice to show the fruitfulness of this kind of inquiry.

Jews in the Diaspora

The Jews, as a Diaspora people, have always had the problem of establishing an identity in the context of the culture in which they lived. Much of Jewish history is a struggle to live in some dynamic tension between the expectations of society and the expectations of being Jewish.

Jews have developed different strategies to respond to this challenge. Some have chosen to retreat into religious isolation, insulating themselves from non-Jewish society and trying to maintain the purity of an internally-focused sense of selfhood. Others have tried to live as Jews and still participate in the larger culture, constantly balancing the demands of one against the other. Still others transformed religious Jewish identity into secular Jewish pursuits, such as Zionism, or channeled their view of Jewish ethics into alternative secular religions like socialism. Finally, some chose to relinquish their Jewish identities altogether and assimilate. But, in every context, Jewish social selfhood was and is problematic.

American Jews have made a strong mark in American literature and in Hollywood precisely due to their attempt to struggle with the problem of Jewish selfhood in their art. As Sam Girgus (1981, 1984) writes, American Jewish novelists from Abraham Cahan and Henry Roth to Bernard Malamud, Philip Roth, Joseph Heller, Norman Mailer, and Saul Bellow—and many more—have used their fiction to probe and illuminate the mean-

ing of the Jewish relationship to America and the formation of a Jewish-American identity. These writers supported the myth of America, or debunked it, or even created anti-myths, as did the Jewish communists, but in doing so they always maintained the ability of the self to rise above its circumstance.

Many have claimed that the Hollywood system as well was created largely by Jews exploring the fantasy of an America where their Judaism would not separate them out as pariahs as it had in Europe. This vision was not a romantic or sentimental one, although some Hollywood movies certainly presented it as such; but the real Jewish story of Hollywood was not as much in the content of the movies as in the content of the studios, where Jews fresh from a Europe that despised them were generating the great American myths. In Hollywood, as in American Jewish letters, says Girgus, a main, ongoing theme is the concern for moral elevation in the competitive and often brutal modern world. Think of Bellow and Mailer, or the classic movie *On The Waterfront* with Marlon Brando, written by Budd Shulberg, or for that matter, even the anti-heroes of the Marx Brothers or Woody Allen.

Jews have always understood that identity is chosen, is to some degree the product of moral choice. The great American Hollywood myth, the individual triumphing over odds and holding on to principle in face of the pressures of a hostile world or great challenge was in no small degree a Jewish invention. The absolution the genetic self offers for the responsibility for one's behavior is anathema to Jewish thinking and to Jewish experience.

Jews and the Embodied Self

The second reason that Jews have something unique to say about genetic selfhood is that Judaism has, since the earliest days of the Talmud, been preoccupied with the conflict inherent in our being divine yet embodied creatures.

Howard Eilberg-Schwartz beautifully describes this tension in Judaism in works such as *People of the Body* (Eilberg-Schwartz 1992). Humans are made in the image of a God who has no body and are supposed to emulate that God to the extent possible, yet the body often is dirty and polluting. For example, we are mandated to procreate, one of the holiest acts in Judaism, even though the fluids of procreation, menstruation and semen, are unclean and polluting discharges. We must struggle with the ideological paradox of being Godlike, with a spark of the divine, yet profane, made of dust and ashes.

That is why governing the body is a central preoccupation in Judaism and leads to laws of kashrut (what is put into the body), cleanliness and uncleanness (what comes out of the body), and sexuality (the mixing of bodies). The Bible is full of rules and discussions about skin conditions and disfigurements, such as those that disqualify a priest from serving in the Temple or an animal from being brought as a sacrifice or being eaten. If we must inhabit a body, we must strive to purify it and ritually manage its paradoxes.

Judaism never has been naive about embodiment and never has denied the basic physical nature of the human being or its needs. Sexuality never has been denigrated in Judaism, is not the result of a "fall," and sexual

pleasure, within the confines of marriage, is extolled. Similarly, there is no true ascetic tradition in Judaism, no celibacy, no abstention from alcohol. There are strict controls around these things, but little value is placed on renunciation. Judaism thus recognizes the ongoing tension between our corporeality and our divinity, and much of Jewish tradition is dedicated to managing that tension through ritual. The genetic self, however, can speak only to our embodiment, and undermines the delicate balance that the tension between corporeality and divinity always presents to humanity.

The tension is nowhere better described in the secular literature than in the Pulitzer Prize winning book *The Denial of Death*, written by psychoanalyst Ernest Becker (1973). Becker argues that it is precisely our embodiment that keeps us corporeally grounded, one step below angels; we are, as he says, "the angels that shit," and the fact that we must incorporate into our identities bile and feces and semen and blood and all the base desires and processes that make up our corporeality is precisely what keeps us from seeing ourselves as ultimately divine. The ultimate indignity is that we will die, and the end of our corporeality is the final confirmation of its existence. Becker describes virtually all of human history and human psychic energy as emerging from this paradox. Is it any surprise that the source of this perspective is Sigmund Freud, a Jew whose insights were so often derived from secularized and medicalized threads of Jewish thinking (Gay 1987)?

The history of Jewish recognition of the reality of embodiment has made Judaism more receptive to human manipulation of life than is Christianity and may help to explain Jews' traditional inclination toward medicine as a profession (Berger 1995). While Christian reactions to human cloning, for example, have been overwhelmingly negative, the orthodox Jewish bioethicist Moshe Tendler cautiously endorses it under certain circumstances (*BioWorld Today* 1997). Conservative Jewish bioethicist Eliot Dorff, on the other hand, opposes it (*Los Angeles Times* 1997). One reason Dorff gives for his position is that, according to a Jewish interpretation of Genesis, we are not granted permission to live forever. (This in itself is interesting, by the way, because it buys into the genetic essentialist argument that my clone is, in some sense, me, simply because he shares my genetic information.) He also notes that cloning ourselves would be to worship ourselves rather than God, which is idolatry. Cloning takes embodiment as a goal in itself and strips us of the "divinity" that must balance our corporeality.

Jews and Eugenics

The third reason Jews must contribute to any discussion of the genetic self is their unique history as the victims of biological and eugenic categorizations. The Jewish cosmogonic myth, the Jewish myth of origin, was the first fundamentally anti-racist myth, postulating a common ancestor for all humanity. The Talmud states, "for the sake of peace among creatures, the descent of all men is traced back to one individual, so that one may not say to his neighbor, my father is greater than yours" (Sanh. 4:5). The irony, of course, is that Jews so often have been the victims of precisely the opposite thinking.

Jews always have been regarded as "other" in the societies in which they have lived. From the beginning of racial theorizing in the late eigh-

teenth and early nineteenth centuries, Jews figured prominently in the discussions of racial superiority and inferiority. Jews were regarded in nineteenth century as an ugly race, a mongrel race. Artists, writers, politicians, doctors, and scientists portrayed Jews as having skin diseases, as having a dark skin tone that they called "black-yellow," and of being closely related to Negroes, in fact, of having interbred with them during their North African sojourns.

Sander Gilman has written eloquently on this issue in books such as *The Jew's Body* (Gilman 1991; see also Gilman and Katz 1991, Gilman 1992). Gilman goes into great detail describing how non-Jewish scientists, philosophers, and others (and often Jewish scholars as well) have described and analyzed Jewish physiological difference. Jews were defined, throughout the nineteenth and into the twentieth centuries, not by their culture or religious beliefs, but by their (perceived) racial characteristics. In fact, Jewish cultural and religious beliefs were often believed to have taken their form through innate racial characteristics of behavior and temperament. For example, Gilman and, separately, Jay Geller (1992), show how in nineteenth and early twentieth centuries European Jewish character was said to be embodied by the shape of the Jewish nose, which represented all that was backward, inferior, and nefarious about the Jewish race. They go on to show how the mid- to late twentieth century rhinoplasty craze among first and second generation Jews reflected a deep and involved belief in the nose as the symbol of Jewish physiognomy and thus the locus of Jews' inability to assimilate.

There is virtually no example in modern history of a eugenically-oriented argument that is not based on profoundly moral judgments of genetic worth. For the last 150 years, people who were seen as being of lesser genetic stock were branded intellectually inferior, morally corrupt, criminally degenerate, incapable of higher moral behaviors, sexually promiscuous, and so on (Gould 1981). The history of the abuses perpetrated in the name of genetic purity need not be reviewed here; suffice it to say that it seems unlikely that the late twentieth century genetic self will manage to succeed where all other eugenic philosophies have failed, that is, in creating a model of eugenics that does not include an expectation that something be done to correct (or to eliminate) those deemed to be genetically impaired.

Therein lies the great danger of modern eugenic manipulation, a point too seldom commented upon, a sociological point about the dangers of misunderstanding the meaning of living in a particular historical moment in a particular society. Imagine what would have happened had genetic engineering techniques been available in the 1850s, 1900s, or, for that matter, in the 1950s. Imagine for a moment the traits that those societies would have chosen to splice in and weed out of their offspring, thus molding future generations. Physiological traits were said to determine personality in the 1850s—imagine if you could weed those traits out of Jews and others. Women in the early twentieth century were supposed to be delicate and to faint at the sight of blood; why not select for those desirable traits? Teenagers in the 1950s were often portrayed as too promiscuous, suffering from rampant hormones that had to be controlled and in constant danger of masturbating or getting themselves or their partners "into trouble." How convenient it might have been had the genetic means been available to suppress sexual desire until the twenties, or to delay puberty.

What kind of manipulation might we do to our own children to mold them into the models operative in our historical moment? What are the values that *we* will choose to engineer into our offspring, values that later generations will see as misguided, parochial, or even evil? We give our children Ritalin now to fit them into a society that demands a kind of conformity that they cannot achieve. What happens if those very traits are desirable in a society of the future? We run the risk of reifying our parochial social conventions into the genetic legacy of our ancestors. We always bring our moral beliefs to our science.

CONCLUSION

Leon Kass (1997, p. 20) writes about cloning:

Indeed, in this age in which everything is held to be permissible so long as it is freely done, in which our given human nature no longer commands respect, in which our bodies are regarded as mere instruments of our autonomous rational wills, repugnance may be the only voice left that speaks up to defend the central core of our humanity. Shallow are the souls that have forgotten how to shudder.

On the one hand, our immediate, visceral reactions to things have often proven to be short-sighted and have been used to justify the "naturalness" of institutions such as slavery. On the other hand, we must respect that visceral reaction when it emerges and probe its source. Sociologists are not always skeptical of ambivalence on moral and social issues. People do not live by internally consistent moral codes, and all societies display contradictions in attitude and behavior.

The bioethicist Daniel Callahan (1997, p. 24) has written:

I am pro-choice on abortion, anti-choice on physician-assisted suicide (a profound threat to civil liberties, I think), pro-choice on animal research (sorry, Dolly) and anti-choice on cloning (as a danger to our individual uniqueness). Am I wise and thoughtful, supple and sensitive, or just illogical and inconsistent? If my field could give me a good answer to that question, it would be better off.

Sociologically speaking, Professor Callahan is in very good company.

We are in the process of a fundamental change in the nature of the self. The problem is not the cloning of an army of Hitlers, and the solution is not the Luddite reaction against technology. Rather, we must monitor the slow, fundamental change in our conceptions of ourselves and our place in the world. We must be wary of the temptation of the possible, and we must draw from the deep fount of accumulated human wisdom to temper and judge developments that can so profoundly alter the nature of our existence.

REFERENCES

- Allen, Arthur. 1997. Policing the Gene Machine: Can Anyone Control the Human Genome Project? *Lingua Franca* (March): 29-36.
- The American Spectator*. 1994. DNA on Trial. *The American Spectator* (November): Cover.
- Archaeology*. 1996. The Quest for DNA. *Archaeology* (September/October): Cover.
- Becker, Ernest. 1973. *The Denial of Death*. New York: Free Press.

- Berger, Natalia. 1995. *Jews and Medicine*. Tel Aviv: The Museum of the Jewish Diaspora.
- BioWorld Today*. 1997. Ethics Panel May need the Wisdom of Solomon to Devise Cloning Recommendation. (17 March): 1.
- Callahan, Daniel. 1997. Bioethics & the Culture Wars. *The Nation* (14 April): 23–24.
- Carroll, Janell, and Wolpe, Paul Root. 1996. *Sexuality and Gender in Society*. New York: HarperCollins.
- Douglas, Mary. 1970. *Natural Symbols*. New York: Pantheon Books.
- Eilberg-Schwartz, Howard, ed. 1992. *People of the Body—Jews and Judaism from an Embodied Perspective*. Albany: State University of New York Press.
- Elshtain, Jean Bethke. 1997. Hard Questions. *The New Republic* 216 (13, 31 March): 25.
- Gay, Peter. 1987. *A Godless Jew: Freud, Atheism, and the Making of Psychoanalysis*. New Haven: Yale University Press.
- Geller, Jay. 1992. (G)nos(e)ology: The Cultural Construction of the Other. In *People of the Body—Jews and Judaism from an Embodied Perspective*, ed. Howard Eilberg-Schwartz, pp. 243–82. Albany, NY: SUNY Press.
- Gergen, Kenneth J. 1991. *The Saturated Self*. New York: Basic Books.
- Gilman, Sander L. 1991. *The Jew's Body*. New York London: Routledge.
- . 1992. *The Visibility of the Jew in the Diaspora: Body Imagery and Its Cultural Context*. Syracuse, NY: Syracuse University Press.
- , and Katz, Steven T. 1991. *Anti-Semitism in Times of Crisis*. New York & London: New York University Press.
- Girgus, Sam B., ed. 1981. *The American Self—Myth, Ideology, and Popular Culture*. Albuquerque: University of New Mexico Press.
- . 1984. *The New Covenant—Jewish Writers and the American Idea*. Chapel Hill & London: University of North Carolina Press.
- Gould, Stephen Jay. 1981. *The Mismeasure of Man*. New York: Norton.
- Herrnstein, Richard J., and Murray, Charles. 1994. *The Bell Curve: Intelligence and Class Structure in American Life*. New York: Free Press.
- The Humanist*. 1995. Elvis' DNA. *The Humanist* (May/June): Cover.
- Kass, Leon R. The Wisdom of Repugnance. *The New Republic* 216 (22, 2 June): 17–26.
- Lancaster, R. N. 1988. Subject Honor and Object Shame: The Construction of Male Homosexuality and Stigma in Nicaragua. *Ethnology* 27: 111–25.
- Los Angeles Times*. 1997. Hearts of the City, Navigating the Real World. *Los Angeles Times* (26 February): B2.
- Motokawa, Tatsuo. 1989. Sushi Science and Hamburger Science. *Perspectives in Biology and Medicine* 32: 489–504.
- Nelkin, Dorothy, and Lindee, M. Susan. 1995. *The DNA Mystique*. New York: W. H. Freeman and Company.
- Newsweek*. 1996. The Cancer Killer. *Newsweek* (23 December): Cover.
- Time*. 1993. Cloning Humans. *Time* (8 November): Cover.
- . 1997. Man of the Year. *Time* (30 December 1996/6 January 1997): Cover.
- UNESCO Courier*. 1994a. Biotechnology—The Resourceful Gene. *The UNESCO Courier* (June): Cover.

