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King-Tak Ip
Editor

The Bioethics of Regenerative Medicine

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THE BIOETHICS OF REGENERATIVE MEDICINE

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Part I
Introduction

Introduction: Regenerative Medicine at the Heart of the Culture Wars

King-Tak IP

Regenerative medicine is rich with Promethean promises. The use of human embryonic stem cells in research is justified by its advocates in terms of promises to cure a wide range of diseases and disabilities, from Alzheimer's and Parkinsonism to the results of heart attacks and spinal cord injuries. More broadly, there is the Promethean allure of being able to redesign human biological nature in terms of the goals and concerns of humans. Needless to say, these allures and promises have provoked a wide range of not just moral but metaphysical reflections that reveal and reflect deep fault lines in our cultures. The chapters in this volume grew out of a conference that addressed these issues under the title, "Ethical Reflections on Regenerative Medicine," held at the Centre for Applied Ethics, Hong Kong Baptist University, on May 6 and 7, 2004. The editor wishes gratefully to acknowledge the support of Wenhsin Foundation. Following the conference, the chapters were developed substantively in dialogue with peer reviewers and were supplemented by other chapters to produce this volume directed to the roots and character of the moral debates regarding regenerative medicine.

As the chapters show, the controversies occasioned by regenerative medicine go to the very core of the moral and metaphysical understandings that tell us what it is to be human. If one is to remake what it is to be human, one should know what goals are appropriate and what constraints should apply. The difficulty is that there is not one account of the appropriate goals. Because of the West and the influence of its culture, much of the world encounters these controversies in terms of the cleft between traditional Christian moral and metaphysical understandings and those of the post-Christian, post-traditional secular culture that became ascendent following the late seventeenth century. It is one thing, for example, to recognize human nature as a gift from God; it is quite another to regard human nature as the accidental and contingent product of evolution. The possibility of restructuring human nature technologically

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presses the issue of the direction toward which humans should aim their powers. Those who approach such questions oriented through moral insights drawn from turning to God can appreciate the possibility of recognizing binding limits on the project of remaking human nature. Those who approach these same issues by attempting to give direction without an acknowledgment of any ultimate point of orientation other than human free choice are left with a competition among disparate views of human flourishing. They are likely left with creating, not discovering, goals and limits. These foundationally metaphysical issues and the moral differences they engender are enough to place regenerative medicine at the core of a wide range of controversies.

The chapters in this volume, directly and indirectly, present the points of controversy as they tease out the character of the moral issues that confront any attempt to develop the human regenerative technologies that might move us from a human to a post-human nature. As if the foundational controversies occasioned by the prospect of a post-human future were not enough, some of the technologies themselves are morally problematic, as in the case of those that exploit human embryos in the acquisition of knowledge and the production of new therapies. Although one can appreciate the disputes as independently philosophical, they are surely also a function of the conflict between a Christian and a post-Christian culture, in that Christianity has from its beginning recognized a fundamental prohibition against the taking of early human life. Even the philosophical disputes that frame secular bioethics are often motivated and shaped by these background cultural conflicts. These chapters display this circumstance in rich ways.

H. Tristram Engelhardt Jr.'s "Regenerative Medicine after Humanism" provides an introduction to this clash of moralities and accounts of reality. Engelhardt begins his discussion by outlining the profound gulf that has emerged in Western moral discussions between secular and religious moral and metaphysical perspectives. As Engelhardt shows, regenerative medicine is the site of a number of the battles in the culture wars, which among other things involve disagreements as to whether the current general biological character of humans has any normative significance. The characteristics of human biological nature, for the secular culture, have come to be contingent and their significance culturally relative so that within this culture, the goals for the new human biomedical technologies turn out at best to be created, not discovered, as Ping-Cheung Lo shows in his chapter. As a consequence, the dominant secular culture and its secular morality cannot set any firm boundaries regarding the treatment of early human life, even when it seems intuitive that morality should set such limits.

In contrast, as Engelhardt notes, traditional Christianity still persists and brings with it the resources to set moral limits to the use of technologies such as regenerative medicine. It can do this in that it (1) recognizes all things as having meaning with reference to God that is independent of human culture and (2) holds that human nature is normative, because humans are created in the image of God (and because human nature has been taken on by God through the

Incarnation). As already noted, it is these contrasting metaphysical views that give rise to many of the bioethical disputes that shape contemporary bioethics. As Engelhardt observes, though these conflicts may have arisen in the West, they have long since been exported to Asia. In addition, while many Asian cultures may lack the religious concerns of the West, they still should be concerned with their culture's shift to a post-traditional moral perspective. It is possible that such a cultural shift may result in a loss of those independent moral insights regarding the importance of early human life that exist in Chinese culture, as Jing-Bao Nie notes later in this volume. Such a shift may then obscure the moral significance of germ-line genetic engineering as well as threaten those values and structures concerning the family, which supports the powerful moral insights that have directed Chinese culture.

In "Genetic Manipulation and the Resurrection Body," Robert Song explores the significance of genetic manipulation in the context of the role of the body in contemporary understandings of self-identity. He does this by examining (1) Anthony Gidden's work concerning modern self-identity as a necessary response to living in post-traditional societies, (2) Martin Heidegger's notion of the transmutation of nature into a realm of human action, (3) Michel Foucault's ideas regarding the role of biopower in structuring the goals people form through their notional exercise of free choice, (4) the modern moral project with its emphasis on the expansion of choice and the elimination of suffering, and (5) the likely effects of genetic manipulation as judged from analogous technologies like plastic surgery. From this examination, a picture of a culture arises in which the body is no longer perceived as something that is given and inoperable to something that is constructed and controlled. Song then turns to explore what conceptual resources Christians have to engage these issues in order to distinguish between acceptable and unacceptable forms of genetic manipulation. In developing this account, Song draws on Scripture to argue that it is through the body of Christ that our own bodies come to have the reality that they possess. Christians will recognize the Incarnation as even more significant than creation. Hence, we can only understand the kind of body the church should strive for by appealing to the body of Christ. Therefore, as Song argues, Christians must ultimately appeal to the body of Christ in determining which forms of genetic manipulation should be sanctioned.

In "Secular Humanist Bioethics and Regenerative Medicine," Ping-Cheung Lo offers an in-depth analysis of regenerative medicine from the perspective of secular humanism by drawing on the views of Joseph Fletcher. Lo's exploration of Joseph Fletcher's work and its relation to other secular humanistic world views shows at least six cardinal commitments that inform Fletcher's secular ethics:

(1) It is human beings and not God who determine truth as well as the nature and proper ordering of values (as with Protagoras).

(2) Subduing nature through science and technology is legitimate and praiseworthy as it allows entrance into the *kingdom of human persons* (as with Francis Bacon).

(3) Humanity, in which all humans partake, is the *great being and the supreme being of the universe* (as with Auguste Comte).

(4) Human rationality and benevolence are worthy of our ultimate trust as they are divine (as with Ludwig Feuerbach).

(5) Ethics belongs in the realm of the artificial and not the natural (as with Thomas Henry).

(6) If we are to be free, we should not follow nature or attempt to live in harmony with it (as with Bertrand Russell).

Fletcher supports a worldview that requires not appealing to God or nature as a moral guide when deciding whether to use technology to reshape our human nature. Instead, we should only appeal to a secularized understanding of human reason. Cut off from any point of ultimate orientation, not only are humans left free to use genetic therapy and enhancement, but they would even be encouraged to utilize these technologies because it is then within our right to play God and regard nature as something flawed and in need of correction. Lo's paper lays out the deep conflict between traditional Christian moral concerns, as Engelhardt notes in his paper, and the emerging secular moral vision.

Jing-Bao Nie seeks to dispel a popular myth about Chinese attitudes toward abortion: a myth that has been used to suggest that Chinese culture lacks the moral intuitions to appreciate the morally problematic character of such undertakings as human embryonic stem-cell research. The myth maintains that the Chinese have few or no moral qualms about the intentional termination of pregnancy. This myth is so powerful that scholars and laymen, both outside and inside of China, believe it. Nie exposes this myth, first by pointing to a wide variety of historical, religious, and cultural attitudes, as well as reflections regarding the fetus, including socialist, Buddhist, and Confucian perspectives. He supports this historical and conceptual analysis of the diversity of opinions in China by drawing on data from a 1997 survey that Nie conducted asking the question, "When does life begin" The results illustrate the range of beliefs held by over 600 Chinese people from various walks of life. The article closes with Nie's reflections on why and how bioethics should take China's internal diversity seriously.