Overview of World Religious Opinions

**“Reflections” Newsletter, Oregon State University,
May 1997**

(Reprinted with permission)



NEWSLETTER OF THE PROGRAM FOR ETHICS, SCIENCE, AND THE ENVIRONMENT

REFLECTIONS

Department of Philosophy • Oregon State University • Special Edition • May 1997

Human Cloning: *Fact, Fiction, and Faith*

In late February, an obscure scientific researcher in Scotland, Dr. Ian Wilmut, presented headline-grabbing news, the first successful mammalian cloning, culminating in a sheep named "Dolly." One week later, researchers in Oregon announced that they had successfully produced genetically identical rhesus monkeys through nuclear transfer. All of a sudden a prospect once the stuff of science fiction—the cloning of a human being—seemed close to becoming a social reality.

These scientific breakthroughs prompted some celebration, some caution, and substantial concern. President Clinton announced that federal money could not be used for cloning research, and asked for voluntary compliance with this moratorium by private researchers, while a little-known and under-utilized (until now) federal panel, the National Bioethics Advisory Commission (NBAC) studied the issue and

made recommendations within 90 days.

As a part of its deliberations, NBAC requested a study of the religious issues and themes raised by human cloning. We were invited to assist in developing this study, which turned out to be an invigorating but exhausting task. NBAC had 90 days; our deadline was 30. We were asked, moreover, to consider not only the views of Jewish and Christian faith traditions, but to endeavor to present the pluralism of American religiosity, including African American, Buddhist, Hindu, Muslim, Islamic and Native American understandings.

In the course of this research, we had marvelous conversations with learned, accommodating and concerned women and men from almost every faith tradition in America. We gathered a unique body of materials from leading scholars exploring this uncharted

territory in the evolution of human technology. This moment, these materials, seemed important—a unique occasion—demanding to be shared with a wider audience. So, with the permission of these scholars, to make the views of scholars, theologians, religious thinkers, and pastors on a major policy issue accessible to a larger scholarly community; to provide a chance to examine, side-by-side, the insights of voices from a wide spectrum of beliefs and religious traditions; to offer, for purposes of comparative religions, debate on an issue that concerns us all—this special issue of *Reflections* has been compiled with support from the Department of Philosophy, Oregon State University.

Joan Woolfrey and Courtney S. Campbell
Oregon State University



Native American Views

Knowledge Is Not Wisdom

By Viola F. Cordova, Ph.D.

The ability to enhance the fertility of an infertile female or to develop other means for the re-creation of human beings is based on two assumptions: 1) the needs of individuals, whether real or imagined, are of greater importance than the needs of the larger whole; and, 2) any scientific knowledge adds to the sum of human knowledge and must be pursued regardless of its subsequent social ramifications.

These assumptions are not shared by all human beings. What if there exist assumptions that state that the individual's needs must be determined on the basis of the good of the whole? Or that there is a difference between what can be done and what should be done in the pursuit of knowledge? The first assumption lays a heavier emphasis on the *duties* of the individual to the social whole. The second assumption requires a driving force much different than "knowledge for the sake of knowledge."

The Native American, today, is portrayed as focused primarily on spiritual and mystical endeavors. Absent from this view is the reality that the Native American managed to survive many diverse environments for thousands of years because of a highly pragmatic nature and common views in the midst of linguistic diversity.

The shared views are that individuals exist, first and foremost, as members of a specific cultural group. Secondly, the exist-

ence of difference is taken as a natural event. Each group is understood to have a right to exist *as themselves*, as a *group*. Hidden in these views is another assumption: each group exists in a bounded space which may not be expanded. The idea of existence within a bounded space has tremendous implications on the actions of both the group and the individual. Imagine a pebble dropped into a pond: the individual pebble penetrates the water and proceeds to drop to the bottom of the pond; its action, however, creates a far-reaching series of ripples that affects the whole of the pond.

It is the notion of the individual as a pebble dropped into a pond that is the source of the pragmatic nature of the Native American. There are no actions without repercussions. Individual actions have an immediate effect on the group of which the individual is a member and accompanying effects on the surrounding groups. All individual actions are undertaken within the *context* of *his or her* group with the knowledge that the consequences of those actions comprise a "ripple" effect.

In this specific context, the issue of whether manipulation of human genetic material for the purpose of recreating human beings should be pursued takes on a very different meaning. If the numbers of human beings were diminishing beyond what it takes for the survival of the group, or the species, there would be no wrong attached to the means used to recreate human beings. The knowledge which leads to such re-creation would be seen as "good" and, therefore, worth pursuing. Given the current circumstances

of human population growth and density, the application of the knowledge to clone a human being is unjustified.

We tend to think of "overpopulation" in terms of other nations, China, for example, or India. A quick examination of demographic figures for the United States should quickly change our view: since my childhood in the 1950s there has been a growth in population in the United States of slightly over *one hundred million* persons. Since the growth of population appears to occur exponentially, the outcome of these numbers for the next forty years should astound all of us.

Knowledge, in a Native American sense, is not equated with wisdom. Knowledge with the added awareness of its pragmatic implications comprises wisdom. The ability to clone human beings is certainly a bit of knowledge, but is it wise?

Viola F. Cordova is a Native American philosopher at Lakehead University, Thunder Bay, Ontario, Canada.

Cloning: Monster or Messiah?

By Rev. Abraham K. Akaka

The hopes and fears of native Hawaiians and humankind are met at the cradle of a newborn "baby" called "cloning." Like other discoveries that later changed and reshaped the life of humankind (the wheel, electricity, atomic energy, etc.), cloning of human beings has just entered our world. Will it become a monster or a

messiah, bane or blessing?

At this point in time not enough is known and understood about cloning for me or anyone else to form a worthwhile opinion about it, upon which a national policy decision can be intelligently based. What is good and what is evil about cloning of human beings? What are right and what are wrong things to do with it? What are its promises and perils? What must be made free about it, and what must be controlled? How will we "raise" this new baby to become more of a messiah and less of a monster to humankind?

Since definitions of promise and peril, good and evil, right and wrong, reflect the diverse ethnic, economic, political, and national backgrounds of commentators, an unavoidable ambiguity of articulation about benefits and blights of cloning upon the future of humankind is to be expected.

For aboriginal people of our planet who see themselves as dwindling and endangered species, cloning of the best of their race will be a blessing — a viable avenue for preserving and perpetuating their unique identities and individualities upon lands they revere as father and mother; a way to extend their longevity on earth.

A Native American, Abraham Kahikina Akaka is Pastor Emeritus of Kawaiahae Church in Honolulu, Hawaii.

Orthodox Christian Views

To Clone or Not to Clone?

By Rev. Dr. Stanley S. Harakas

Ethical standards define what "ought to be done" or "what ought not to be done." Such statements will serve to confine the evil, but ethical teachings have never had absolute influence. This allows further questions about what will happen when the unethical is perpetrated. It is these questions that we need to look at now.

Whatever motivations and intentions there might be to take this immoral step, I can think of none that would escape the charge of manufacturing a human being for the purpose of exploiting him or her in a way that depersonalizes the human clone.

Cloning would deliberately deny by design the cloned human being a set of loving and caring parents. The cloned human being would not be the product of love, but of scientific procedures. Rather than being considered persons, the likelihood is that these cloned human beings would be considered "objects" to be used. Given the fallen and sinful condition of our personal and social lives, it is easy to project selfish, greedy, and heartless uses of "manufactured" human clones.

Further, in itself, cloning would violate practically every sacramental dimension of marriage, family life, physical and spiritual nurture, and the integrity and dignity of the human person. In Orthodox thought, many ethicists are ready to accept technological means to assist a hus-


band and wife to conceive and bear children. We draw the line, however, at the introduction of a third party into that sacred relationship, for it transgresses the spiritual and physical unity of the spouses, blessed by God. How could we approve the substitution of a laboratory for one of the spouses?

Would clones have a soul? One way of clarifying this question is to ask if the clone will have not only intelligence, self-determination, self-consciousness as a person, but will also be able to relate on an inter-personal basis with human beings. There is little doubt that in this sphere, a human clone would have a soul.

If we mean by soul the capacity for relating spiritually to God, given the above, it would seem to me that the clone will be in need of forgiveness, redemption, salvation and sanctification as much as a person born of the mingling of genes which come from two parents.

If genetic material from other animals is added to human DNA, would this make the resulting offspring non-human? How can we answer that question in advance? We do not question the humanity of an existing human person even when an animal organ is transplanted into him or her, such as the experimentations which took place several years ago at Loma Linda University when a baboon heart was transplanted into an infant girl.

It would seem appropriate to correct malformed or deficient DNA with DNA grown in laboratories so long as the purpose is therapeutic, that is, designed to restore



human health and normal human functioning.

There is, however, something that provokes a "Star Wars" mentality regarding the creation of a semi-human being. Most responded to the failed Loma Linda experiment with a sense that a boundary had been violated. For human beings to mix human DNA with animal DNA would be, in my judgment, something more than "Playing God." It would be "Playing the Devil."

Fr. Stanley Samuel Harakas, Th.D., is Archbishop Iakovos Professor of Orthodox Theology, Emeritus, Holy Cross Greek Orthodox School of Theology, Brookline, Massachusetts. We also wish to acknowledge the assistance of Nancy Agris Savage, editor of The Hellenic Chronicle.

Cloning: Sanctity or Utility?

By Rev. Dr. Demetri Demopoulos

Although cloning is as old as life itself, the ability to make a genetic copy of an adult mammal now forces us to consider the very real probability that humans, too, will be clonable soon. While there are benefits to this new technology, there are important reasons why it should be restricted. Relying on the teachings of the Eastern Orthodox Church regarding what it is to be human, I see no valid reasons why humans should be cloned.

Humans are created in the image of God and as such deserve to be treated with dignity and respect. They are created for a purpose that God has willed and therefore

should not be created for a human reason. Humans also are unique to creation in that they are both physical and spiritual beings. We have made great progress in discovering how the body of each individual is created and develops. We know little about the soul, only that it is intimately associated with the body, inseparable from it, since a human person is a psychosomatic being, comprising body and soul. The mystery of the psychosomatic person is comparable to that of the Theanthropic Christ, who at the same time is both God and a human being. We know it even though we do not understand it.

Sometime during the development of a human person, from the moment of conception until birth, that person becomes "ensouled." We will never know when or how that occurs. Once a human zygote forms and begins to develop, it is committed to becoming a human person. Because we do not know when or how that person obtains a soul, we must not interfere with that development in any deleterious way at any time. We must treat the developing embryo with dignity and respect because we do not know when it becomes a person.

Cloning new persons from the cells of adults would result in different persons who are genetically identical to the cell donors. This too is not new. Identical twins are genetically identical yet are different and distinct persons, each with his or her own soul. Identical twins are also different because of the environment in which each develops, even though they share the same womb. Human clones may be genetic copies of the donors, but they will not be identical to them in any other

respect. Therefore, cloning humans to obtain an exact copy of a person is impossible. A clone of Albert Einstein may not be a brilliant physicist. A clone of the beloved child will not be the same child who was lost.

Much has been made of cloning humans for medical purposes. This has ranged from making another copy to supply "spare parts" in organ transplantation to creating embryonic cells from mature cells for the treatment of Parkinson's disease. Neither is a moral option. We cannot store living human beings in an "organ bank" to make withdrawals as we will. Once the nucleus of a cell is fused to an enucleated human egg, we have a zygote committed to becoming a human person. It is unacceptable to use the resulting tissue for medical treatment or scientific experimentation, no matter how much "good" may come of it.

Cloning has and will provide great therapeutic advances for humanity. The treatment of disease and the understanding of development will be enhanced through this new technology. We cannot, however, trade our moral responsibility for the sanctity of the human person for the utility of medical treatments. All developing human embryos are potential human beings, whether created by cloning or not. We cannot manipulate them in the name of science or for the presumed greater good of man.

Rev. Dr. Demetri Demopoulos is a geneticist and pastor of Holy Trinity Greek Orthodox Church, Fitchburg, Massachusetts.