Brenda Almond also explores a range of the moral issues associated with the use of human embryos. She explores, for example, whether children have the right to protect their identity from being harmed by others. Such a right may prevent certain persons like homosexuals from making use of reproductive technologies if it is believed that the identity of the children born to such persons may be confused or that the children would be deprived of rewarding relationships. Almond also tackles questions relating to the permissibility of technologies that can be used to select a child who possesses or lacks certain features. Almond notes that there may be good reasons for using technologies to select a child with certain features, when they can ensure that one has children free from genetic diseases or help to balance out one's family. She notes, though, that some might claim that these technologies discriminate against persons with disabilities or can be used to promote sexism. She then turns to the question

of whether it is permissible to use embryos for stem-cell research. Almond centers her discussion on the philosophical debate in Britain, where currently embryos up to 14 days of development can be used in stem-cell experiments. She considers a number of different arguments favoring this position. Among them is the notion that embryos that are 14 days or younger in age are not persons and, therefore, do not possess the rights and protections that come with being a person; such embryos lack identity, in that they are capable of dividing into more than one individual or because they lack such essential properties as consciousness and the ability to form future plans and projects. Almond's own position draws heavily from this account. She acknowledges that one way in which embryos usually meet personhood requirements is that they can have a personal narrative. She alleges, however, that an important distinction can be drawn between using surplus embryos and creating embryos for research. Almond claims that a surplus embryo could have a "graspable alternative future—it could have been the sibling of another which actually exists and has a full human life, and the existing child provides an ongoing measure of what might have been." An embryo created in a laboratory, on the other hand, "never had such a potential destiny and has no relatives in the world." Because embryos created for research have no potential future and lack a personal history, Almond claims that it is permissible to use them for stem-cell research.

In "Trading Lives or Changing Human Nature: The Strange Dilemma of Embryo-Based Regenerative Medicine," Glenn McGee offers a geography of the controversies associated with human embryonic stem-cell research by developing an overview of the wide range of medical, ethical, religious, and metaphysical issues involved. McGee begins with a short history of the major technological milestones that have led to the current controversies, including the basic medical facts bearing on the issue. He gives a brief explanation of the various kinds of stem cells and promises they might hold for the future of medicine. He then offers a survey of the three major positions concerning the moral status of the embryo. First, there is the view that the embryo has no intrinsic moral value and any value it has derives from others; second, there is the contrary view that the embryo has intrinsic moral value, regardless of how others view it; last, there is the notion of a graduated scale, wherein the embryo starts with little or no value and gradually accrues value as it develops. McGee provides a quick summary of the arguments supporting each of these three views before moving on to a survey of the legal standing of the embryo in the United States, the United Kingdom, Germany, and Australia. While closing the article, McGee examines the difficulties surrounding the use of leftover embryos from in vitro fertilization and the clinical implications of the moral debates for physicians.

In "Therapeutic Cloning, Respect for the Human Embryo, and Symbolic Value," Jonathan Chan argues that the question of whether therapeutic cloning is morally permissible, given that it involves destruction of cloned human embryos, hinges on what one takes to be the moral status of the cloned human embryo. Chan's review of the literature shows three positions regarding

this issue. They are what he calls "the no-moral-status view" (the view that the cloned human embryo has no moral status), "the equal-moral-status view" (the view that the cloned human embryos has the same moral status as a human individual), and "the middle view" (the view that while embryos do not have the full moral status that human individuals possess, they are still deserving some respect because they are a form of human life). Chan aims to discuss and reject some major arguments that are frequently used to support the middle view. Chan focuses in particular on two arguments offered by Bonnie Steinbock, namely, (1) the argument that respect is owed to embryos because, like corpses, they possess a kind of symbolic value and (2) the argument that because embryos are beings who have the "non-identity preserving" potential to become humans, they are owed some respect. Chan criticizes the first of these arguments by putting the point that the reason one respects human corpses is because of the interests of those persons who once existed; however, we cannot attribute any interests to human embryos. Chan rejects the second argument by saying that if we hold that identity-preserving potential is the ground for respect, then it also follows that gametes as well as every other cell in the human body in light of the development of somatic-cell nuclear transfer are deserving the same respect, a conclusion that Chan believes is absurd.

The chapter by Ruiping Fan and Erika Yu is directed to finding a Confucian middle way through the moral controversies explored in this volume. They criticize the major Western ethical approaches to biotech law in "Medical Biotechnologies: Are There Effective Ethical Arguments for Policy Making" They hold that moral philosophers should ideally be able to offer sound guidance with regard to public policy governing biotechnology. The pluralistic nature of modern society, however, has rendered the foundations for such guidance unstable. In particular, neither the Christian moral doctrines of thinkers like Engelhardt nor the liberal individualist position of thinkers like Dworkin suffice as a basis for actual guidance. These approaches will either fail to give clear, coherent, and substantive guidance (in the case of Dworkin), or they give substantive guidance but fail to capture the major moral considerations that most members of society hold with regard to biomedicine (in the case of Engelhardt's Christian considerations). The authors propose an alternative foundation in the form of a nonreligious Confucianism, which can avoid these pitfalls and serve as a basis for guiding public policy.

Brent Waters attempts to locate the issues of this volume within a larger cultural perspective. In "Extending Human Life: To What End" he explores the question of the ultimate goal of regenerative medicine by asking whether it merely promises potential cures for disease, or instead serves the more ambitious goal of conquering death itself. Waters begins his examination of these questions by summarizing the most significant medical advancements in the field of regenerative medicine, including the work in genetics, stem-cell research, prosthetics, and nanotechnology. He then proceeds to address the conceptual implications for treating aging as a disease and "waging war on death" by asking what a victory in such a conflict would cost us and (more

pressingly) what it would mean. Waters outlines four positions on the prospect of our becoming posthuman. The first position is that of the transhumanists, as discussed by Ray Kurzweil and Hans Moravec, who argue that becoming posthuman both is inevitable and will increase the quality of life for many individuals. The second is a more qualified endorsement by N. Katherine Hayles, who envisions a posthumanist world with self-imposed restrictions for the sake of preserving individual identities. The third position is the qualified resistance of Francis Fukuyama, who fears that biotechnology threatens to undermine human dignity, human nature, and the liberal democracies these notions sustain. However, he acknowledges the benefits that such biotechnology promises. Lastly, there is the outright rejection of such technology by Leon Kass, who is critical of Fukuyama's optimism regarding both the benefits of biotechnology and the governments' ability to regulate it. Waters closes his discussion by assessing these positions with respect to their implications for medicine and bioethics. He offers an account through which one can reassess a rich complex of controversies.

Rather than wrestling with the issue of the moral status of the embryo, Gerald P. McKenny, in his chapter, "The Ethics of Regenerative Medicine: Beyond Humanism and Posthumanism," also seeks to place the moral debates about regenerative medicine in a broader context. McKenny begins by summarizing the debate as to whether regenerative medicine qualifies as therapy or enhancement, as well as whether there is a normative human nature, or whether human nature is a biological fact of the matter that is open to improvement (i.e., the posthumanist position). He then brings these reflections to an analysis of two arguments in favor of extending human life indefinitely (so-called 'posthumanism') and two arguments against such extension (so-called "humanism"). All of these arguments assume that the character of what it is to be human as such is at stake and, therefore, obscure the fundamental point, according to McKenny. He argues that a proper evaluation of the moral issues of regenerative medicine should focus rather on the contexts of human desires and practices that such technologies transform. Putting regenerative medicine in the broader context of human goods, meanings, and practices can afford a more concrete and immediate foundation for making moral judgments.

In "Moral Status and Human Embryo Experimentation: Insight from a Secular, Virtue-Based Theory," Garret Merriam and Justin Ho begin with an examination of Brenda Almond's chapter in order to address the general issue of the use of human embryos in research. Almond constructs a secular account of moral status drawing on the moral intuitions she holds all informed, rational beings to share. Merriam and Ho, however, argue that this approach highlights a problem inherent in most secular accounts of moral status. Like many others, Almond tries to construct a theory that accords with what she takes to be certain common-sense intuitions, such as the notion that entities deserve more respect, the more they resemble persons, while trying to avoid many of the problems that other theories of moral status encounter. However, in trying to create an account that meets these goals, she is forced to incorporate certain

value judgments and metaphysical assumptions into framework, which upon closer inspection are difficult to justify or lead to implausible conclusions. Drawing on this critical reflection, Merriam and Ho argue that a secular, virtue-based theory is able better to escape these problems. They offer this position as a means to address not only general questions regarding the status of the embryo but how one might look at the moral significance of the general lineaments of human nature. They conclude with some general reflections on the deep moral and metaphysical disputes that mark the discussion regarding regenerative medicine and that divide the contributors to this volume.

As the chapters in this volume show, the historical, conceptual, and analytic puzzles of bioethics are rarely isolated, intellectual concerns. They are rather embedded in broad and conflicting understandings of the nature of reality, the content and justification of morality, and the place and significance of humans in the cosmos. The contributions to this volume richly demonstrate this state of affairs. Directly or indirectly, they are tied to incompatible visions of the deep meaning of things and the source of human values. The disputes outlined in this volume, even when they focus on very particular technological issues, as with human embryonic stem-cell research, are always to some extent driven by these larger controversies, which are often expressed in our contemporary culture wars—the struggles within societies to define the dominant moral vision. This volume is offered as a contribution to understanding these conflicts and controversies more clearly, even when this book cannot offer a final resolution.