African American Views

Can Science Be Trusted?

By Marian Gray Secundy, Ph.D.

Ethnic Americans are extraordinarily suspicious and distrustful of *any* new scientific technologies. This is particularly true for, but not confined to, the African American community. The history of scientific abuse and medical neglect carries with it a legacy that is permanently imprinted upon the collective consciousness of these groups.

Inevitably, our students and residents react negatively when any issues about genetic technologies and/or related subjects are raised. The prevailing sentiment is that scientists cannot be trusted, that white scientists particularly are dangerous, that abuses are inevitable and that all manner of evil can and will most likely be visited upon the most vulnerable, e.g., ethnic groups and the poor. A family practice resident commented, "*The White man has a God complex.*" Others raised concerns about possible abuses, among them that "they" would clone soldiers for war, making "us" subservient tools. Of fourteen family practice residents, one-half stated that human cloning should be prohibited across the board.

Our students make allusions to religious concerns regarding human cloning and/or genetic technologies. One resident queried, "*What's left for God to do?*" Another asked, "*Where is God?*" A consensus among those with greatest concerns was that God created human beings. While we have free will, there is little doubt that in

the case of cloning free will will be turned to evil and/or bad use and abused. A better option is to limit the possibility by banning cloning of humans entirely. These are the voices of East Indians, Middle Easterners, Filipinos, and Africans, as well as African Americans.

Of first order then is the requirement that we acknowledge and attend to the issues of suspicion, distrust, and fear. A guarantee of sanctionable guidelines is critical. As we have learned with issues related to organ donations, a major educational and information campaign on cloning is necessary for both consumers/patients and providers. If people are given information to help them understand what is being done, what it is possible to do, and what the implications are for now and in the future, they may become less fearful and apprehensive. Significant resources should be made available for provider and consumer education with a special focus on the unique needs and concerns of ethnic Americans. Community education and outreach should occur with the public schools, churches, civic and social groups. Dismissal of suspicion, distrust and what some might term paranoia is not appropriate or productive. Reassurance in the form of effective public policy and educational initiatives is appropriate and required.


Marian Gray Secundy is Professor and Director of The Program in Clinical Ethics. Howard University Health Sciences Center, Washington, DC. She is also an adjunct professor at Michigan State University and former Senior Scholar, Pritzker School of Medicine, McLean Center of Clinical Ethics, University of Chicago.

Regulating Cloning Technologies

By Rev. Kenneth S. Robinson, M.D.

As a minister/practical theologian and a physician, I'm clear that it is inappropriate and regressive to retreat in a reflexive way to the days of the Middle Ages, to recreate the tension between institutional medicine and institutional religion; a tension which has historically appeared and reappeared even in the centuries since then. I view science and technology as tools, as methodologies which have been developed and applied - at least with the *permissive* will of God, if not always specifically and expressly with divine direction. Technology, then, becomes simply another facet of human agency - to benefit, to serve or alternatively to be a detriment to human existence.

It is the motivation *behind* the research and development of the technology, and the *application* of the technology, which create reasons for concern. The (sinful) nature of humans, and the sordid history of the interface between medicine and people of color, suggest that an *ethical universalism* does not always motivate medical researchers. It's not even the *denotation* of "eugenics" that would be of concern to African Americans; for the African American community would clearly welcome "genetic improvement" in medical conditions relatively unique to African Americans: ranging from life-threatening sickled hemoglobin, to our simply annoying lactase deficiency. Such genetic improvement would *benefit* African Americans. However, it is in the historical context of the *connotation* of "eugenics" - and



its morally indefensible *application* - that concern arises. Surely, contemporary temptations still abound - driven by an *ethical egoism*, wrapped in *commercialism* and profit motives and/or *racism*. And, in the *current* sociopolitical context - from the emergence of a politically strong neoconservatism, to the resurgence of a significant vestige of neo-naziism - African Americans would have an understandable concern. Potential abuses of cloning technologies could only be prevented (or minimized) through

- legal/legislative controls, regulations, and *enforcement*;
- strict protocols and monitoring by the scientific community; and,
- aggressive, public oversight.

There is appreciation of the growing numbers of African American families that have overcome the challenge, the frustration and psychological pain of involuntary infertility through *in vitro* methodology, and other (low-tech) OB/GYN medical and surgical interventions. Sensitivity to the plight of infertile couples and to the potential offered by invasive or innovative procedures would lead caring, pastoral advisors to encourage the exploration of those possibilities. What *would* be of great concern would be if the technology were available to assist couples dealing with infertility, augmenting their chances of reproduction, but *access* to such was provided *selectively*, particularly to the *exclusion* of African Americans.

African Americans *tend* to be relatively conservative *vis-a-vis* biblical interpretation; i.e., allowing that life begins at "conception." Given that widely held understanding, then, the use of human embryos

for medical research is problematic; particularly since *this* research involves - by definition - *living* human embryos, rather than embryonic material. Several corollary problems also evolve, including:

- the mechanism of "harvesting" such embryos, and
- the requisite "wastage" of those embryos in the course of the research.

Given my concern about safeguarding against *exclusive* access to potential *benefits* of such research, I would not support a moratorium of federal funding for cloning research, were private research allowed to be conducted. However, my previously-stated concerns about the use of living human embryos may preempt support for effective research in *either* the public or private sector. Clearly, I believe African Americans would support federal regulatory oversight, should research continue - *regardless* of whether in the public or private sectors. I offer the following recommendations:

- the impetus and ethical motivations behind human cloning be meticulously monitored;
- the application of the research and resultant practices be tightly regulated;
- the cloning of human cells not be allowed to benefit any individual racial or ethnic or other demographic subgroup (i.e., gender), *outside of the context of a clearly identified, morally defensible, ethically sound, medically-justifiable* condition which would benefit from such technology;
- access to the benefits of such technology be universal.

As advocates, spokespersons, and interpreters of God's Word for African Ameri-

can communities, the African American clergy - as well as the community of African American theologians - must be integrally involved in

- the formulation of an appropriate theological construct regarding cloning,
- the determination of a sound biblical hermeneutic on the issue, and
- the process of strict, reflective, and dialogical public oversight of the practice.

Kenneth S. Robinson is Pastor at St. Andrew African Methodist Episcopal Church in Memphis, Tennessee and Assistant Dean at the University of Tennessee College of Medicine.

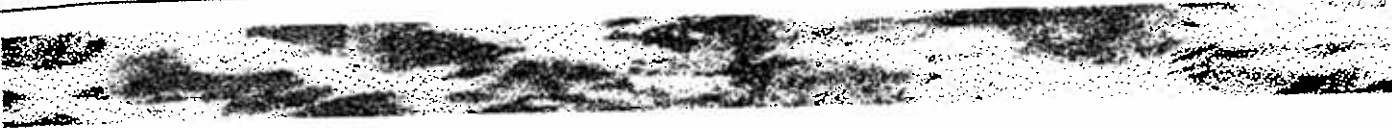
Buddhist Views

The Opportunity of Cloning

By Ronald Y. Nakasone, Ph.D.

Ian Wilmut's successful cloning of Dolly opens new moral possibilities. The Buddhist response to the possibility of cloning human being, it seems to me is not if, but when. To be sure many problems will arise and we will need to consider all possibilities and their implications. At the very least we must take into consideration all elements of suffering.

The Buddha anticipated the possibility of unanticipated questions and outlined a fourfold method to respond to new problems. While the problems the Buddha anticipated were rules that regulated the Sangha and its (individual and collective) observance of conduct worthy of the Dharma, his method can be applied to our



current interest in human cloning. Essentially, the Buddha said if you are unable to find the answers in the holy texts, use your best judgment.

Vasubandhu, in the ninth chapter of the *Abhidharmakosa sastra* describes the early Indian Buddhist notion of human reproduction. The question of birth is associated with the idea of reincarnation and successive births. Expounding the Sarvastivadan view, Vasubandhu argued in favor of an "intermediate existence" (Skt. *atarabhava*, Jpn. *chuin*), a period that begins with death and continues until one is reborn into another form. An individual who existed in this liminal condition had a correspondingly liminal body. A being in this condition could under the right conditions achieve rebirth. The sight of his future mother would attract this being, if a male; a female would be attracted to the sight of her future father. If the prospective parents happen to be having intercourse on the seventh day after the liminal being's death, the being would then implant itself in the new mother's womb. If the opportunity did not present itself, the liminal being would have another opportunity at the next seven-day cycle. This opportunity is present seven times, until the forty-ninth day before achieving rebirth.

While the notion of an "intermediate state" may have been adequate to explain the transitions between successive lives, the "story" cannot accommodate cloning. The existence of an "intermediate state" has nothing to do with reproducing an identical being. A complete human being would be generated from a single cell; it is the genesis of a new life, not the repackaging

of a life in another form. Nor does cloning require a male and a female.

Associated with the idea of successive births is the question of sentience. The traditional definition of sentience is the ability to feel. I am not clear whether sentience means consciousness or awareness of pain or pleasure. Some Buddhists may fudge on this point. The question, thus, becomes: when does consciousness emerge? A ticklish question. However, traditionally Buddhists have avoided the issue by saying that the moment of conception begins a new life.

The current concern of the possibility of human cloning is part, I believe, of a larger consideration of human development and the changes human ingenuity brings to him/herself and the world. Since, for the Buddhist, change is the nature of reality, the questions are how to accommodate change and expand our moral imaginations. Change pushes the boundaries of what we once considered to be the norm. We no longer think it strange or unusual for a child to be conceived through artificial insemination or in vitro fertilization. Medical technology has forced us to expand our moral horizons. We do not think a child conceived in a petri dish to be less than human, although in vitro fertilization bypasses the usual method of human reproduction. The cloning of human beings, like use of artificial insemination and in vitro fertilization, is really about expanding our notion of humanity and our moral parameters.

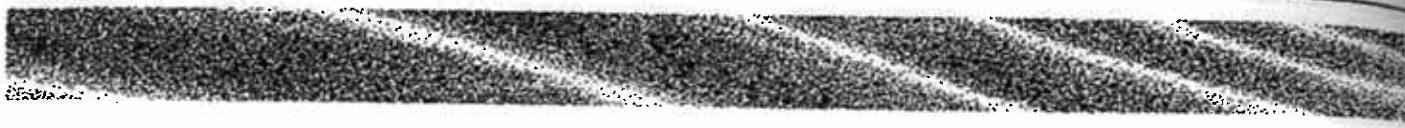
What does it mean to be human? We are continually pushing the boundaries of what we believe humanity is. New knowledge

and the development of new technologies have expanded human possibilities and have added to the meaning of being human. The extension of human longevity from forty-five in 1900 to seventy-eight in 1997, for example, has altered the way in which we think about old age and retirement. In the past only a few individuals lived past fifty. By 2020 more than 20% of the population will be over 65. This demographic shift alters the way society is structured and changes the relationship between generations. Trying to understand this altered social structure and generational relationship forces us to think in new ways.

Would we accord a cloned person the benefits enjoyed by those who are born naturally? I would hope so. It may take time for public sentiment to accept a cloned individual as a person. Is there any law that discriminates against cloned persons? I do not think so. Since in an interdependent world, we rise and fall together as one living body, we have a responsibility to treat everyone with dignity, respect, and gratitude.

Ronald Y. Nakasone, a Buddhist priest, teaches Buddhist thought, aesthetics, and ethics, at the Pacific School of Religion in Berkeley, California.





Is the Genie Out of the Bottle?

By Damien Keown, D. Phil

There is no "official" Buddhist position on genetic engineering at this time, nor is one likely to emerge since there is no central authority qualified to speak for Buddhism as a whole on this or other moral issues. In general, however, the attitude of Buddhists towards recent advances in genetic engineering is likely to be one of caution. First of all, we need to be clear about the type of cloning which is envisaged. Cloning can occur naturally in humans as when a fertilized egg splits into two, the process which leads to the birth of identical twins. Apparently all human zygotes can produce clones because the early cells are totipotent. However, the type of cloning which is of greater ethical concern is that involving nucleus substitution. This is when the nucleus of a fertilized egg cell is extracted and replaced with the nucleus of a cell from another being in order to produce a twin of the mature animal.

Buddhism would be concerned about this second type of cloning because of the hidden agenda which may accompany it. Cloning of human beings is illegal in the UK, and I think Buddhism would wish to see this ban extended worldwide. This is because Buddhism is not utilitarian and does not see life as simply a means to an end. In other words, life should not be seen as a product but an end or value in itself. To create and manipulate life to serve other purposes — to treat it as an expendable resource — is therefore morally objectionable. For example, if the clone is to be

used to provide spare organs for the person cloned, such as for transplantation, it would mean that individual life was being produced to be used as a mere instrument and treated as property in the way slaves once were. Such dehumanizing techniques would be repugnant to Buddhism, which believes that individual beings (both human and animal) are worthy of respect in their own right. Buddhism is more concerned about animals than other religions due to its belief in rebirth, and so is likely to be more cautious about the use of animals in experiments of this kind.

In principle, there is nothing immoral in the technique of cloning, but also there is no clear reason for doing it *unless* you want to use the clone for the kind of things you would *not* normally do to a human subject. There are a lot of pressures on scientists (careers are made from discoveries like this, and lots of commercial spinoffs) which can easily lead to abuse. Regulation would be unlikely to work once the genie was out of the bottle.

Damien Keown is Senior Lecturer in Indian Religion at Goldsmiths College, University of London.



Hindu Views

Brave New World


By Sri Ekmath Easwaran

The world has not had time to grasp the far-reaching consequences of the startling announcement that a group of scientists under the leadership of Dr. Ian Wilmut at the Roslin Institute in Edinburgh managed to clone an adult sheep, breaking the last frontier in reproductive technology.