Part II
Prospect of Being Posthuman: The Metaphysical Roots of the Moral Controversies

Chapter 1
Regenerative Medicine after Humanism: Puzzles Regarding the use of Embryonic Stem Cells, Germ-Line Genetic Engineering, and the Immanent Pursuit of Human Flourishing

H. Tristram Engelhardt

1.1 An Introduction to a Conflict of Cultures

This paper provides a geography of moral and metaphysical controversy. It offers a map of cardinal cultural conflicts, an overview of the colliding understandings of reality that shape the bioethical debates nesting regenerative medicine, in particular those associated with interferences in early human embryonic life and with human germ-line genetic engineering. Regenerative medicine promises to ameliorate, if not cure, a wide range of human injuries, disabilities, and diseases. Human embryonic stem cells, including stem cells produced from human cloning, promise areas of important new research as well as avenues for breakthrough treatments. Human genetic engineering may also transform the responses of cells, making regeneration and repair more likely. One can even imagine changing the human genome to make humans less subject to injuries and more able to engage in regeneration and self-repair. The promises are Promethean.[1]

In the face of injuries, disabilities, diseases, and the prospect that these new technologies may offer cures, moral hesitation about such research may seem unjustified. Yet, the technologies that show promise also evoke widespread moral hesitations, if not principled condemnations. Francis Fukuyama's recent study, *Our Posthuman Future*, offers a heuristic example of how these new technologies constitute a challenge for bioethics and healthcare policy: our contemporary technologies threaten to recast fundamentally our relationship to early human life, human reproduction, and human evolution.[2] A more foundational difficulty is that, as Fukuyama's book unintentionally shows, the dominant secular culture, when it confronts these challenges, lacks sufficient moral and metaphysical resources to set any moral limits in principle.[3] Nevertheless, there is a sense that some such limits should be recognized.[4] Fukuyama laments this failure adequately to defend the normative status of human nature and traditional moral commitments,[5] but he offers little useful advice.[6] Speaking to this lament, this

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paper explores why these controversies have power and persist, although the secular arguments needed to sustain such concerns are at best quite weak.

One can account for the strength of these controversies only if the moral concerns regarding germ-line genetic engineering and the use of embryo stem cells are recognized as rooted in disputes about the character of reality itself. The debates that surface around regenerative medicine are symptoms of a collision of cultures, worldviews, or thought styles.[7] The antagonists live in starkly different moral and metaphysical life-worlds. As to the depth of the differences, one might think of Ludwik Fleck's account of how facts and explanations are embedded in thought styles sustained within disparate thought collectives.[8] The debates regarding the use of human embryos and the engagement of human germ-line genetic engineering are thus unlikely to abate: they involve incompatible ways of regarding and experiencing reality, sustained within moral communities that experience themselves as locked in a moral struggle. Those participating in these debates speak past each other. Their positions are framed within different understandings of reality and morality and that sustain different articulations of what is at stake. Further, the arguments that each side advances on behalf of its position are often developed to defend positions embraced prior to the articulation of the particular arguments. Each side tends to be committed to a position for which it then seeks arguments because the position is often sustained by commitments other than the arguments advanced. In assessing this state of affairs, this paper indicates why our contemporary moral circumstance produces bioethical controversies that within the compass of secular moral reflection, lie beyond resolution. This paper is a study in moral controversy and its implications.

1.2 After the Death of God and the Death of Man

Key to appreciating contemporary bioethical disputes is a recognition of a dramatic rupture in Western civilization that has been exported to the world. In 1803, not yet a decade and a half after the French Revolution,[9] Hegel uses the phrase "God is dead" as a diagnosis for the character of Western culture.[10] In his account of Western history and religion, Hegel connects this diagnosis of cultural change to the historical death of Christ on the Cross, the full significance of which Hegel holds becomes manifest only in his time and through his account of philosophy. Hegel thus recasts the history of religion and philosophy in the service of his categorial reconstruction of history and being. When he speaks of "the feeling that 'God Himself is dead' " (Hegel, 1977, p. 190; Hegel, 1968, p. 414), he engages his cultural diagnosis in the service of a speculative Good Friday,[11] which leads through his categorial system to a conceptual Resurrection that is to give history and being a new life.[12] This seemingly esoteric set of philosophical claims proved to have profound implications for the understanding of reality and the nature of culture. All of being becomes what human reasoners can make of it.[13] Metaphysics as the study of being as it is in itself and as it is known by God is relocated in an immanent, socially and historically conditioned ontology. Being

and morality are what humans make of it, or at least humans construed as systematic, self-reflective thinkers.[14] In particular, Hegel recognizes that a profound change has occurred in European culture leading to the emergence of a dominant (in his day, vanguard) secular cultural perspective.[15]

In this immanent moral and ontological space, the discourse and defense of human rights, dignity, equality, liberty, and even moral rationality are cut loose from any deep anchor in being. Instead, they are secured only within the hermeneutic circle of a particular culture. Morality, to quote Richard Rorty, can then be maintained "just insofar as we can cease to think of morality as the voice of the divine part of ourselves and instead think of it as the voice of ourselves as members of a community, speakers of a common language" (Rorty, 1989, p. 59). The result is that all moral claims in general, and those regarding human germ-line genetic engineering and the use of human embryonic stem cells in particular, become contingent and culture-relative features of the emerging, dominant, global, secular culture. This perspective, along with its content, is then set off against those perspectives that understand their truth as anchored in being and beyond history.

To gauge the dramatic character of this culture's severance from any ontological deep-rootedness in a normative perspective independent of human persons, this state of affairs must be appreciated as grounded in three cardinal background assertions that undergird contemporary secular bioethics:

1. The assertion of radical metaphysical and moral immanence—God is culturally dead for this bioethics in the sense that the horizon of human concerns is no longer anchored in being as it would be known and affirmed by God, and is rather lodged in being as it is known and experienced within a particular cultural framework (i.e., all being has its being in a particular narrative or life-world).[16]
2. The assertion of the foundational centrality of persons—man and humanism[17] are culturally dead in the sense that there is no recognition of a normative human nature or a canonical *humanum* to ground natural law, to serve as the basis for morality, to give content to bioethics, or to guide policy decisions outside the commitments of a particular culture so that humans as persons by default become the articulators of morality and the cardinal source of secular moral authority.
3. The assertion of the radical immanence of the right and the good—the moral life and human flourishing are articulated within the horizon of the finite and the immanent so that transcendent claims must either be dismissed or reduced to the demands of the immanent.[18]

Because the human condition is severed from any anchoring in being, persons by default must treat the perspective of persons as having absolute standing. That is, if God is dead, then there is no standpoint or point of appeal beyond the judgments of human persons regarding the nature and proper content of moral rationality.[19] Very importantly, no sense of human nature is available with a normative status grounded in being that can then inform morality. Human biological and psychological nature within this context can

then be critically assessed in terms of how they fall short of the goals and interests that humans as persons endorse. Human nature as the surd deliverance of evolution comes to be judged as in various ways inadequate to the projects of persons, and therefore in need of biotechnological revision and improvement. In this context, it is humans qua persons, not humans qua humans, who are the ultimate, critical judges of human biological and psychological nature beyond whom there is no appeal. Along with the death of God, there is the death of man. Norms become posthuman.[20]

Over against this emerging, secular, global culture is traditional Christianity, the background culture of the West, which, given the nineteenth and twentieth century world dominance of Western European and North American culture, forms the background culture of the emerging global culture. In contrast with the emerging secular dominant culture, which is postmetaphysical and in principle posthuman, traditional Christianity[21] offers a robust metaphysical anchoring secured in three cardinal foundations:

1. The recognition of ultimate historical orientation—all cosmic and human history are appreciated as proceeding from Creation through the Fall, the Incarnation, and Redemption to the final restoration of all things (Rev 21:1) so that everything, *sensu stricto*, has ultimate meaning and possesses this meaning independently of any particular human culture, tradition, or perspective.
2. The recognition of the normativity of human nature—humans are appreciated as created in the image and likeness of God as well as possessing a biological nature that was taken on by God through the Incarnation, conferring on this human nature a normative standing.[22]
3. The recognition of the divine rootedness of human moral claims—morality is appreciated as rightly ordered insofar as it conforms to the requirements of the omnipotent, personal, Creator God.[23]

This traditional theological perspective brings with it a warrant to proscribe any harm to early human life,[24] and to preserve that human form taken on by Christ in the Incarnation.[25] In this context, there are constraints in principle on technological interventions. This view is in deep conflict with the dominant secular culture and its bioethics, which places all meaning and morality within the horizon of the finite and the immanent, and which lacks the resources to justify the human as human having moral standing.[26] These two moral-metaphysical perspectives are mutually incompatible and indeed mutually antagonistic. Each sustains what is to the other an anti-morality.

Matters are even more complex. Given traditional Christianity's role as the background culture of the West, which culture shaped the core of the dominant global ethics, members of the emerging dominant secular culture, even when they are secularized, often experience their new cultural perspective as involving a loss of metaphysical depth and a fundamental rupture from the past.[27] The emerging dominant secular culture of the West continues to sustain fragments from its past as moral hesitations regarding the use of early human embryonic life and against human germ-line genetic engineering (MacIntyre, 1981). Or,

at least some moral commitments remain from the past as unsecured but still widespread and influential moral intuitions. The point is that the general secular culture harbors remnants of its background culture, even though from the perspective of the dominant culture, this culture is past. Even when general secular arguments are not available to maintain such hesitations and intuitions, they still possess a cultural force.

One might consider as examples of the persistence of such fragments and remnant intuitions Articles 13 and 18 of the Convention for the Protection of Human Rights and Dignity adopted by the Council of Europe (1997):

Article 13—Interventions on the human genome: An intervention seeking to modify the human genome may only be undertaken for preventive, diagnostic or therapeutic purposes and only if its aim is not to introduce any modification in the genome of any descendants.

Article 18—Research on embryos in vitro: 1. Where the law allows research on embryos in vitro, it shall ensure adequate protection of the embryo. 2. The creation of human embryos for research purposes is prohibited (Council of Europe, 2000, pp. 259–266).

These prohibitions are announced as if there were an intrinsic wrong involved in human germ-line genetic engineering, and as if embryos had an independent moral status intrinsically worthy of respect, although such claims are not securable through general secular moral arguments.[28] One only needs to consider the tension between the dominant secular culture's affirmation of easy access to abortion and this concern to protect the early human embryo (Ewart and Winikoff, 1998). These moral hesitations are best understood as remnants from the contemporary culture's past.

Finally, and very importantly, the background Christian culture, which is the source of these residual moral hesitations, is not merely an influence from the past but a force for the present and the future. Traditional Christianity exists: it is alive and well as a community whose culture is now a counter-culture and whose moral commitments directly register the immorality of embryocide, as well as the wrongness of particular possible interventions into the human genome.[29] This culture serves as a global source for an invitation to enter a moral and metaphysical perspective in foundational tension with the emerging global secular moral and metaphysical vision.

These conflicts between traditional Christianity and the emerging dominant secular culture have been exported into East Asia, along with the various moral traditions and legal codes that the societies of the Pacific Rim accepted from the West. These connections with traditional European morality often form a part of an official background ethos left from a colonial past and from the worldwide influence of Western European and North American morality and law. By themselves, the cultures of eastern Asia may in their indigenous roots be unable to register the depths of the disputes now emerging. As Francis Fukuyama opines, "much of Asia . . . lacks religion per se as it is understood in the West—that is, as a system of revealed belief that originates from a transcendental deity" (Fukuyama, 2002, p. 192). Fukuyama's views notwithstanding, it is far from clear how cultures

without Christian roots will react to the cleft between traditional and post-traditional appreciations of the human condition. Members of all cultures have reasons to be concerned about the shift from traditional to post-traditional moral perspectives.[30] This shift sets at jeopardy a cluster of structures and values associated with the family, and denies independent moral insights regarding the moral importance of early human life and the significance of human germ-line genetic engineering (Fan, 2002, pp. 675–684). What the mature response by East Asian cultures will be is far from clear.[31] In particular, the future reaction of Islam to these developments will likely have considerable influence, though the character of that reaction at this point is not easy to anticipate.[32]

1.3 The Persistence of Controversy

The bioethical disputes that frame the field of regenerative medicine are thus deeply rooted in conflicting moral and metaphysical understandings. It would be an error to consider them as problems embedded within a shared understanding of bioethics and morality. Rather, they involve conflicts between competing moralities, in that they engage different frameworks of settled moral judgments sustained by quite different metaphysical commitments and epistemological understandings. An analysis of the debates that we face must be appreciated in terms of the framing assumptions of incompatible worldviews that carry with them different appreciations of the deep nature of being and the character of reliable moral knowledge.[33]

An adequate geography of the controversies must also appreciate that these cultural disputes involve more than the conflict of two cultures: one a traditional Christian moral and metaphysical understanding, and the other the emerging, global, dominant secular culture that compasses both the post-Christian secular culture of the West and the emerging post-traditional dominant secular cultures of Asia. In addition, remnants of the traditional Western and North American Christian culture persist as independent fragments experienced as freestanding moral sentiments and moral intuitions. Given the character of recent world history, these moral sentiments and intuitions insert themselves into discussions within the dominant secular global culture. Last but not least, one must appreciate that this conflict of cultures occurs just as moral theorists and bioethicists in the Pacific Rim are assessing the possibility of articulating moral perspectives that draw from their own cultural resources[34] and are not framed in the image and likeness of the bioethics that emerged in the United States in the early 1970s, and that was subsequently exported to the world (Engelhardt, 2002, pp. 59–82).[35]

It would be a serious error to approach the bioethical disputes provoked by regenerative medicine within the narrow confines of this latter secular bioethics. Instead, one must appreciate the foundational diversity of moral, metaphysical, and epistemological commitments that lie at the roots of our contemporary debates.[36]

Notes

1. H. Tristram Engelhardt, Jr., Ph.D., M.D., is the professor, department of philosophy, Rice University, and the professor emeritus, Baylor College of Medicine, Houston, Texas.
2. Fukuyama is selected for emphasis because he provides a heuristic example of an educated response to the moral and cultural challenges of contemporary biomedical technology, appreciative of both North American/Western European and East Asian perspectives. The illustrative force of his reflections is underscored by his role on the President's Council. Fukuyama attempts a defense of traditional moral values through a critique of those uses that would alter the character of human biological and psychological nature. See Fukuyama (2002). It should be noted that Fukuyama as a member of the President's Council on Bioethics joined with the majority conservative (and prohibitive) recommendations regarding human cloning. See President's Council on Bioethics (2002, pp. xxi–xxxix).
3. For arguments against moral limits in principle forbidding the use of such technologies, see Harris (1998). This volume offers a good example of a robust secular approach to bioethical issues.
4. The persistence and strength of moral concerns to limit technologies such as cloning and research with human embryos are reflected, for example, in statements issues by American governmental bioethics commissions. See President's Council on Bioethics (2002; 2003; 2004). See also National Bioethics Advisory Commission (1997, 2 vols).
5. Fukuyama laments and implicitly recognizes the cleft between the traditional North American/Western European culture that presupposes a theologically grounded canonical moral perspective ("Religion provides the clearest grounds for objecting to the genetic engineering of human beings, so it is not surprising that much of the opposition to a variety of new reproductive technologies has come from people with religious convictions" [Fukuyama, 2002, p. 88]), and the culture of postmodern, post-traditional societies whose members are free peaceably to revise social structures with the consent of the participants. He describes the latter as the "values discourse of contemporary democratic societies, where I am totally free to make up my own values regardless of whether they are shared more broadly by others in the larger community" (p. 124). In this regard, as he notes, his moral sentiments are not those of mainline secular bioethicists. "In any discussion of cloning, stem cell research, germ-line engineering, and the like, it is usually the professional bioethicist who can be relied on to take the most permissive position of anyone in the room" (p. 204).
6. Fukuyama in attempting to produce a secular grounding for natural rights comes to the conclusion that "from a secular perspective, it [such rights] would have to do with human nature: the species-typical characteristics shared by all human beings qua human beings. That is ultimately what is at stake in the biotech revolution" Fukuyama, 2002, p. 101. Fukuyama then attempts to bolster this contention by asking "What is it that we want to protect from any future advances in biotechnology? The answer is, we want to protect the full range of our complex, evolved natures against attempts to self-modification. We do not want to disrupt either the unity or the continuity of human nature, and thereby the human rights that are based on it" (p. 172). Fukuyama then proceeds to speak of a mysterious factor X as the ground of human dignity (pp. 149–151). Fukuyama does not succeed in showing why rights are grounded in human nature so construed, or why maintaining that nature should matter. This failure of argument, however, serves to illustrate how moral insights severed from their sustaining metaphysical frameworks persist as moral sentiments in search of a justification.
7. The definition of contemporary moral debate in terms of conflicts and controversies has been recognized in such studies as Hunter (1991) and Huntington (1996). This state of affairs has also been the focus of philosophical analysis by persons such as Alasdair MacIntyre, who has observed, "The most striking feature of contemporary moral utterance is that so much of it is used to express disagreements; and the most striking feature of the debates in which these disagreements are expressed is their interminable character" (MacIntyre, 1981, p. 6).

8. Ludwik Fleck defended the importance of a sociohistorical comparative epistemology (Fleck, 1935; 1979). Fleck influenced Thomas Kuhn and through Kuhn engendered a re-appraisal of how to study not only developments in scientific understandings but epistemology generally (Kuhn, 1970). The point for this study is that one appreciates facts and findings within a social context, a thought collective, which brings with it a particular way of discerning what counts as the basic furniture of the universe, the proper ways to achieve knowledge, and the correct ways to rank or order values, both epistemic and nonepistemic. Knowledge is socially and historically located. This paper's recognition of the importance of Fleck's insights for examining the geography of moral controversies does not deny that there is a theological perspective where truth is maintained across history and which is related to a Truth outside of time. A rightly ordered perception of the truth requires a particular appreciation of facts and the nature of their knowledge.
9. The French Revolution produced a major rupture from and turning against Europe's Christian past (Vovelle, 1991). As such, it was the culmination of the Enlightenment, which constituted a philosophes' rebellion that issued in "a *modern* paganism, emancipated from classical thought as much as from Christian dogma" (Gay, 1995, p. xi).
10. In this paper, terms such as "culture" and "cultural framework" are employed to identify worldviews, comprehensive thought styles, social paradigms, within which, by which, and through which a community regards and appreciates morality and reality. It should be noted that the etymology of culture ties together tilling the soil and worshipping God; it compasses earth and heaven. The Latin *cultus* involves both agricultural cultivation and religious reverence, as does the noun *cultor*. By the time of Cicero, the Latin *cultura* had come to compass agricultural cultivation and that refinement exemplified by philosophy and manners at court. A culture frames an appreciation of reality. There can be and often is more than one culture vying for dominance in a particular geographical area.
11. Hegel concludes his *Phenomenology of Spirit* by introducing a categorial perspective within which all history and being are lodged so that reality is what philosophy makes of it.