The immediate goal is to give us better animals for agriculture by cloning the best milking cows or genetically altered cows whose milk would contain therapeutic proteins. As the *New York Times* put it in an editorial on February 25, 1997: "The long-term dangers are that cloning will reduce the genetic diversity of herds, rendering them more susceptible to wipeout by disease, and that cloning might inadvertently put a ceiling on future advances in animal husbandry." My concern, however, is with the far more serious possibility that this dramatic development may gradually lead to the cloning of the human being.

To quote again from the *New York Times* editorial: "Would societies try to engineer a more 'perfect' population by replicating geniuses or athletes or the most beautiful by current norms? Would a wealthy ego-maniac want his legacy to be not a foundation or a university building, but a copy—or multiple copies—of his very own self?"

To help us gain some perspective on such questions, let me narrate a story from the Chandogya Upanishad. In this great scripture from India's ancient tradition, Indra,



the leader of the gods, and Virochana, the leader of the godless, approached the venerable sage Prajapati to become his disciples. When the sage wanted to know what special knowledge they sought to gain from him, they replied:

"We have heard of your inspiring words, 'The Self is pure, free from decay and death, free from hunger and thirst, and free from sorrow. The Self desires nothing that is not good, wills nothing that is not good. Seek and realize the Self.'"

The sage said to them: "Put on your best clothes, adorn your bodies, and look in the water."

They did so and came back to Prajapati. "What did you see in the water?" he asked.

"We have seen the Self, well dressed and well adorned," they replied.

When Indra and Virochana went away, Prajapati said to himself, "They mistake the Self to be the body. Those who think the Self is the body will lose their way in life."

Virochana went back to his people and began to teach them that the body alone is to be saved, the body alone is to be adorned.

But Indra, as he was on his way home to the gathering of the gods, began to question this knowledge. "If the Self is the same as the body, well dressed when the body is well dressed, well adorned when the body is well adorned, then the Self will be blind when the body is blind, lame when the body is lame, paralyzed when the body is paralyzed. And when the body dies,

the Self too will die. In such knowledge I see no value."

Indra stayed with his teacher Prajapati until he realized the truth of the Self. "It is true that the body is perishable, but within it dwells the imperishable Self. This body is subject to pleasure and pain; no one who is identified with the body can escape from pleasure and pain. But those who know they are not the body pass beyond pleasure and pain to live in abiding joy forever."

The supreme purpose of life is to reveal the divine spark that is latent within every one of us. When we hear about important scientific discoveries like the splitting of the atom or the cloning of a sheep, we can always ask ourselves: "Will this help me in my search for realizing God, who is enshrined in the depths of my consciousness?"

Sri Eknath Easwaran, a former professor on the Fulbright exchange program, is the founder director of The Blue Mountain Center of Meditation and author of 25 books which have been translated into 15 languages on meditation and the spiritual life.

For the President, Mr. Bill Clinton


From Hinduism Today

Hindu leaders applaud President Clinton's call for a spiritual view on the human cloning predicament, noting that it shows his deep understanding of complex issues which cannot be resolved by science or politics alone. Hindu swamis appeal to the

US President, and indeed to all heads of state who will face this issue, for laws to restrain cloning of humans and emphatically urge him to engage spiritually-minded people to guide and control the process. Good people are the best promise of a good outcome. It is our wish to inform the President that Hinduism neither condones nor condemns the march of science. If done with divine intent and consciousness, it may benefit; and if done in the service of selfishness, greed and power, it may bring severe negative karmic consequences. The simple rule is this: Cause no injury to others and let dharma—the law of good conduct and harmony with the universe and its many forces and creatures—be the guide for all such explorations.

For many religionists, it is frightening to have humans tinkering with God's universe. There's no manual, they fret. What if we break something permanently? The Creator made it with loving intent and divine intelligence, they offer, and it is arrogant, foolhardy and downright sinful for humankind to play God with something as profoundly consequential as the human genetic instruction.

It is possible to understand such a prudent warning and still disagree. While the argument makes sense with a Biblical God, Hinduism does not separate man and woman from God so completely. Humanity is God; and God is humanity. Indian yogis and mystics speak of the cocreative process of evolution. Humans are not merely following a distant Deity's decrees in fulfillment of the Divine Plan; they are engaged, alongside the Architect, in engineering that Plan; or you could say God is



working His will through humankind, including scientists.

There are two fundamental principles that every Hindu applies to determination of right and wrong in questions of conduct or conscience. The first is *ahimsa*, non-injury. The second is nearness to God leading to *moksha*, spiritual liberation. Every action, word or even thought is judged against these two touchstones. Of course, the application of such broad principles is open to interpretation. How much injury is permissible to clone a person or find a cure for cancer or congenital deafness? Many Hindus would answer none, not even to laboratory animals. Others postulate that the very search for a cure assumes that deafness and cancer are an unnecessary evil, a crack in the universal machine needing urgent repair. What of the purpose behind it all? What of the need some have to experience deafness or cancer? Cancer is the problem, says mind. How we confront cancer is the real issue, replies spirit. Are we looking for a perfect, death-defying body or are we looking for soulful qualities derived from experiencing life's joys and sufferings with wisdom and equanimity?

Most Hindu spiritual leaders are less concerned for the moral issues and casuistry surrounding human cloning than for the practical need. Why do this? they ask again and again. Will it help us to draw nearer to God if we have such bodies? Will the soul's evolution toward the goal of spiritual liberation be advanced one millimeter? Will the process of reincarnation which leads each soul toward maturity and illumination be affected, altered or

impaired? Will humankind's inner consciousness be enhanced? They think not.

But there are other voices. Instructions exist in ancient Indian texts, explaining how to conceive a child of a passionless and poised nature, all based on the thoughts and yogic practices of the parents during coitus. If that is true, might not cloning, with its total elimination of human sexuality, provide a physical-emotional home for an advanced soul seeking an earthly passage of solace, needing to live without emotion or powerful desires and sentiments? And might not cloning bring us back to the Indian ideal of a 120-year life span?

It's hard for passionate people in old-fashioned bodies to think dispassionately about all this. Fears arise instantly, evoking the specter of human farming, of armies of genetically engineered soldiers, of avaricious organ sellers and irreconcilable questions of inheritance, personhood and belonging. With all that complex surrogacy, whose children are the clones, what happens to the concept of family? In fact, human cloning is just the most recent moral dilemma between conscience and science. We have stood here before. Hindu scriptures, in fact, have dozens of references to cloning, of creating a full person or a full deity from a few cells of skin or other tissue. While widely considered mythological, these writings, several thousands of years old, are proving to be prescient.

For the Hindu, body and soul are very separate things, not created at the same moment. The soul inhabits many bodies in its passage toward enlightenment and

spiritual freedom. The Hindu's concern for the well being of the soul in its journey from life to life far surpasses concern for the well being of the current embodiment. Just as the soul may make great spiritual progress in an imperfect body, it may also experience meager advancement in a perfect body. It is the inner progress toward our inherent perfection and the Divinity within all that defines the preciousness of life, not the quality of physical existence.

Hindus understand that all experience is governed by the complex laws of karma, which are as real, as invisible and as compelling as gravity. They hold that there are karmic consequences to every act, including cloning. How our karmas would be affected by such genetic interventions is an important meditation for the Hindu. Would your *prarabdha* karma—that portion which rules the present life span—be impacted if a duplicate of your body lived on, say 50 years, 100 or more beyond your death? Would you, the soul, be held up in the astral plane, awaiting a new birth indefinitely, waiting for your very-much-alive cloned physical entity to succumb and release you? If cloning so impacts spiritual progress, we would certainly want to approach it with circumspection.

Acharya Palaniswami, editor of Hinduism Today, is a Trustee of the Saiva Siddhanta Church, America's first Hindu church.

When It Comes To Karma...

By Arvind Sharma, Ph.D.

Hinduism, on the whole, is a religion of options rather than prescriptions, of propositions rather than dogmas; a religion which prefers the article *a* (a truth) to *the* (the truth); a religion of guidelines rather than rules, and a religion which allows for more variations of the basic positions than its own Kama Sutra. As it consists of a frame of mind rather than fixed ideas, its answers are exploratory, rather than catechetical in nature. Within it, *attitude* is more important than *certitude*.

Hinduism will be inclined to resolve the moral issues raised by cloning within its quadripartite axiological framework, built around the values of *Dharma* (Virtue, Morality), *Artha* (Wealth and Power), *Kama* (Aesthetics and Sex) and *Moksa* (Liberation or Salvation). The building blocks are set up as follows:

(1) All these four goals of human endeavour are valid, although the pride of place belongs to *Moksa* in the ultimate analysis;

(2) Wealth and Power and Aesthetics and Sex may be pursued, but subject to virtue or morality;

(3) morality is central to the scheme, as it is the *controlling* value in relation to Wealth and Power, and Aesthetics and Sex; and is the *enabling* value in relation to salvation. In other words, *while permitting cloning as such, Hinduism would insist on its ethical regulation.*

In Indic religions (Hinduism, Buddhism, Jainism), creation is viewed more as a

natural cosmic process, a process presided over by God in some forms of the Indic religions and entirely natural in others. Similarly, the range of possible rebirths includes animals and 'angels.' Thus the partition between the natural, the super-natural and the subnatural is thinner than in the Western religions and that open attitude rubs off on the issue of cloning.

Indic religions, although less anthropocentric than the Western ones on the whole, do contain some anthropocentric elements but typically in their *soteriologies* (one stands a better chance of being liberated as a human being). Significantly, however, they are not typically anthropocentric in their cosmologies. Can a clone be liberated or saved? - and if the original is saved is the clone saved as well or vice versa? - are far more interesting questions from their point of view. The answer is 'no' to each question, on the principle that when it comes to Karma or liberation each is on his or her own: clone or no-clone.

Arvind Sharma is Professor in Religious Studies at McGill University in Montreal, Quebec, Canada.



An Islamic View

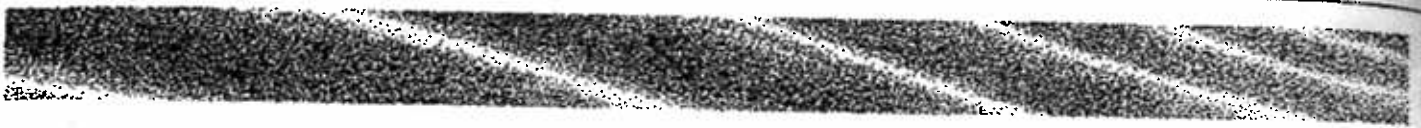
Who Will Set the Limits?

By Dr. Maher Hathout

Islam encourages research and inquiry and places no limits on them. Philosophically, Islam believes that knowledge emanates from Divine sources and human beings have an obligation to interact with this knowledge in order to communicate with God and serve human society. God has taught us what we knew not. He alone has created, creates and will create things we know and things we don't know. He is omnipotent and omnipresent. The Divine teachings explained in the Qur'an exhort Muslims to look at the universe and reflect on the signs created in it.

The Qur'an tells us that God is the best of all creators. Creation can be described in two ways: Creation resulting from putting together things that are already in existence or creating things from nothing. The Qur'an uses the Arabic word *Khaliq* to describe the first type of creation and *Bari* for the second type of creation. The quality of *Bari* exclusively belongs to God as He alone creates things from nothing.

However, God has empowered human mind to put together things and thus be a *khaliq* of things resulting from this process. For instance, electricity has existed from time immemorial. However, it was the God-given knowledge that human mind employed to use and tame it for the purpose of generating energy. It is a process of creation and human mind is capable of doing it by the will of God.



Thus scientific and empirical investigation is part of human nature as created by God. Any attempt to curb this investigative nature is contrary to Divine principles of creation. Cloning has become a major debate among theologians, scientists and public officials. There are two issues involved in this debate: the research and its application.

A group of theologians and public officials in this country has argued that research on cloning should not be allowed. The Vatican is calling for a ban on cloning humans. Pope John Paul II has denounced dangerous experiments that harm human dignity.

The position of many Muslim scholars is not different than the one adopted by the Vatican. Many of these scholars have missed the point. Research and investigation are part of human nature and they must never be curbed. Human history teaches us that such efforts did not succeed in the past. In more than 50 places in the Qur'an, God invites human beings to reflect, think, research, ponder and work and understand the universe; human beings are then to draw conclusions from their comprehension and adopt a methodology and technology that serves God.

Research pertaining to the cloning of human beings is not an interference in the divine domain of creating things from nothing. It is to understand the dynamics of human life and the process of its creation. It is a manipulation of elements created by God to imitate the creation, not to change it.

However, the moment this research becomes a commodity to be sold and traded like any other commodity, or used for political and cultural superiority, it is a violation of divine principles of serving God and His creation.

Thus, what needs to be curbed is the misuse of the research and technology that emanates from this research. Islam offers strong moral guidelines on the use of research and technology. It prohibits the abuse of any research whether in the natural or social sciences. It lays down clear principles to protect human dignity from any abuse. In other words, Islam makes human mind responsible for human action.

Maher Hathout is an advisor of the Los Angeles-based Muslim Public Affairs Council. Special thanks to Aslam Adullah, Editor-in-Chief of The Minaret.

A Judaic View

Human and Divine Responsibility


By Rabbi Barry Freundel

I believe there are two main questions to human cloning. (1) Whether to proceed with cloning technology? I maintain that with appropriate safeguards, we should exercise the capacity to go ahead, while raising questions about the "upside to cloning" in terms of its scientific and human rationale. (2) More important is the question of the moral and legal status of a clone, and on this the Jewish tradition would decisively say that a clone is a human being.

The Golem stories in Jewish mystical tradition speak to the question of the status of human life without human parentage. They provide some analogical parallels with a human clone, although the analogy is not complete. The stories describe "artificial, humanoid life" being created by a mystical adept. The golem is subsequently destroyed without moral concern. In the stories, the golem is not considered to have human status because it lacks the capacity to speak. However, were a human clone to be actually produced, Jewish law would give the clone human status and the Jewish imperative of the preciousness of life would require protection and preservation.

Jewish norms of parenthood and lineage also bear on cloning. The more the processes of parenting—including sexual intercourse, conferral of genetic identity, fetal gestation in a woman's womb, birth, and raising the child—are severed from the actual creation of life, objections from the Jewish tradition will increase. Within an ethic of responsibility, the parent-child relationship provides a basis for reciprocal responsibilities. In the context of cloning (or other reproductive technologies), the sense of responsibility diminishes because it is unclear who has responsibilities to whom. Responsibilities should not be deliberately created and given away.

Judaism also stresses that human diversity is intrinsic to G-d's creation and preservation of the world. A rabbinic maxim supports diversity: "G-d made man from one mold (Adam) yet all the coins (human beings) so minted are different."



Judaism affirms an optimism in the face of scientific uncertainty about unanticipated consequences that is rooted in divine control and care. Indeed, to be too careful and cautious may invite trouble. Thus, human beings do the best that they can. If our best cost/benefit analysis says go ahead, we go ahead. 'G-d protects the simple' is a Talmudic principle that allows us to assume that when we do our best G-d will take care of what we could not foresee or anticipate.

Rabbi Barry Freundel is spiritual leader of Keshet Israel Congregation in Washington, DC, and adjunct professor at the Georgetown University School of Law.



A Catholic View

Diminished Humanity

By John Cardinal O'Connor

Roman Catholicism supports all true progress in conventional medicine. It is common in biomedical literature to distinguish *negative* from *positive* genetic engineering. *Negative* genetic engineering *cures* a defect or *alleviates* a pathology. This is the tradition of western medicine, and all progress in that tradition is welcome. However, *positive* genetic engineering is the construction and/or manufacture of a higher or better type of human (e.g., replication—i.e., cloning—of a “superior” type or trait). This is not truly therapeutic; it is not genuine medicine; it is not human progress and is not welcome.

The distinction is not anti-science, it is rather a plea for socially responsible and socially accountable science. Science that serves and enhances the human person is welcome; what serves the human person upholds criteria of respect, generosity and service, while resisting the slide to new criteria of efficiency, functionality and usefulness.

The present and pressing question before us is *human cloning*—the seriousness of which is obvious to all. This is not research to improve “salad oil,” nor research to improve “motor oil,” this is something new and gravely important because the focus is *human*—the object, the subject, the means and the stakes are *human!*

Permit me to submit a few basic objections to *human cloning*. First, it is a drastic invasion of *human parenthood*. A

clone technically has no human parents, not by accident, but by design. This does disrespect both to the dignity of human procreation and the dignity of the conjugal union (marriage). Contrary to the right of every human person to be conceived and born within marriage and from marriage, the clone is reduced to the level of a *product* made, rather than a *person* begotten.

Throughout our nation's history the Judeo-Christian tradition has respected the Divine design of life-giving love, “...and the two become one flesh.” In the process of cloning, this personal, unitive, two-in-one-flesh dimension of life-giving marital love is rejected and replaced by technological replication. Begetting is the continuation of creation; manufacturing is proper to and productive of *things* not *persons*.

To reduce human procreation to no more, no better, or no different than plant or animal replication—without human parenthood—is to remove the *humanism* from human parents and the human child. The potential psychological consequences, proximate and remote, for both clone and cloner are simply unknown. But with humans, it is not enough not to know we do harm; with humans we must know that we *cause no harm*.

A second basic objection to human cloning is on the level of human wisdom. Consider the human-made damage done to our natural external environment, some foreseen, much unforeseen. Is any serious person that sanguine about the state of our external environment that he or she is positively anxious now to “engineer” our

internal human evolution? Do we have the wisdom?

The Scottish cloned sheep, Dolly, came into being on the 300th attempt. Does anyone think some expert is going to hit a perfect human clone on the first and only try? What are we to do or say of the "mishaps," the "mistakes," the less-than-perfect tries and results? Do we just discard them as "near-misses," as with research for improved salad or motor oil?

In the process of "making" a clone, just who is in charge of quality control? What qualifications are relevant to quality controllers, and who in our society possesses the qualifications to determine who can or can not enter our human community?

At least in human procreation, there is a natural community (mother and father) to receive new life. In human cloning, it is not truly the "parent(s)" who decide but the technician who determines which "quality types" qualify for membership in the human community.

The third basic objection to human cloning includes social and ethical questions. Cloning is not now and never will be a poor people's campaign. Could it be or become an entitlement requiring public subsidy? This is a most undesirable shift because it replaces ethical categories with manufacturing imperatives. The act of human cloning itself cures no pathology. Thus, we are not doctoring the patient but doctoring the race.

There remains a profound ethical difference between "having a child" and "making a child." A child *begotten* can always be seen as a gift; whereas a child *made* or

manufactured can always be seen as a *thing*—a product for use, not to be respected for what he/she *is*, but priced for what *it* can do, have or be used for. That is no way to treat or value a human being.

In this shift, the scientific canons of efficiency replace the ethics of life. That is a giant societal step in the wrong direction. It is ironic that now, near the close of the 20th century, a century that spent great time and effort to have sex without babies, some want to have babies without sex.

Scientific developments at the service of the human person are welcome. We rejoice in God-given genius and applications that have materially improved the lives of us all. However, not every scientific application of our century has been put to good use; some have been put to tragic misuse, even catastrophic misuse on a scale no prior century could dream of or realize.

Research proposals are not value-neutral and those that are hostile to human parenthood, unknown in deleterious human consequences and cure no disease—these are not medicine and are not welcome. It is simply not acceptable to say: "I only work in a lab; I only do research; I'm not into philosophy or ethics or politics." This is a matter of great social and human responsibility.

Let us concur with the late Paul Ramsey who stated clearly: "The good things that men [sic] do can be made complete only by the things that they refuse to do."

John Cardinal O'Connor is head of the Archdiocese of the Roman Catholic Church of New York.

Denominational Statements

Against Human Cloning

The Christian Life Commission of the Southern Baptist Convention

WHEREAS, on February 27, 1997, Ian Wilmut and colleagues in Scotland announced the first successful cloning of a mammalian species; and

WHEREAS, researchers in Oregon announced on March 1, 1997, the successful cloning of a rhesus monkey; and

WHEREAS, on March 4, 1997, President Clinton announced a prohibition on federal funding for human cloning research; and

WHEREAS, Southern Baptists are on record for their strong affirmation of the sanctity and uniqueness of every human life.

Be it therefore RESOLVED, that we, the trustees of the Southern Baptist Convention's Christian Life Commission, meeting on March 6, 1997, do affirm the President's decision to prohibit federal funding for human cloning research; and

Be it further RESOLVED, that we request that the Congress of the United States make human cloning unlawful; and

Be it finally RESOLVED, that we call for all nations of the world to make efforts to prevent the cloning of any human being.

Adopted March 6, 1997



The Gift of Life

By Richard M. Doerflinger

Recent reports about successful cloning in mammals have rightly raised ethical concerns about human cloning. Catholic teaching rejects the cloning of human beings, because this is not a worthy way to bring a human being into the world. Children have a right to have real parents, and to be conceived as the fruit of marital love between husband and wife. They are not products we can manufacture to our specifications. Least of all should they be produced as deliberate "copies" of other people to ensure that they have certain desired features.

Donum Vitae, issued in 1987 by the Holy See's Congregation for the Doctrine of the Faith, reminded us that human life is a "gift of inestimable value" over which we must exercise careful stewardship. "The one conceived must be the fruit of parents' love," not treated as the product of a laboratory technique. Efforts to clone human embryos are also unethical because they would subject developing members of the human family, who cannot give informed consent, to risky experiments that cannot benefit them as individuals.

Such technologies should prompt us once again to appreciate a basic truth: The fact that it is technically possible to do something doesn't mean it ought to be done.

Richard M. Doerflinger is Associate Director for Policy Development and Secretariat for Pro-Life Activities for the National Conference of Catholic Bishops.

Statement on Recent Developments in Cloning Technology

Orthodox Church in America

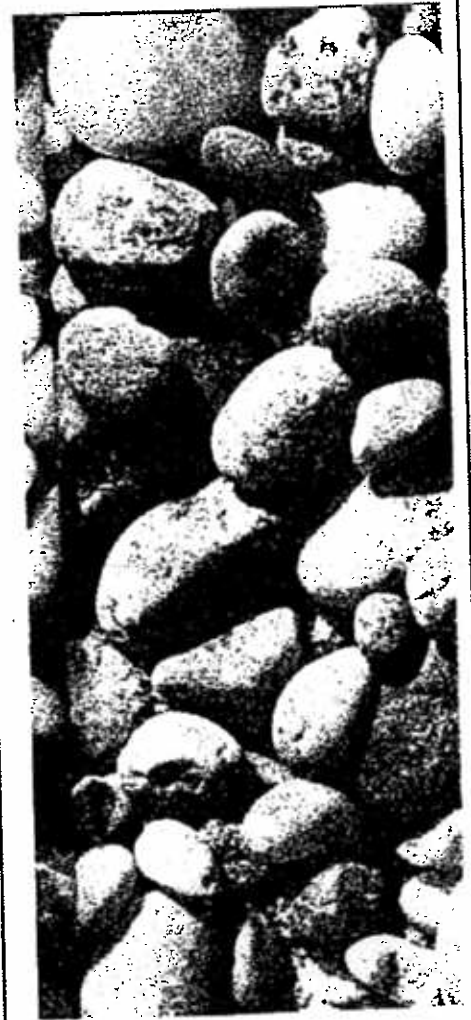
The recent cloning of a sheep from a single adult cell opens the way to the cloning of other species, including human beings. Although no one can prevent scientific research and experimentation from proceeding in this direction, the question arises as to whether the United States government should ban or regulate this activity and provide it with public funding.

The world-wide body of Orthodox Churches adheres strictly to the view that human life is sacred: that each human being is created as a unique person "in the image of God." Accordingly, the great majority of Orthodox ethicists will insist that all forms of eugenics, involving the manipulation of human genetic material for non-therapeutic purposes, are morally repugnant and detrimental to human life and welfare.

Various cloning techniques using animals have been developed over the past ten years, promising enhancement of human life through the creation of new drugs, proteins and other useful products. Such endeavors deserve public support and funding. The prospect of human cloning, however, raises the specter of the "slippery slope" in the most direct and ominous way. In a "fallen" world, where rights outweigh responsibilities, cloning techniques using human cells will inevitably lead to abuse: the commercialization of "prime" DNA, production of children for

the purpose of providing "spare parts," and movement toward creation of a "superior" class of human beings. Moreover, scientists at present are unable to determine if a selected cell contains mutations or other defects that could produce crippling deformities or mental retardation in the cloned child.

In light of these factors, the Orthodox Church in America urges emphatically that a government ban be imposed on all forms of experimentation to produce human clones and that government funding for such activity be denied. A moratorium on this activity is urgently needed.



**Assisted Reproduction Technologies, Cloning
Analysis and Recommendations for Public Policy**

Excerpted from:

“Assisted Reproductive Technologies”

**Analysis and Recommendations for Public
Policy**

**New York State Task Force on Life and Law
April 1998**

Cloning

Embryo Cloning

There are several types of laboratory manipulations that have been described as cloning. The first, which is often referred to as "embryo splitting" or "twinning," involves attempts to induce an embryo in the early stages of development to divide into multiple embryos, a process that happens naturally in the creation of identical twins. These techniques have been used on animals with limited success. Scientists initially believed that by using the twinning process they could at least double the number of available embryos, thereby doubling the pregnancy rates in sheep and cows. Studies indicate, however, that the use of twinning increases the pregnancy rate by only 30 to 50 percent because the manipulated embryos are less viable than those left intact.⁸³

In 1993, scientists at George Washington University announced that they had successfully split human embryos created through IVF. The embryos used were abnormal and could not have been implanted, and they expired within six days of fertilization. The scientists were testing the technique as a possible way to increase the number of embryos available to couples undergoing infertility treatment.⁸⁴ The story, which broke in a *New York Times* article headlined "Scientist Clones Embryos,"⁸⁵ caused a great stir among ethicists, the public, and politicians. The initial reaction was spurred, at least in part, by the fact that many people did not understand that the procedure involved embryo division, not the creation of genetic replicas of existing children or adults.⁸⁶

The recent interest in human cloning has given rise to reports that a Belgian doctor cloned a human being through embryo splitting several years ago. The doctor used a procedure called "assisted hatching," which involves rubbing the membrane of an IVF-created embryo to improve the likelihood that it will implant in the uterus.⁸⁷ After the procedure, the embryo divided, producing identical twins. The scientists involved believe that by thinning the outer wall of the embryo, they may have encouraged it to divide.⁸⁸

⁸² "European Convention Allows the Use of Human Embryos," 298.

⁸³ National Institutes of Health, *Human Embryo Research Panel*, 39-40.

⁸⁴ J. Adler, M. Hager, and K. Springen, "Clone Hype; Baby = Baby + Baby," *Newsweek*, November 8, 1993, 60.

⁸⁵ G. Kolata, "Scientist Clones Embryos, and Creates an Ethical Challenge," *New York Times*, October 24, 1993, A1.