> The goal, which is Absolute Knowledge or Spirit knowing itself as Spirit, finds its pathway in the recollection of spiritual forms (*Geister*) as they are in themselves and as they accomplish the organization of their spiritual kingdom. Their conservation, looked at from the side of their free existence appearing in the form of contingency, is *History*; looked at from the side of their intellectually comprehended organization, it is the *Science* of the ways in which knowledge appears. Both together, or History (intellectually) comprehended (*begriffen*), form at once the recollection and the Golgotha of Absolute Spirit, the reality, the truth, the certainty of its throne, without which it were lifeless, solitary, and alone. Only "[t]he chalice of this realm of spirits/ Foams forth to God His own Infinitude" (Hegel, 1964, p. 808).

Absolute knowledge possessed by absolute spirit becomes the fully self-reflexive comprehension of reality, the standpoint of human persons qua philosophers.

12. Hegel regards himself as laying out the philosophical truth of Protestantism, understood as a liberal Protestantism severed from traditional Christian commitments to the actual Redemption on the Cross and the physical Resurrection of Christ.

> It [the pure concept] must re-establish for philosophy the Idea of absolute freedom and along with it the absolute Passion, the speculative Good Friday in place of the historic Good Friday. Good Friday must be speculatively re-established in the whole truth and harshness of its God-forsakenness. Since the [more] serene, less well grounded, and more individual style of the dogmatic philosophies and of the natural religions must vanish, the highest totality can and must achieve its resurrection solely from this harsh consciousness of loss, encompassing everything, and ascending in all its earnestness and out of its deepest ground to the most serene freedom of its shape (Hegel, 1977, p. 190; 1968, p. 414).

It is no accident that it was primarily liberal German Protestantism, severed from the traditional moral and metaphysical commitments of Christianity, that found itself in a number of ways supporting Hitler's government. See, in particular, Steigmann-Gall (2003, pp. 259–267).

13. Louis Dupré recognizes that this radical domestication of metaphysics and morality constitutes the defining character of our contemporary culture. As he argues, this culture emerged from an approach to rationality and being that lies at the roots of the Enlightenment and the French Revolution, namely, the collapse of the Western Christian medieval synthesis. This collapse and its implications for modernity are also recognized in somewhat different terms by Michael Buckley (1987). This unraveling of the Western Christian medieval synthesis led to disengaging contemporary Western secular culture's horizon of experience from a metaphysical anchor. As a consequence, reality (i.e., as it is then understood) changes as humans change their account of it, because reality (according to the account) is what humans make of it. Reality is constituted in and through the human understanding of reality and does not exist independently of human culture.

> Cultural changes, such as the one that gave birth to the modern age, have a definitive and irreversible impact that transforms the very essence of reality. Not merely our thinking about the real changes: reality itself changes as we think about it differently. History carries an ontic significance that excludes any reversal of the present. Nor is it possible to capture that changing reality in an ahistorical system. Indeed, if the argument advanced in the following pages concerning the fragmentation of what once constituted an integrated synthesis of thinking, being, and acting is at all valid, then no all-comprehensive, timeless metaphysical reflection in the classical style can come to grips with our present existence (Dupré, 1993, p. 6).

Hegel provides a philosophical basis for this turn to immanence as reality through offering a systematic and conceptually refined defense of what had already been recognized by the fifth-century-B.C. Sophist Protagoras (481–411 B.C.), namely, that with the death of the Gods "Man is the measure of all things, of things that are that they are, and of things that are not that they are not" (Laertius, 2000, pp. 463, 465, IX.51). This perspective articulates as well a basis for postmodern understandings of knowledge and reality: there is no longer a recognition of a single, canonical, moral-metaphysical narrative. As Lyotard notes,

> In contemporary society and culture—postindustrial society, postmodern culture—the question of the legitimation of knowledge is formulated in different terms. The grand narrative has lost its credibility, regardless of what mode of unification it uses, regardless of whether it is a speculative narrative or a narrative of emancipation (Lyotard, 1986, p. 37).

14. The Hegel scholar T. M. Knox laments but still concedes that Hegel accomplished a radical immanentization of religion, morality, and metaphysics. "At the end of the *Phenomenology* the word of man seems to prevail over the Word of God; the transformation of revelation into reason seems to imply the transference of the center of gravity from God to man" (Hegel, 1948, p. 54).
15. This secular cultural perspective gained dominance through the French Revolution, the Josephism of Emperor Joseph II of Austria and the Holy Roman Empire (1765–1790), and most importantly Napoleon's secularization of central Europe. The last involved a dramatic set of changes, including not only the imposition of a new legal framework, but in addition the disestablishment of Christianity in many areas of society. See 'Der Reichsdeputationshauptschluss' (1976, pp. 329–358); Eichendorff (1958, pp. 1133–1184).
16. Dupré summarizes this rupture of culture from being and God. "Whereas previously meaning had been established in the very act of creation by a wise God, it now fell upon the human mind to interpret a cosmos, the structure of which had ceased to be given as

intelligible. Instead of being an integral part of the cosmos, the person became its source of meaning. Mental life separated from cosmic being: as meaning-giving 'subject,' the mind became the spiritual substratum of all reality" (1993, p. 3).

17. Humanism, as a concern for that which is normatively human and as such exemplar for proper and gracious human deportment, emerges under Stoic influence in Roman thought, beginning with such thinkers as Marcus Terentius Varro (116–27 B.C.), Marcus Tullius Cicero (106–43 B.C.), and Marcus Fabius Quintilianus (A.D. 35–100). The focus was on acting *humaniter* and achieving the full flourishing of that which is human as epitomized in a *humanissimus vir*. In retrospect, much of that considered *humaniter* did not bear on the general excellences of humans, but on that of Romans. *Humaniter*, therefore, identified what it was to act *romaniter*. For a general discussion of these issues, see Engelhardt (1991, pp. 43–86).
18. For instance, the later Rawls recognizes that he cannot provide a general, foundational, rational justification for his theory of justice and must instead advance it as a freestanding view. For his replacement of moral rationality with a sense of the morally reasonable, see Rawls (1993).
19. The immanentization of being and its domestication in terms of the requirements of reason are explicitly understood by Hegel in terms of self-reflective human categorial reason, which for him constitutes Absolute Spirit. "This notion of philosophy is the self-thinking Idea, the truth aware of itself—the logical system, but with the signification that it is universality approved and certified in concrete content as in its actuality" (Hegel, 1971, p. 313, §574).
20. The perspective is posthuman in the sense that the particularities that define human biological and psychological nature have been severed from any intrinsic normative significance. That which defines the human species as a particular biological species comes to be recognized within the dominant secular culture as the morally surd outcome of random mutations, selective pressure, genetic drift, the constraints of chemical laws, and various random cosmic catastrophes.
21. "Traditional Christianity" is used to identify that community united in affirming the beliefs embraced by the first seven ecumenical councils, which lie at the roots of contemporary Roman Catholicism, as well as conservative Protestantism, and which continue in Orthodox Christianity. See Engelhardt (2000, Chapter 4).
22. In this perspective, one can understand the importance of a Christian humanism in that Christianity appreciates human nature as possessing a canonical moral standing through its relationship to God from the Creation and the Incarnation.
23. *Pace* Plato and his Euthyphro, it is the case neither that God approves of the good and right because it is good and right, nor that the good and the right are such because God approves of them. It is the case rather that all created being as well as the good and the right are incomprehensible apart from the Creator–Sustainer God. This relationship of the good and the right and all created being to uncreated being is distantly analogous to the movement of stars in a galaxy being comprehensible only with reference to the massive black hole at its center, around which all the stars rotate.
24. True to the mind of the Church of the first centuries, St. Basil the Great (A.D. 329–379) recognizes that all abortion is morally prohibited, whether or not the embryo is ensouled. "Let her that procures abortion undergo ten years' penance, whether the embryo were perfectly formed, or not" (St. Basil the Great, 1995, p. 604).
25. There are at least two grounds in traditional Christianity against radically recasting human biological nature. First, the differential ontological status of the two sexes is emphasized in both Genesis and the New Testament. "God created man in his own image, in the image of God he created him; male and female he created them" (Gen 1:27). Christ Himself emphasizes the importance of humans as male and female when He speaks of marriage. " 'Haven't you read,' he replied, 'that at the beginning the Creator made them male and female and said, For this reason a man will leave his father and mother and be united to his wife, and the two will become one flesh' " (Matt 19:4–5).

In this metaphysical difference, the differences between men and women are normative and may not be abolished. Second, the human body as taken on by Christ in the Incarnation acquired a special cosmic ontological significance.