⁸⁶ P. Elmer-DeWitt, "Cloning: Where Do We Draw the Line?" *Time*, November 8, 1993, 64.

⁸⁷ See Chapter 2, pages 68-69.

⁸⁸ Reuters, "Scientist 'Accidentally Cloned' Baby-Paper," <http://www.yahoo.com/headlines>, visited March 19, 1997.

They emphasize that the intention of the procedure is not to create additional embryos and that it should not be considered a form of cloning.⁸⁹

Another procedure that has been characterized as cloning involves the insertion of the nucleus of a cell taken from an IVF-created embryo into an egg that has had its nucleus removed. The egg then develops into a new embryo, with a genetic makeup nearly identical to the original embryo from which the nucleus was obtained.⁹⁰ Cows and sheep have been cloned using nuclear transplantation with embryonic cells; however, in some studies 20 to 30 percent of the animals born had some type of birth defect.⁹¹ In March 1997, scientists announced that they had successfully produced monkeys through nuclear transplantation with embryonic cells.⁹²

Commentators hold differing views on the ethical acceptability of embryo cloning. One commentator argues that "the process of embryo cloning, with its inherent risk of the loss of human individuality and dignity, is not worth any small enhancement it might provide to new reproductive technologies," and concludes that it is necessary to reevaluate the continuing use of technology "as a means to find ways to reproduce that do not require human relationships."⁹³ Other commentators, however, argue that "fears of possible future abuses" are not a sufficient basis to stop research on embryo cloning as a treatment for infertility.⁹⁴ These commentators argue that embryo cloning might benefit patients by reducing the need for multiple egg retrievals⁹⁵ or facilitating the process of pre-implantation genetic diagnosis.⁹⁶ They also dispute the claim that embryo cloning would threaten human individuality, citing the different personalities of identical twins.⁹⁷

In its 1994 report, the NIH human embryo research panel unanimously opposed the use of federal funds for research on embryo cloning.⁹⁸ By contrast, the National Advisory Board on Ethics in Reproduction (NABER), which deliberated at length about the ethics of embryo splitting, concluded that this procedure is ethically acceptable if the re-

⁸⁹ Reuters, "Belgian Professor Denies Human Cloning Report," <http://www.com/headlines>, visited March 9, 1997.

⁹⁰ While nearly all DNA is contained in the cell's nucleus, some is contained in the cytoplasm. The cytoplasmic DNA would not be transferred to the new embryo.

⁹¹ National Institutes of Health, *Human Embryo Research Panel*, 41.

⁹² J. Bradbury, "First Dolly, Now Multiple Monkeys," *The Lancet* 349 (1997): 705.

⁹³ T. E. Elkins, "Dissent to the NABER Report on Human Cloning through Embryo Splitting," *Kennedy Institute of Ethics Journal* 4 (1994): 281; see also R. A. McCormick, "Blastomere Separation: Some Concerns," *Hastings Center Report* 24, no. 2 (1994): 14 (arguing that embryo cloning would undermine the individuality of human life).

⁹⁴ Ethics Committee of the American Society for Reproductive Medicine, "Ethical Considerations of Assisted Reproductive Technologies," *Fertility and Sterility* 67, Supplement 1 (1997): 5S.

⁹⁵ G. Kolata, "For Some Infertility Experts, Human Cloning Is a Dream," *New York Times*, June 7, 1997, 8.

⁹⁶ H. W. Jones, Jr., R. G. Edwards, and G. E. Seidel, Jr., "On Attempts at Cloning in the Human," *Fertility and Sterility* 61 (1994): 423, 425.

⁹⁷ R. Macklin, "Splitting Embryos on the Slippery Slope: Ethics and Public Policy," *Kennedy Institute of Ethics Journal* 4 (1994): 209, 217-218. This commentator also argues that embryo cloning cannot be said to harm the children who are created because without the procedures the children would not be born. *Ibid.*, 220-221. For a further discussion of this argument, see Chapter 3, pages 102-104, and Chapter 8, page 210.

⁹⁸ See page 383.

sulting embryos are not damaged or destroyed in the process and if the embryos are either transferred simultaneously or cryopreserved for future transfer if the initial cycle is unsuccessful. NABER found it ethically unacceptable to split and cryopreserve embryos in order to provide an adult child with an identical twin to raise as his or her child, to have a large family of genetically identical children, as a potential replacement of a child who dies, as a potential source of organs or tissues for an already existing twin, or to donate or sell to others.⁹⁹

Somatic Cell Cloning

The most controversial type of cloning involves the creation of genetic replicas of existing or previously existing children or adults. Theoretically, the process would be the same as nuclear transplantation using embryonic cells, except that instead of using a cell from another embryo, practitioners would use the nucleus of a somatic cell¹⁰⁰ from an existing child or adult. An embryo created through this process would have essentially the same genetic makeup as the person from whom the nucleus was obtained.

While there was extensive speculation about this type of cloning in the 1970s as the process of IVF was being developed,¹⁰¹ most commentators assumed that it was scientifically impossible and therefore not worthy of serious concern.¹⁰² In February 1997, however, scientists in Scotland announced that they had successfully cloned an adult sheep by taking a cell from its mammary gland, extracting its nucleus, inserting the nucleus into the unfertilized egg of another sheep from which the nucleus had been removed, and transferring the resulting embryo into a third sheep. Commentators predicted that this procedure could eventually be used to create "flocks of prize animals with a genetic makeup guaranteed to match that of the adult donating the cell or of animals that produce valuable human proteins for therapeutic use."¹⁰³

Reports of this experiment generated intense public reaction. In one survey of 519 Americans conducted the day after news of the Scottish experiment was released, 87 percent of respondents said that human cloning should be banned, 82 percent said it was morally wrong, and 93 percent said they would not choose to be cloned.¹⁰⁴ One com-

⁹⁹ National Advisory Board on Ethics in Reproduction, "Report on Human Cloning through Embryo Splitting: An Amber Light," *Kennedy Institute of Ethics Journal* 4 (1994): 251. The panel could not agree about whether some of these uses would be acceptable if the procedures were originally carried out for other purposes. For example, some members, although opposed to the splitting of embryos for the purpose of creating a "backup" source of organs and tissues, "would allow extra frozen embryos that cannot be used for their originally intended purpose to be transferred and brought to term if they might be able to assist a sibling to survive by providing body parts without serious risk to themselves." *Ibid.*, 272.

¹⁰⁰ A somatic cell is any cell other than an egg or sperm cell.

¹⁰¹ See, e.g., I. Levin, *The Boys from Brazil* (New York: Dell, 1976); D. Rorvik, *In His Image: The Cloning of Man* (Philadelphia: Lippincott, 1978).

¹⁰² J. A. Robertson, "The Question of Human Cloning," *Hastings Center Report* 24, no. 2 (1994): 6; Jones, Jr., Edwards, and Seidel, Jr., "On Attempts at Cloning," 426.

¹⁰³ E. Pennisi and N. Williams, "Will Dolly Send in the Clones?" *Science* 275 (1997): 1415.

¹⁰⁴ M. Wadman, "Politicians Accused of 'Shooting from the Hip' on Human Cloning," *Nature* 386 (1997): 97 (reporting results of a poll conducted by ABC's "Nightline").

mentator argued that creating a child by cloning an existing human being would represent "a profound threat to what might be called the right to our own identity."¹⁰⁵ He expressed concern that parents would see cloning as a way to create or recreate the "perfect" child, leading to expectations that could rob the cloned child of the chance to develop his or her own independent identity.¹⁰⁶ In the words of another commentator, "One blessing of the relationship between parents and children is their inevitable difference, which results in parents loving their children for what they are, rather than trying to make them what they want.... What would the world be like if we accepted that human 'creators' could assume the right to generate creatures in their own likeness, beings whose very biological characteristics would be subjected to an outside will?"¹⁰⁷

Other commentators, however, criticized the view that creating children by cloning existing human beings is necessarily immoral. One commentator suggested that infertile couples might legitimately seek to have a child by cloning one or the other partner.¹⁰⁸ A biologist posited a situation "in which the sole child of parents who were later rendered infertile suddenly developed a terminal disease." In such cases, he argued, the parents could use a cell from the dying child to create another.¹⁰⁹

Shortly after news of the Scottish experiment was announced, President Clinton directed his National Bioethics Advisory Commission to study the issue and issued an order banning the use of federal funds for human cloning research.¹¹⁰ After several months of deliberations, the commission concluded that it would be "morally unacceptable" to create a child by cloning an existing human being, at least at the present time.¹¹¹ The commission's opposition was based on its concern that the procedure would "expose the developing child to unacceptable risks," given the lack of evidence of its safety.¹¹² It recommended the enactment of federal legislation prohibiting the creation of a child through somatic cell nuclear transfer cloning for the next several years, with a requirement that Congress then review the issue to decide whether the prohibition should be continued.¹¹³ President Clinton subsequently proposed legislation based on the commission's recommendations. The proposed legislation would not prohibit research on cloning that does not result in the transfer of an embryo for implantation.¹¹⁴

¹⁰⁵ D. Callahan, "A Step Too Far," *New York Times*, February 26, 1997, A23.

¹⁰⁶ *Ibid.*

¹⁰⁷ A. Kahn, "Clone Mammals ... Clone Man?" *Nature* 386 (1997): 119.

¹⁰⁸ D. J. Kevles, "Study Cloning, Don't Ban It," *New York Times*, February 26, 1997, A23.

¹⁰⁹ F. Bruni, "Experts Urge No Hasty Curbs on Cloning," *New York Times*, March 14, 1997, 32.

¹¹⁰ K. Q. Seelye, "Clinton Bans Federal Money for Efforts to Clone Humans," *New York Times*, March 5, 1997, A13. The President also urged a moratorium on private research on human cloning.

¹¹¹ National Bioethics Advisory Commission, *Cloning Human Beings: Report and Recommendations of the National Bioethics Advisory Commission* (Rockville, MD: National Bioethics Advisory Commission, 1997), 108.

¹¹² *Ibid.* The commission did not reach a consensus on whether the use of somatic cell nuclear transfer cloning would be acceptable assuming that these safety concerns could someday be addressed, instead calling for further consideration of the matter.

¹¹³ *Ibid.*, 109.

¹¹⁴ "Clinton Proposes Human Cloning Ban, More Study," *Los Angeles Times*, June 10, 1997, A15. Legislation to prohibit human cloning has also been introduced in several states, including New York. R.

Internationally, efforts to prohibit human cloning have met with widespread support. In a joint communiqué, the leaders of Canada, France, Germany, Italy, Japan, Russia, the United Kingdom, and the United States agreed to "the need for appropriate domestic measures and close international cooperation to prohibit the use of somatic cell nuclear transfer to create a child."¹¹⁵ In addition, the World Health Organization has called for laws prohibiting research designed to enable the cloning of human beings.¹¹⁶

Some commentators argue that, whatever one thinks about the propriety of creating human beings through cloning, laws prohibiting all research in the area might threaten legitimate scientific inquiry. Some scientists believe that such laws might inadvertently prohibit "any research involving the study of the development of human cells in culture after nuclear transplantation from a differentiated adult cell."¹¹⁷ One geneticist, for example, argues that proposed federal legislation on cloning might block "efforts to culture embryonic stem cells to provide tissues for auto-transplant."¹¹⁸ Others, however, believe that even these uses of cloning might be ethically problematic, because "creating human life for the sole purpose of preparing therapeutic material would clearly not be for the dignity of the life created."¹¹⁹

Conclusions and Recommendations

Despite our diverse views on the moral status of the human embryo, all of us agree that research designed to provide a direct benefit to embryos that will be transferred for implantation is ethically acceptable, as long as it involves only minimal risk. No such research should occur without the approval of an Institutional review board (IRB) and the informed consent of the individuals with decision-making authority over the embryos.

Although we hold differing views on the moral status of the human embryo, all of us agree that therapeutic embryo research — i.e., scientifically valid experimental measures designed to provide a direct benefit to embryos that will be transferred for implantation — poses no inherent ethical problems as long as the research involves only minimal risk. Even those Task Force members who believe that embryos are entitled to the highest degree of protection find such research ethically sound, because it is intended to benefit the embryo and does not involve a significant risk of harm. They consider such

Hernandez, "A Ban on Human Cloning Is Urged," *New York Times*, February 26, 1997, B5. In October 1997, legislation establishing a five-year moratorium on human cloning was signed into law in California. 1997 Cal. Adv. Legis. Serv. 688 (Deering).

¹¹⁵ M. Wadman, "Cloning for Research 'Should be Allowed,'" *Nature* 388 (1997): 6.

¹¹⁶ Reuters, "WHO Says Human Cloning Would Be Unethical," <http://www.yahoo.com/headlines>, visited March 11, 1997.

¹¹⁷ Wadman, "Politicians Accused," 97.

¹¹⁸ *Ibid.*, 98.

¹¹⁹ Kahn, "Clone Mammals."

research comparable to therapeutic research on children and other human subjects incapable of providing informed consent.¹²⁰

Before conducting any therapeutic research on human embryos, researchers should obtain the approval of an IRB, just as they would for research involving human subjects. In addition, researchers should ensure that the individuals with decision-making authority over the embryos have provided informed consent to the specific protocol that will be followed.¹²¹

Nontherapeutic embryo research that will result in the embryos' destruction raises more difficult issues. Some of us believe that such research, when appropriately limited and carefully monitored, can be ethically acceptable if there is a significant likelihood that it can lead to important medical advances that could not otherwise be achieved. Others believe that this type of research is unacceptable in all cases. Given our diverse views on the subject, and the fact that the issue is currently receiving significant attention at the federal level, we do not recommend any legislative or regulatory actions for New York State at this time.