26. Pleadings on behalf of humans qua humans, rather than on behalf of persons as moral agents, come to be seen as illegitimate, as an illicit speciesism. See, for example, Peter Singer (1990).
27. For an account of these profound changes in Western culture, given its rupture from its traditional Christian past, see Vattimo (1991).
28. For an exploration of the limits of secular moral argument, see Engelhardt (1996).
29. For an account of the moral limits set by traditional Christianity, see Engelhardt (2000, especially pp. 260–262 and 272f).
30. "Post-traditional" identifies understandings that set aside traditional values and social relationships as between husbands and wives, parents and children, as well as among members of extended families.
31. It is difficult to judge how the controversial technologies associated with degenerative medicine will be assessed as East Asian cultures produce independent bioethical accounts. As LeRoy Walters observes,

> It may be the case that bioethics, or ethics more generally, is a peculiarly European and Middle Eastern field, with few parallels in classic eastern religions like Hinduism, Buddhism, or Taoism. When groups with the words "ethics" or "bioethics" in their titles solicit the opinions of religious traditions on specific topics like human embryo research or HESC [human embryonic stem cell] research or cloning, representative of the various religious traditions dutifully attempt to relate earlier teachings on analogous questions to the new issues raised by twentieth-century biomedical research. However, the correspondence with earlier questions is never one-to-one. In fact, the selection of a particular analogy as the most appropriate one can have a decisive influence on a commentator's moral judgments (Walters, 2004, 31).

32. Islam's reflections have just begun on the issues that render stem cell use, human cloning, and human germ-line genetic engineering morally provocative for Christians. See, for example, Eich, 2003, pp. 38–39. See also the report by LeRoy Walters of Ahmad Al-Tayyeb's fatwa concerning the use of stem cells (2004, pp. 21–22).
33. Traditional Christianity involves, for instance, a claim to noetic knowledge, that is, to a form of nonsensuous empirical experience. See, for example, Hierotheos (1998).
34. For three recent studies of bioethics within the context of East Asian cultures, see Hoshino (1997); Tan Alora & Lumitao (2001); and Qiu (2004).
35. As this article indicates, bioethics arose in North America with the disestablishment of the guild-like character of the medical profession, and the secularization of the dominant American culture. Bioethics, which arose in the moral vacuum that ensued, was then aggressively exported to the world.
36. This emphasis on the importance of recognizing moral diversity is not a celebration of this diversity: the author is an Orthodox Christian. See Engelhardt (2000).

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Chapter 2
Genetic Manipulation and the Resurrection Body

Robert Song

2.1 Introduction

In a recent article, Gerald McKenny suggests that it is time for religious traditions to put behind them the "tired debate" about whether to support gene therapy (McKenny, 2002). They have, he argues, no good reason for rejecting germ-line gene therapy or genetic enhancements in principle, and even if they may have severe doubts about particular means (e.g., because these may involve the destruction of human embryos), such doubts would vanish if morally acceptable alternative means were to be found. Instead of concerning themselves with efforts to distinguish genetic therapy and enhancement, religious ethicists should concentrate on other matters. These include, first, questions such as the risks and benefits of gene therapy, fairness in allocating resources to research into and distributing the benefits of gene therapy, and ensuring informed consent in the use of genetic technologies. Second, they should seek the development of methods that minimize or entirely remove risks to embryos and future persons. Finally, they should attend to the ways in which genetic technologies are likely to form people as subjects in relation to themselves and others, and should consider whether this is compatible with the formation that their religious tradition aims to achieve.

In the course of his discussion, McKenny also criticizes appeals made to the normativity of human nature made by a variety of Christian and Jewish commentators. Whether they regard human nature as being constituted by the union of body and soul (thus the Roman Catholic church) or by the human genome (thus some Protestant and ecumenical pronouncements), they assume a notion of the integrity of human nature, McKenny maintains, which fails to locate it within a broader theological metanarrative. Christians, for example, should see the appropriate context for thinking about human nature in the incarnation and resurrection of Christ, but also in the general resurrection. In his view, the eschatological character of the general resurrection, as inaugurated but not fully realized, might provide grounds for affirming genetic

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advances as "proleptic realizations of the resurrection," though with warnings against expectations of a complete union of our bodies with our hopes and ideals (McKenny, 2002, p.198).

These are programmatic suggestions, and his positive proposals are lightly sketched rather than fully worked through. Even so, several valuable emphases can be made which Christian theological ethicists would do well to endorse. For example, if we interpret McKenny's remarks about the general resurrection in terms of the significance of the resurrection body, then he is right to describe the fundamental theological problem with genetic manipulation in the context of where to locate the body in the narrative of creation, fall, and redemption: the body cannot be theologized outside such a narrative, as if it were a secular *positum* which theology simply has to work round. A proper theological account of the body will relate hopes for the human body to the nature of the resurrection body: Christians believe that their bodies will be decisively changed for the better at the resurrection, and that cannot be irrelevant to thinking about genetic enhancements. Moreover, the notion of prolepsis is important in Christian thinking about the eschaton. The gift of the Holy Spirit to the church is a foretaste in the present of the future reign of God: the commitment of the church to works of mercy both among its members and beyond is intended to show forth the nature of a merciful God. Likewise, the role of healing in the church is a sign not only of the restoration of creation but also proleptically of its future fulfillment in Christ, and in its musings on gene therapy theology must not shrink from thinking through the implications of the latter.

McKenny's proposals that religious ethicists turn their attention to the ways in which genetic technologies are likely to shape people, and to asking whether this is congruent with the formation particular religious traditions seek, is also a valuable insight. If a distinction is to be made between these forms of genetic intervention, which are compatible with Christian discipleship and those which are not, this will not in the first place be the result of elaborating a formal criterion that distinguishes between therapy and enhancement. Such an effort reductively assumes that it is possible to read off whether a procedure is therapeutic or not simply from a description of the kind of procedure it is. The prior, and more important, contrast is not about the species of intervention but about the different motivations and cultural commitments involved: in principle, it might turn out that some interventions that are conventionally regarded as therapeutic symbolize a different set of ultimate commitments from those that flow from the Christian gospel (Song, 2002).

Much in McKenny's proposals are to be welcomed, therefore. Yet, in my view, the thrust of his argument intimates an understanding of genetic technologies that from a Christian viewpoint is misleadingly sanguine. Without doubt, genuinely exciting possibilities exist for clinical treatments which are by today's standards extraordinarily powerful and whose introduction evokes no additional moral questioning that is different in kind from new conventional procedures. However, it is possible to accept this and still feel that Christian ambivalences about the new genetics are insufficiently prominent in McKenny's agenda. Not

only does he give no assessment of the likelihood of alternative forms of germline gene therapy or genetic enhancement being developed that do not involve the destruction of embryos, at least at the research stage, an omission that gives the impression of slighting the majority position on the status of the embryo of the historic Christian churches. His argument that religious traditions have no good reason *in principle* to object to new genetic technologies also serves to convey the sense that they have no good reason *at all* to oppose likely future developments (or, perhaps, that if they do, these will only be reasons that will obtain for adherents of those traditions, and not for society as a whole).

In this paper, I argue, by contrast, that precisely by attending to the welcome elements of McKenny's new agenda, we will also wish to preserve some version of a distinction between therapeutic and nontherapeutic as a central feature of Christian witness. My approach will be to consider first the significance of human genetic manipulation in the context of the role of the body in modern self-identity, since only against such a larger canvas will we see how genetic manipulation is likely to be received and negotiated within late modern culture; second, I will consider the nature of the resurrection body, conceived not as *corpus*, the individual psychophysical body, but in terms of the body of Christ, which is the proper theological location for thought about the body. Based on these considerations, we will be able to see what kind of body the church should be if it is to discern acceptable and unacceptable forms of body enhancement.

2.2 Anthony Giddens and the Body in Modern Self-Identity

Although much recent writing on the body in social and cultural studies has touched on themes that are relevant to bioethics, it is striking that much bioethical discussion, both philosophical and theological, continues to proceed on the presumption of the irrelevance of such work (Haimes, 2002).[1] Yet even if some moral philosophers can profess themselves satisfied with limiting their task to the abstract elimination of poor reasoning in moral matters, Christian moral theology seeking the path of faithful communal discipleship cannot be content with confining itself to so etiolated a vision. Only as Christians begin to comprehend some of the broader social and cultural dynamics, which are liable to shape them as inhabitants of the modern world, will they also be able to discern more fully in the light of Christ what virtues and practices are required of them if they are to be truthful witnesses.

Part of this understanding—though only ever a part—can be drawn from engagement with the work of social scientists, both at a detailed empirical level and at the grander level of social and cultural theory. As an illustration of this, I want to consider some of the work of Anthony Giddens, one of the most influential sociologists of modernity in recent times. Giddens is perhaps best known for his work on the mutual constitution of structure and agency through his elaboration of "structuration theory," and for his account of "high"

modernity that treats features of the contemporary world that are often attributed to postmodernity instead as aspects of the radicalization of tendencies inherent in modernity. Neither the body nor the new genetics have been a central theme in his work as a whole, but his understanding of the impact of modernity on self-identity has generated some striking insights into the ways in which genetic technologies are likely to be appropriated—even if these need to be supplemented, as I will argue.