Nontherapeutic research on embryos that will result in the embryos' destruction raises more difficult issues. All of us believe that embryos are entitled to special respect and that any research involving embryos must therefore comply with strict safeguards and limitations. Many Task Force members, however, believe that in some cases nontherapeutic research on embryos no longer desired for use in assisted reproduction can be consistent with the special respect that embryos are owed.¹²² These members would subject any such research to strict oversight and would require evidence of a significant likelihood of compelling societal benefits that could not otherwise be achieved. In addition, they would limit all nontherapeutic embryo research to the earliest stages of the embryo's development, before the appearance of the primitive streak at fourteen days.

Other members, by contrast, believe that the moral status of the human embryo at any stage of development entitles it to protection against research resulting in the em-

¹²⁰ Even some forms of *nontherapeutic* research on children are considered acceptable in some circumstances. For example, the federal regulations governing human subject research allow IRBs to approve nontherapeutic research on children in which the risk is minimal; in limited cases, research involving a "minor increase over minimal risk" may also be approved. 45 C.F.R. §§ 46.401-46.409 (1997). If research on embryos intended for subsequent transfer is considered analogous to research on children, it is arguable that some forms of nontherapeutic research on these embryos would be acceptable as well.

¹²¹ Our recommendations for identifying the individuals with decision-making authority over extracorporeal embryos are set forth in Chapter 11, pages 320-326.

¹²² These members would distinguish the moral status of extracorporeal embryos from the status of fetuses already in the womb. Unlike fetuses, extracorporeal embryos will not develop into children without significant technological intervention. Moreover, even if this intervention is provided the likelihood that any particular embryo will implant and develop into a child is low.

bryo's destruction. For these members, embryos constitute developing life and research that results in their destruction is therefore morally unacceptable.

In light of our diverse opinions on the question of nontherapeutic research resulting in the destruction of human embryos, and the fact that this issue is currently receiving substantial attention by policy makers at the federal level, we do not propose any recommendations for state law or policy at this time.

All of us agree that attempting to create a child through somatic cell nuclear transfer cloning would be ethically unacceptable at the present time, given the existence of substantial doubts about the procedure's safety. However, we hold differing positions on whether it would be ethically acceptable to use this procedure to create children if and when the safety concerns are addressed. Because of our diverse opinions, the fact that the use of this technology is not yet possible in humans, and the likelihood that federal legislation in this area will soon be enacted, we do not recommend any legislative or regulatory actions for New York State at this time.

Using somatic cell nuclear transfer to create clones of existing or previously existing human beings raises the possibility that children can be conceived with the genes of only one parent. In this respect, somatic cell nuclear transfer cloning is fundamentally different from the available techniques of assisted reproduction, all of which, like coital reproduction, result in the creation of embryos with gametes from two parents.

Given the existence of substantial doubts about the procedure's safety, all of us agree that any attempt to create a child through somatic cell nuclear transfer cloning would be ethically unacceptable at the present time. However, we hold differing positions on the ethical acceptability of using these procedures to create children if and when the safety concerns are addressed.

Many Task Force members are extremely troubled by the possibility of creating children through somatic cell nuclear transfer cloning. These members are concerned about the possible psychological and social implications of such a radical shift in human reproduction. In a society that tends to embrace theories of genetic determinism, children resulting from somatic cell nuclear transfer cloning may unfairly be perceived as mere replicas of their older genetic "twins." Such perceptions may significantly impede these children's ability to develop independent identities; they may also undermine society's willingness to respect children created through these technologies as unique human beings. The ability to create clones of existing or previously existing persons may also facilitate eugenic efforts.

Other members are not convinced that the use of somatic cell nuclear transfer cloning to create children is inherently more problematic than other forms of assisted reproduction. While these members are disturbed by the possibility that individuals could create genetic replicas of themselves for narcissistic reasons, they see little difference between such practices and the selection of gamete donors to match idiosyncratic individual specifications, which occurs now. They also believe that, in some cases, the use of somatic cell nuclear transfer cloning may be preferable to the use of gamete donors, because it would eliminate the need to introduce third parties into private relationships and, in the case of egg donation, to subject those third parties to substantial medical risks.

We also hold differing views about the types of scientific research on somatic cell nuclear transfer cloning that would be ethically acceptable. While many members believe that scientific research in this area can be ethically acceptable in light of the important medical advances it might achieve, some members would not support such research if it involves the creation or use of human embryos. All of us agree, however, that it is essential to avoid broad pronouncements about research on human cloning that may unintentionally chill legitimate scientific inquiry in other fields.

As with the issue of nontherapeutic research on human embryos, we do not recommend state legislation or regulation in the area of somatic cell nuclear transfer cloning at this time. In addition to our diverse views on the subject, the procedure is not now scientifically possible in humans. Moreover, federal legislation in this area may soon make action at the state level unnecessary.

**Questions and Reform Jewish Answers:
New American Reform Responsa
by Walter Jacobs, CCAR, 1992, pp. 247-252**

YOREH DEAH

154. JEWISH INVOLVEMENT IN GENETIC ENGINEERING *

QUESTION: May a Jew genetically alter a mouse or may a Jew use a mouse if it has been genetically engineered by a Gentile? What is the status of animals in Jewish law? (Arthur P. Gershman, Arlington VA)

ANSWER: Genetic engineering is a field which is still in its infancy but we can expect major advances in this area in the future. At the moment it is possible to introduce permanent genetic changes in plants, animals and human beings. There are many questions about the control which needs to be exercised and the dangers which may arise from new, altered, or hitherto unknown, substances formed through these methods. Unusual safeguards have been proposed both by the scientific community, national and international agencies. Such caution is wise and we should proceed carefully even when we are dealing with animals. This responsum is not intended to discuss genetic engineering in human beings.

We will, perhaps, begin with the question of the status of animals in relationship to human beings and then turn to genetic engineering.

The Biblical statement in Genesis (2.26) placed people above animals and enabled them to rule them and therefore to use them in any way that seemed appropriate and certainly to save a life (*pikuah nefesh*). So, for example, cattle could be used for food or for various kinds of work (B M 86b; Hag 3b; Meila 13a; A Z 5b, etc). Consumption or sacrifice was limited to those deemed clean (Lev 11.3 ff); the list included both animals, birds, as well as fish. Other animals which were unclean could be used by man in various ways. There were few limits on the manner of catching or housing animals as long as it was humane so a varieties of means of

QUESTIONS AND REFORM JEWISH ANSWERS

catching birds were discussed in the *Talmud* (B M 42a; *Taanit* 22a; Sab 78b; Ber 9b; etc.) Animals which endangered human beings such as wolves and lions could be destroyed (Ber 13a). This was even more true of pestilent insects such as grasshoppers, mosquitoes or scorpions and ants! Crop eating field mice and rats could also be destroyed (*Taanit* 19a; 14a; Sab 121b; M K 6b). The *Midrash* which sought to find a use for some such animals like fleas and mosquitoes stated that they were created in order to plague evil people (*Midrash Rabbah Vayikra* 189).

Animals could be used by man as long as they were treated kindly. It is prohibited to consume a limb from a living animal (B M 32b). An animal which was threshing may not be muzzled; it must be permitted to eat as freely as a human being (Deut 23.25 f; B M 87b, 90a; *Yad Hil Zekirut* 13.3; *Shulhan Arukh Hoshen Mishpat* 338). Furthermore, one should not consider acquiring an animal unless one has the means to feed it (*J Ket* 4.8) and a person should then feed his animals before feeding himself (*Git* 62a; *Yad Hil Avadim* 9.8).

Unnecessary pain may not be inflicted on animals (Ex 23.5; B M 32a; *Yad Hil Rotzeah* 13.9; Solomon ben Aderet *Responsa* #252 #257). Some of the medieval scholars who were concerned with the protection of animals felt that those precautions needed to be stricter than with human beings, as animals do not have the intelligence to care for themselves or to take a longer view of matters (*Yad Hil Zekirut* 13.2; David ibn Zimri *Responsa* I #728; Yair Hayim Bacharach *Havat Yair* #191; *Shulhan Arukh Hoshen Mishpat* 337.2). Biblical law prohibited the killing of a mother with its young (Lev 12.28; Hul 83a; *Yad Hil Shehitah* 13; *Shulhan Arukh Yoreh Deah* 16). The later Jewish codes also insisted that a seller inform a buyer of the relationship between any animals sold so that a mother and its offspring would not be slaughtered together on

YOREH DEAH

the same day. A similar kind of provision forbade the taking of both a mother and a chick from the same nest. (Deut 12.6; Hul 138b *Shulhan Arukh* Yoreh Deah 292).

Kindness to animals included the lightening of the load from an overburdened animal (Ex 13.5). Domestic animals were required to rest on *shabbat* as human beings (Ex 20.10; 23.12; Deut 5.14). Provisions were made for animal care on *shabbat*, an animal which was normally milked by a non-Jew. If an animal needed to be rescued it was to be done even on *shabbat* (Shab 128a; *Yad Hil Shabbat* 25.26; *Shulhan Arukh* Orah Hayim 305.19).

We should also note that the castration of animals was prohibited and this has always been considered as a form of maiming, which was forbidden (*Shelat Yaabetz* 1.11). We may summarize this by relating that our tradition demands kind treatment of animals. They may be used by human beings but not treated cruelly. We should note that the medieval discussion by some Jewish philosophers about the soul of animals was left as a speculative issue.

Now let us deal with genetically induced changes in mice which are to be used as experimental animals. Systemic genetic changes are a recent scientific achievement. The only area which approached this field in the past was controlled breeding. Our tradition had very little to say about breeding animals as long as no attempt was made to do so with unlike species. There was a great interest in maintaining species of both plants and animals separately, based in part on Biblical verses (Lev 19.19; Deut 22.10). An entire section of the *Mishnah* (Kilaim) dealt with the problem of sowing various kinds of seeds together, grafting one plant onto another and interbreeding of animals. This segment of the *Mishnah* contains eight chapters which dealt with various kinds of mixtures such as the prohibition against interweaving wool and linen and

QUESTIONS AND REFORM JEWISH ANSWERS

with the cross breeding of certain species of animals or plants. The *Mishnah* and *Tosefta Kilaim* indicated a fascination with mixtures and sought to explain the natural world from this perspective. The *Mishnah Kilaim* presented two points of view according to a recent scholarly volume by Avery-Peck. The circle of Yavneh argued that species were to be kept separate as God created order in the Universe and it was Israel's duty to maintain this separation.

Those of Usha argued that Israel imposed order on the natural world and Israel now had to maintain it. Neither group ultimately included non-edible plants in their scheme. (A. J. Avery-Peck *The Mishnah's Division of Agriculture*)

When the *Mishnah Kilaim* dealt with animals, it was mainly concerned about unlike species harnessed together or interbred. Neither the *Mishnah* nor later Jewish literature prohibited ownership of animals bred in such a manner. Interest in this subject, however, diminished and so there was no Babylonian Talmud to these chapters of the *Mishnah* and later discussion of this material is sparse.

The chief Biblical section which deals with this issue, aside from the legislation mentioned above, is the story in Genesis in which the young Jacob promised to maintain the flock of Laban and as payment asked the speckled, spotted and dark colored sheep and goats. He then proceeded to influence the breeding in that direction. Ostensibly this was done through the placement of shoots of poplar, almond and plane trees but there has been some speculation that he possessed some knowledge of genetics which helped him to his goal of a large flock. That theory has been advanced by Judah Fliks ("Yorashah Usvivah Bemaaseh Yaakov Betzon Lavan" *Tehumin*, Vol III pp 461 ff). We should note that the Biblical commentators do not single this story out for special

YOREH DEAH

comment and to the best of my knowledge do not use it as an example of animal breeding.

There were occasional commentaries like Ramban who stated that human beings should not change nature as that would imply imperfection in God's creation (Ramban to Lev 19.19) That medieval view was found frequently in church literature. It has not been followed by Jewish thinkers.

Jewish law said nothing about changing the characteristics of a particular species or breed. Throughout the centuries every effort was made to assist nature and to produce animals suited to specific purposes as well as plants which would yield abundantly. Despite Jewish involvement in agriculture through the centuries, this matter has not been discussed in the older responsa literature, to the best of my knowledge. In modern times these efforts have been accelerated through selective breeding and an understanding of the genetic process. More recently cloning of plant tissues has been used successfully to produce plants which are absolutely true; this method holds great promise as well as potential dangers.

Genetic engineering of plants or animals within a species poses few old *halakhic* problems though it raises many other issues. Human beings have selective bred plants and animals since the beginning of herding and agriculture in order to adapt them to specific human needs and environments. Genetic engineering will vastly accelerate this process. This may eliminate poverty, famine and disease but may also bring scourges and problems which we can not foresee.

We are standing at the edge of a new scientific era. We certainly wish to utilize the potentials of genetic engineering for the benefit of humanity. That may be partially within our power. It is not within our power to stop the scientific experimentation. The human yearning to understand the divine creation and everything

QUESTIONS AND REFORM JEWISH ANSWERS

in it as fully as possible cannot be halted, nor can the desire to alleviate the problems of hunger, disease, and poverty.

As we learn more about the nature of genetic engineering we must discuss its moral implications both with regard to animals and human beings. We realize that the line between plants, animals, and human beings is thin and in some ways does not exist at all. So we must proceed with caution. In consort with others we must set limits and provide direction. We have, of course, become especially sensitive to all of these issues since the Holocaust and the terrible medical experimentation which occurred during the Holocaust.

We may be ready to accept genetic changes made for medical purposes and experimentation as *pikuah nefesh* is an overriding consideration (Shab 132a; Yoma 85b; *Tosefta* Shab 17 and Alfaz; *Shulhan Arukh* Orah Hayim 328.1; Hatam Sofer *Responsa* Hoshen Mishpat #185). Human life must be saved if it is at all possible and even some pain to animals is permitted for this purpose. Economic reasons, however, could not justify such a course of action. These should always be reviewed carefully.

When dealing with experimental animals we should be quite certain that they are not subjected to pain or used for frivolous reasons as for example cosmetic experimentation.

A mouse engineered genetically for a specific set of experiments, which will eventually help human beings, lies within the boundaries of utilizing animals for the benefit of human beings. Naturally the humane treatment of the animals in accordance with our tradition must be observed. It would be appropriate for Jews to be involved in this kind of genetic engineering and to use the animals that they themselves have genetically changed.

March 1989

bryo's destruction. For these members, embryos constitute developing life and research that results in their destruction is therefore morally unacceptable.

In light of our diverse opinions on the question of nontherapeutic research resulting in the destruction of human embryos, and the fact that this issue is currently receiving substantial attention by policy makers at the federal level, we do not propose any recommendations for state law or policy at this time.

All of us agree that attempting to create a child through somatic cell nuclear transfer cloning would be ethically unacceptable at the present time, given the existence of substantial doubts about the procedure's safety. However, we hold differing positions on whether it would be ethically acceptable to use this procedure to create children if and when the safety concerns are addressed. Because of our diverse opinions, the fact that the use of this technology is not yet possible in humans, and the likelihood that federal legislation in this area will soon be enacted, we do not recommend any legislative or regulatory actions for New York State at this time.

Using somatic cell nuclear transfer to create clones of existing or previously existing human beings raises the possibility that children can be conceived with the genes of only one parent. In this respect, somatic cell nuclear transfer cloning is fundamentally different from the available techniques of assisted reproduction, all of which, like coital reproduction, result in the creation of embryos with gametes from two parents.

Given the existence of substantial doubts about the procedure's safety, all of us agree that any attempt to create a child through somatic cell nuclear transfer cloning would be ethically unacceptable at the present time. However, we hold differing positions on the ethical acceptability of using these procedures to create children if and when the safety concerns are addressed.

Many Task Force members are extremely troubled by the possibility of creating children through somatic cell nuclear transfer cloning. These members are concerned about the possible psychological and social implications of such a radical shift in human reproduction. In a society that tends to embrace theories of genetic determinism, children resulting from somatic cell nuclear transfer cloning may unfairly be perceived as mere replicas of their older genetic "twins." Such perceptions may significantly impede these children's ability to develop independent identities; they may also undermine society's willingness to respect children created through these technologies as unique human beings. The ability to create clones of existing or previously existing persons may also facilitate eugenic efforts.

Other members are not convinced that the use of somatic cell nuclear transfer cloning to create children is inherently more problematic than other forms of assisted reproduction. While these members are disturbed by the possibility that individuals could create genetic replicas of themselves for narcissistic reasons, they see little difference between such practices and the selection of gamete donors to match idiosyncratic individual specifications, which occurs now. They also believe that, in some cases, the use of somatic cell nuclear transfer cloning may be preferable to the use of gamete donors, because it would eliminate the need to introduce third parties into private relationships and, in the case of egg donation, to subject those third parties to substantial medical risks.

We also hold differing views about the types of scientific research on somatic cell nuclear transfer cloning that would be ethically acceptable. While many members believe that scientific research in this area can be ethically acceptable in light of the important medical advances it might achieve, some members would not support such research if it involves the creation or use of human embryos. All of us agree, however, that it is essential to avoid broad pronouncements about research on human cloning that may unintentionally chill legitimate scientific inquiry in other fields.

As with the issue of nontherapeutic research on human embryos, we do not recommend state legislation or regulation in the area of somatic cell nuclear transfer cloning at this time. In addition to our diverse views on the subject, the procedure is not now scientifically possible in humans. Moreover, federal legislation in this area may soon make action at the state level unnecessary.

**Questions and Reform Jewish Answers:
New American Reform Responsa
by Walter Jacobs, CCAR, 1992, pp. 247-252**

YOREH DEAH

154. JEWISH INVOLVEMENT IN GENETIC ENGINEERING *

QUESTION: May a Jew genetically alter a mouse or may a Jew use a mouse if it has been genetically engineered by a Gentile? What is the status of animals in Jewish law? (Arthur P. Gershman, Arlington VA)

ANSWER: Genetic engineering is a field which is still in its infancy but we can expect major advances in this area in the future. At the moment it is possible to introduce permanent genetic changes in plants, animals and human beings. There are many questions about the control which needs to be exercised and the dangers which may arise from new, altered, or hitherto unknown, substances formed through these methods. Unusual safeguards have been proposed both by the scientific community, national and international agencies. Such caution is wise and we should proceed carefully even when we are dealing with animals. This responsum is not intended to discuss genetic engineering in human beings.

We will, perhaps, begin with the question of the status of animals in relationship to human beings and then turn to genetic engineering.

The Biblical statement in Genesis (2.26) placed people above animals and enabled them to rule them and therefore to use them in any way that seemed appropriate and certainly to save a life (*pikuah nefesh*). So, for example, cattle could be used for food or for various kinds of work (B M 86b; Hag 3b; Meila 13a; A Z 5b, etc). Consumption or sacrifice was limited to those deemed clean (Lev 11.3 ff); the list included both animals, birds, as well as fish. Other animals which were unclean could be used by man in various ways. There were few limits on the manner of catching or housing animals as long as it was humane so a varieties of means of

QUESTIONS AND REFORM JEWISH ANSWERS

catching birds were discussed in the *Talmud* (B M 42a; *Taanit* 22a; Sab 78b; Ber 9b; etc.) Animals which endangered human beings such as wolves and lions could be destroyed (Ber 13a). This was even more true of pestilent insects such as grasshoppers, mosquitoes or scorpions and ants: Crop eating field mice and rats could also be destroyed (*Taanit* 19a; 14a; Sab 121b; M K 6b). The *Midrash* which sought to find a use for some such animals like fleas and mosquitoes stated that they were created in order to plague evil people (*Midrash Rabbah Vayikra* 189).

Animals could be used by man as long as they were treated kindly. It is prohibited to consume a limb from a living animal (B M 32b). An animal which was threshing may not be muzzled; it must be permitted to eat as freely as a human being (Deut 23.25 f; B M 87b, 90a; *Yad Hil Zekirut* 13.3; *Shulhan Arukh Hoshen Mishpat* 338). Furthermore, one should not consider acquiring an animal unless one has the means to feed it (*J Ket* 4.8) and a person should then feed his animals before feeding himself (*Git* 62a; *Yad Hil Avadim* 9.8).

Unnecessary pain may not be inflicted on animals (Ex 23.5; B M 32a; *Yad Hil Rotzeah* 13.9; Solomon ben Aderet *Responsa* #252 #257). Some of the medieval scholars who were concerned with the protection of animals felt that those precautions needed to be stricter than with human beings, as animals do not have the intelligence to care for themselves or to take a longer view of matters (*Yad Hil Zekirut* 13.2; David ibn Zimri *Responsa* I #728; Yair Hayim Bacharach *Havat Yair* #191; *Shulhan Arukh Hoshen Mishpat* 337.2). Biblical law prohibited the killing of a mother with its young (Lev 12.28; Hul 83a; *Yad Hil Shehitah* 13; *Shulhan Arukh Yoreh Deah* 16). The later Jewish codes also insisted that a seller inform a buyer of the relationship between any animals sold so that a mother and its offspring would not be slaughtered together on

YOREH DEAH

the same day. A similar kind of provision forbade the taking of both a mother and a chick from the same nest. (Deut 12.6; Hul 138b *Shulhan Arukh* Yoreh Deah 292).

Kindness to animals included the lightening of the load from an overburdened animal (Ex 13.5). Domestic animals were required to rest on *shabbat* as human beings (Ex 20.10; 23.12; Deut 5.14). Provisions were made for animal care on *shabbat*, an animal which was normally milked by a non-Jew. If an animal needed to be rescued it was to be done even on *shabbat* (Shab 128a; *Yad Hil Shabbat* 25.26; *Shulhan Arukh* Orah Hayim 305.19).

We should also note that the castration of animals was prohibited and this has always been considered as a form of maiming, which was forbidden (*Shelat Yaabetz* 1.11). We may summarize this by relating that our tradition demands kind treatment of animals. They may be used by human beings but not treated cruelly. We should note that the medieval discussion by some Jewish philosophers about the soul of animals was left as a speculative issue.

Now let us deal with genetically induced changes in mice which are to be used as experimental animals. Systemic genetic changes are a recent scientific achievement. The only area which approached this field in the past was controlled breeding. Our tradition had very little to say about breeding animals as long as no attempt was made to do so with unlike species. There was a great interest in maintaining species of both plants and animals separately, based in part on Biblical verses (Lev 19.19; Deut 22.10). An entire section of the *Mishnah* (Kilaim) dealt with the problem of sowing various kinds of seeds together, grafting one plant onto another and interbreeding of animals. This segment of the *Mishnah* contains eight chapters which dealt with various kinds of mixtures such as the prohibition against interweaving wool and linen and

QUESTIONS AND REFORM JEWISH ANSWERS

with the cross breeding of certain species of animals or plants. The *Mishnah* and *Tosefta Kilaim* indicated a fascination with mixtures and sought to explain the natural world from this perspective. The *Mishnah Kilaim* presented two points of view according to a recent scholarly volume by Avery-Peck. The circle of Yavneh argued that species were to be kept separate as God created order in the Universe and it was Israel's duty to maintain this separation.

Those of Usha argued that Israel imposed order on the natural world and Israel now had to maintain it. Neither group ultimately included non-edible plants in their scheme. (A. J. Avery-Peck *The Mishnah's Division of Agriculture*)

When the *Mishnah Kilaim* dealt with animals, it was mainly concerned about unlike species harnessed together or interbred. Neither the *Mishnah* nor later Jewish literature prohibited ownership of animals bred in such a manner. Interest in this subject, however, diminished and so there was no Babylonian Talmud to these chapters of the *Mishnah* and later discussion of this material is sparse.

The chief Biblical section which deals with this issue, aside from the legislation mentioned above, is the story in Genesis in which the young Jacob promised to maintain the flock of Laban and as payment asked the speckled, spotted and dark colored sheep and goats. He then proceeded to influence the breeding in that direction. Ostensibly this was done through the placement of shoots of poplar, almond and plane trees but there has been some speculation that he possessed some knowledge of genetics which helped him to his goal of a large flock. That theory has been advanced by Judah Fliks ("Yorashah Usvivah Bemaaseh Yaakov Betzon Lavan" *Tehumin*, Vol III pp 461 ff). We should note that the Biblical commentators do not single this story out for special

YOREH DEAH

comment and to the best of my knowledge do not use it as an example of animal breeding.

There were occasional commentaries like Ramban who stated that human beings should not change nature as that would imply imperfection in God's creation (Ramban to Lev 19.19) That medieval view was found frequently in church literature. It has not been followed by Jewish thinkers.

Jewish law said nothing about changing the characteristics of a particular species or breed. Throughout the centuries every effort was made to assist nature and to produce animals suited to specific purposes as well as plants which would yield abundantly. Despite Jewish involvement in agriculture through the centuries, this matter has not been discussed in the older responsa literature, to the best of my knowledge. In modern times these efforts have been accelerated through selective breeding and an understanding of the genetic process. More recently cloning of plant tissues has been used successfully to produce plants which are absolutely true; this method holds great promise as well as potential dangers.

Genetic engineering of plants or animals within a species poses few old *halakhic* problems though it raises many other issues. Human beings have selective bred plants and animals since the beginning of herding and agriculture in order to adapt them to specific human needs and environments. Genetic engineering will vastly accelerate this process. This may eliminate poverty, famine and disease but may also bring scourges and problems which we can not foresee.

We are standing at the edge of a new scientific era. We certainly wish to utilize the potentials of genetic engineering for the benefit of humanity. That may be partially within our power. It is not within our power to stop the scientific experimentation. The human yearning to understand the divine creation and everything

QUESTIONS AND REFORM JEWISH ANSWERS

in it as fully as possible cannot be halted, nor can the desire to alleviate the problems of hunger, disease, and poverty.

As we learn more about the nature of genetic engineering we must discuss its moral implications both with regard to animals and human beings. We realize that the line between plants, animals, and human beings is thin and in some ways does not exist at all. So we must proceed with caution. In consort with others we must set limits and provide direction. We have, of course, become especially sensitive to all of these issues since the Holocaust and the terrible medical experimentation which occurred during the Holocaust.

We may be ready to accept genetic changes made for medical purposes and experimentation as *pikuah nefesh* is an overriding consideration (Shab 132a; Yoma 85b; *Tosefta* Shab 17 and Alfes; *Shulhan Arukh* Orach Hayim 328.1; Hatam Sofer *Responsa* Hoshen Mishpat #185). Human life must be saved if it is at all possible and even some pain to animals is permitted for this purpose. Economic reasons, however, could not justify such a course of action. These should always be reviewed carefully.

When dealing with experimental animals we should be quite certain that they are not subjected to pain or used for frivolous reasons as for example cosmetic experimentation.

A mouse engineered genetically for a specific set of experiments, which will eventually help human beings, lies within the boundaries of utilizing animals for the benefit of human beings. Naturally the humane treatment of the animals in accordance with our tradition must be observed. It would be appropriate for Jews to be involved in this kind of genetic engineering and to use the animals that they themselves have genetically changed.

March 1989