Giddens sees the contemporary mobilization of the body in terms of the reflexive project of modern self-identity (Giddens, 1990; 1991). Modernity, which he defines in general terms as the institutions and modes of behavior characteristic of postfeudal Europe and subsequently of the global industrialized world, is a fundamentally post-traditional social order. As they are confronted by the dynamism of modernity, the security, and the taken-for-grantedness of received social practices, moral norms and institutional structures lose their grip. This dynamism has come about as a result of several factors, notably the reorganization of time and space, such that the particularities of place are increasingly irrelevant to social organization; and disembedding mechanisms, which lift social relations out from immediate, local contexts (whether this takes place through the abstract medium of monetary exchange or the deployment of systems of technical expertise that are not dependent on the individuals who use them). At the same time, modernity is marked by profound reflexivity: institutions and social practices are constantly subject to potentially radical reordering in the light of new knowledge. Much of this reflexivity is mediated through the social sciences—and Giddens notes that, ironically, despite being born of the Enlightenment ideal of sure and certain knowledge, the feedback effects the social sciences have on the objects of their investigations mean that these are not independent of the process of observation, but are themselves constantly subject to change.

The effect of all this on self-identity is profound. The modern self is increasingly separated from the givens of traditional social norms and practices, and is forced to organize itself reflexively in the light of a plurality of available choices. From this follows the notion of "lifestyle," a way of life that is not simply received, but consciously embraced over against others; and, connected with this, the experience of the "pluralization of life worlds," the variety of milieux within which individuals will parcel out their lives (work, home, leisure, etc.) and which will themselves be options among others.

The phenomenon of choice is even reflected by which experts a person will decide to trust when considering matters of diet, health, childrearing, and other areas of life, in which the conflicting claims of expertise evince ineradicable doubt rather than Enlightenment certainty. Sexual relationships have also become permeated with the implications of choice: central to this transformation of intimacy has been the ascendance of what Giddens calls the "pure relationship," in which relationships are entered upon and sustained solely for the sake of the rewards to be obtained from the relationship. The reflexive construction of individual identity in the light of available choices and expectations about the future is, therefore, an

unavoidable feature of life in post-traditional societies. As Giddens puts it: "[t]he reflexive project of the self, which consists in the sustaining of coherent, yet continuously revised, biographical narratives, takes place in the context of multiple choice as filtered through abstract systems" (Giddens, 1991, p. 5).

Inevitably, the body is caught up in this process. For example, whereas in traditional social orders modes of dress and bodily adornment were primarily a matter of social rather than individual identity, in the conditions of modernity appearance becomes a central part of self-identity, related especially to a person's chosen lifestyle. Again, in the context of multiple life-worlds, an individual's demeanor—the way in which he or she maintains appropriate behavior in social settings—needs to be sustained in a way that not only is proper to different milieux but also allows a coherence of personal identity; that this is accomplished most of the time without difficulty shows, Giddens claims, the falsity of postmodernist ideas that individuals develop multiple selves with a consequent disintegration of self-identity (Giddens, 1991). Bodily regimes, individually chosen programs centering on diet, exercise, and mental and physical health, also become a significant means by which the reflexivity of modernity comes to be reflected in the cultivation of the body.

In important senses, therefore, we become "responsible for the design of our own bodies," and are "forced to do so the more post-traditional the social contexts in which we move" (Giddens, 1991, p. 102). That this is a consequence of the long-term institutional and structural shifts associated with the reflexivity of modernity shows the narrowness in ascribing such concern with the body simply to changing bodily ideals (e.g., slimness) or the influence of advertising or the fashion industry. Thus anorexia nervosa and bulimia nervosa (compulsive overeating), which have been much discussed in the literature, are interpreted by Giddens as casualties of the need impressed on all moderns to create an identity of one's own, as "extreme versions of the control of bodily regimes which has now become generic to the circumstances of day-to-day life" (Giddens, 1991, p. 104). They represent efforts to find security in the context of multiple options, and are found disproportionately among younger women not just because physical attractiveness is more highly prized in women than in men, or because young adulthood is a critical period in identity formation, but also because the plurality of life-choices afforded by modernity require women to make greater and often more ambiguous changes from traditional roles than men.

Because the nature of post-traditional societies is such that their inhabitants cannot rely unreflexively on traditional norms or social practices, and are in a sense compelled to decide their identities for themselves, Giddens argues against efforts to construe the modern self fundamentally in terms of narcissism. Proponents of this view see the development of modern identity as a defensive reaction to losses in the wider public culture. Richard Sennett, for example, considers the impact on the self of the loss of public bonds through the decline of traditional authority, the rise of consumer capitalism and the individualization of consumer choice, and the consequences of secularization for the diminishing of moral meaning from a transcendent framework to the immediacy of personal experience (Sennett, 1977). Narcissism, he claims, is the resulting preoccupation

with the self that fails to attend to events in the outside world in their own terms, but asks only of them what their meaning is for the individual. In a similar vein, Christopher Lasch argues that global risks are so endemic in modern society and so apparently resistant to meaningful control that people lose confidence that the wider world can ever be a source of security, and in reaction turn to the private concerns of psychological and physical self-improvement as strategies of survival (Lasch, 1979).

Giddens concedes that privatization is a feature of modern life, but also notes how modern urban arenas permit opportunities for cosmopolitan styles of life that were unavailable to traditional communities. The theorists of narcissism have an inadequate notion of agency, he says: they tend to presume that people are largely passive in the face of forces beyond their control, and they do not notice the extent to which individuals negotiate and reconstitute their circumstances and pioneer new forms of social relations as they do so. Contemporary forms of body cultivation are not necessarily narcissistic, but a normal feature of post-traditional societies in which the care of the body is a core part of the reflexive project of self-identity (Giddens, 1991). Narcissism as a psychiatric disorder is promoted by modernity, undoubtedly, but it does not accurately describe the culture as a whole.

The body, therefore, must be understood as deeply implicated in the emergence of modern reflexivity. It is no longer regarded as the seat of the soul, a given of human existence that is inert and impervious to human purpose. Nor is it "docile" in Foucault's sense, subject to the regimentation of power: if it were, Giddens says, it would be the site of a politics of emancipation, requiring freedom from oppression, whereas in reality it is actively mobilized in the service of the self (Giddens, 1991). Instead it is now profoundly permeable and regularly entered by the expert systems, which are mediated by doctors, therapists, dieticians, trainers, and the like, but which are also negotiated by individuals who have to decide for themselves which experts they will trust when making their lifestyle choices.

This reflexivity inevitably includes matters of reproduction and the future of the human body. Here, in the new reproductive and genetic technologies, questions of personal identity meet the broader processes of the mutation of external nature into a field of human purpose. These processes represent not just the extension of instrumental reason to the natural world but also more profoundly the socialization of nature, in which nature ceases to be an external reference-point and becomes internal to socially organized systems of knowledge and power (Giddens, 1991). In the profound dynamism of modernity, the reflexive project of self-identity and the social appropriation of the environment combine to produce cultural leanings toward the transformation of human bodily nature.

2.3 Other Modernities

Several features of Giddens' analysis deserve attention when compared with other accounts of modernity. By providing an alternative to stories of modernity as narratives of partial or total decline, Giddens is a good antidote to

nostalgic or sentimental attitudes to the past that are liable to engender feelings of hopelessness and impotence—and superiority—in relation to the present. In recognizing that much of modern self-identity is an entirely understandable reaction to finding oneself in a post-traditional social order, he avoids a certain kind of moralistic response that he detects in notions of narcissism. By refusing to see people as merely passive in the face of overwhelming pressures, he can pay attention to the manifold ways in which they resist, negotiate, and survive their circumstances. In comparison to philosophically oriented versions of modernity—which articulate its origins and character principally in terms of its ideas and refer to social context in order to provide background and interpretive illumination—we should recall the significance of Giddens' exploration of modernity as a social theorist. This disciplinary approach enables him to give a fundamental explanatory role to social structure—even if not in the manner or to the extent that some of his critics might like—as well as making his account in principle relatively hospitable to empirical interrogation and confirmation.

Yet Giddens does not appear to see several issues. His interpretation of Foucault's notion of the docility of bodies, for example, does not capture the "micro-physics of power" discussed in *Discipline and Punish*. Foucault is clear that the disciplines of the body in the army, the hospital, and the school are not at all the same as the power over the body exercised by the slave-owner, and in consequence are not susceptible to a straightforward politics of emancipation of a liberal or Marxist variety (Foucault, 1977). The same applies to the other pole by which Foucault sees power operating, namely, a biopolitics of the population. Here, the regulation of populations as a whole is effected through the deployment of techniques of power that operate not externally over legal subjects, like sovereign power, but through the normalizing effects of disciplines and apparatuses that achieve the goals of power through "the administration of bodies and the calculated management of life" (Foucault, 1979, p. 140). These norms are subjectively appropriated in such a way that individuals desire what power requires. The implication of this is that no easily separable self exists in whose service the body can be actively mobilized: from a Foucaultian perspective, Giddens' account of individual agency suggests a voluntarism insufficiently attuned to the operations of power.

One does not have to accept every element of the Foucaultian picture to appreciate that it raises a question about the completeness of Giddens' theory. Giddens' account of the pluralism of choice in post-traditional societies and the other features of the dynamism of modernity helps to explain the "enforced" nature of the reflexive project of self-identity. However, it does relatively little to explain which projects of the self are fulfilled and which neglected, or why selves in modernity reflexively choose some identities rather than other. The question raised from the Foucaultian quarter might be interpreted as asking whether there is a deeper relation between the goals "voluntarily" espoused by the self and the needs of power (be that capitalist, bureaucratic, and so forth) such that those goals are themselves structured by cultural or political forces beyond the individual self.

Similar lines of enquiry, but from a different direction, might ask why it is that reflexive self-identity leans to individualist, self-gratifying projects. It is, after all, in principle possible that people could choose to find their fulfillment in the good of others, and aspire to mutuality, solidarity, and service both in their intimate and erotic relationships and in their devotion to the public good.

More immediately related to the issue of the new genetic technologies is the cultural dynamic that valorizes the human desires to be rid of the burdens of suffering and human frailty, and legitimates a vast extension in the means deployed to satisfy them. This dynamic has been persuasively explored in Gerald McKenny's notion of the "Baconian project," drawing on the work of Charles Taylor (McKenny, 1997; Taylor, 1989). The Baconian project refers to the long-term outworking of the seventeenth century program associated with Francis Bacon and René Descartes, which overthrew the Aristotelian teleological account of nature and undertook to explain natural events solely in terms of efficient causation. This metaphysical and epistemological revolution paved the way for a more effectual application of technological science to the needs of practical compassion, torturing nature for the glory of God and the benefit of human beings.

The early utilitarians in the eighteenth century furthered the project, bequeathing to modern culture the ideal of the relief of suffering, while the deist expulsion of God from the inner workings of the universe removed any point in interpreting suffering in terms of divine providence. The ideal of individual autonomy was mediated to the modern world through the Romantic exaltation of individual uniqueness, and with it an increasing emphasis on the role of individual consent in relation to medical intervention. Because of all this, at the beginning of the twenty-first century, the role of medical interventions has slowly turned from a focus on the cure of disease to embrace the satisfaction of a range of consumer desires in relation to one's body. As McKenny puts it:

> The commitment to eliminate all suffering combined with an imperative to realize one's uniqueness leads to cultural expectations that medicine should eliminate whatever anyone might consider to be a burden of finitude or to provide whatever anyone might desire for one's natural fulfillment (McKenny, 1997, p. 20).

This notion of the Baconian project, although very briefly delineated here, helps to explain several features of modern medicine, such as its instinctive turning to technical means as therapy of first resort, or its tendency to marginalize those medical professions that are concerned with caring as much as curing (thus nursing, traditionally understood) and those medical conditions that cannot at present be cured (thus many forms of mental illness). It also illuminates the ambiguous role new medical developments play in helping people come to terms with their finitude: the evidence, for example, that the advent of IVF has created a greater desperation to have children than was present beforehand (Franklin, 1997), or the increased difficulties in learning acceptance of their situation that those with intractable disorders such as motor neuron disease face when announcements of possible treatments are made.

Yet this notion of the Baconian project also suggests a kind of explanation that Giddens' analysis does not capture. By seeing reproductive and genetic technologies as the meeting point of the reflexive project of self-identity and the socialization of nature, Giddens fails to bring out some of the dimension of depth in the phenomenon. Techniques such as these carry a meaning for people, which extends beyond their being available to be chosen as part of a particular lifestyle. Because they address such fundamental aspects of human existence as disease and suffering, not least when these are borne by one's children, they hold out a hope that is properly regarded as existential in nature. When they are combined with a belief in the pointlessness of suffering, an ideology of the desirability of the indefinite expansion of consumer choice, and the prospect of applying this to fundamental alterations to human biological nature, it is not hard to see why the hopes invested in the new genetics could be regarded as quasi-salvific in nature (Song, 2003). Indeed, the ideal of the complete transparency of the body to the purposes of the self, which Giddens talks of in terms of the reflexive mobilization of the body, bears some startling similarities to the ancient doctrine of salvation known as Gnosticism, according to which the body had no independent value and was to be shunned by those on the path to the true knowledge of God.

2.4 Cosmetic Surgery as a Parallel

Let us recall what I have argued so far. In trying to determine the ways in which genetic manipulation may form us so that we can understand how the Christian community might respond, I have sought to set it against the wider context of the body in modern self-identity. In order to see how social theory might contribute to this task of contextualization, I have taken the example of Anthony Giddens, whose account of the reflexive project of the self attempts to show how phenomena such as the new genetics are integrally related to other features of modernity. When taken together with the criticisms that I have just briefly entered, we have a composite picture of genetic technologies that would draw on the following strands, amongst others: (1) the reflexive project of modern self-identity as a necessary response to living in post-traditional societies (Giddens); (2) the transmutation of nature into a realm of human action (Heidegger); (3) the role of biopower in structuring the goals people form through their notional exercise of free choice (Foucault); and (4) the modern moral project with its emphasis on the expansion of choice and the elimination of suffering (Taylor).

All of these help to explain how the promises of genetic manipulation have come about as a product of modernity. However, they do not as such show in detail how genetic technologies may in turn form people, beyond their being a continuation and intensification of the processes we have already seen. No doubt, part of the reason for this is that to a significant degree this question is speculative, since the science is still insufficiently advanced. Yet this is not the

whole truth, not least because the bow wave of these technologies has already washed over modern culture in the form of the hopes and fears raised by their mere possibility: contemporary experience is already fundamentally altered, even in the waiting.

More than this, we can extrapolate the likely effects by considering analogous technologies that are already in existence. Several fields related to the body might provide some illumination: for example, the practices of eugenics, or artificial reproductive technologies, or prenatal diagnosis followed by abortion, all of which have received substantial sociological and cultural critical attention. The example I will take, however, is that of cosmetic surgery, which bears comparison with genetic manipulation, not least because of the parallels of the contrasts between "reconstructive" and "aesthetic" surgery on the one hand, and "therapeutic" and "enhancement" technologies on the other; in each case, the former purports to represent bona fide medical procedures, while the latter is usually distinguished in order to emphasize its culturally ambiguous status. Through a consideration of cosmetic surgery, we will appreciate both the aspects of self-identity that Giddens brings out and other features that are likely to be relevant to genetic manipulation.

The growth in demand for cosmetic plastic surgery has been extraordinary: in 1984, two decades ago, 477,700 operations were performed in the United States (Gilman, 1999). By comparison, in 2003, according to the American Society of Plastic Surgeons, more than 8.7 million procedures were performed on people "who took action to proactively manage signs of aging or enhance their appearance by choosing cosmetic surgery" (American Society of Plastic Surgeons, 2004). This represented a massive increase of 32% from nearly 6.6 million in 2002. Women comprised 82% of those who had cosmetic plastic surgery, liposuction being the most popular procedure, followed by breast augmentation, nose reshaping, eyelid surgery, and facelifts. Men chose nose reshaping most frequently, followed by eyelid surgery, liposuction, hair transplant for male-pattern baldness, and facelifts. Another report noted how US television shows such as ABC's *Extreme Makeover*, MTV's *I Want a Famous Face*, and Fox's *The Swan*—"in which self-professed ugly ducklings are surgically transformed into beauty pageant contestants"—are contributing to a climate of high public awareness of cosmetic surgery procedures. Nor are patients content with achieving mere generic modes of beauty: the most requested facial features of 2003, according to a survey of patients in Beverly Hills, were Nicole Kidman's nose, Catherine Zeta-Jones's eyes, and Angelina Jolie's lips (National Geographic News, 2004).

Attempts at reconstructive surgery—no doubt often botched—date back to the sixteenth century (e.g., to counter the disfiguring aspects of diseases such as syphilis). However, the story of cosmetic surgery that plastic surgeons themselves usually adopt traces its origins to the First World War: as surgeons had performed miracles on the facial injuries of the wounded, so after the war Americans began to realize that their techniques might have civilian uses as well. This narrative has the benefit of seeming to anchoring aesthetic surgery

securely in the harsh imperatives of facial reconstruction for medical purposes. But as Elizabeth Haiken points out, the narrative ignores the large number of surgeons, and much larger number of prospective patients, who since the latter decades of the nineteenth century had already made the conceptual leap of recognizing the possibility of enlisting surgery in the cause of beauty (Haiken, 1997). Indeed, as Sander Gilman argues, operations were available from the 1880s and 1890s that could make ears, noses, and breasts more racially acceptable under the guise of making them more "healthy" (Gilman, 1999, p. 16). At all events, the history of cosmetic surgery has shown the continuous juxtaposition of two types of surgery, which use similar, often identical techniques, but whose differences in cultural and medical perception have been accentuated through different professional associations, differences in who pays for the procedures, and even through different terminology for patients. Aesthetic surgery, Gilman notes, is the one area of medicine where the the term "client" is widely used rather than "patient" (Gilman, 1999, p. 5).

Cosmetic surgery is a prime example of the absorption of the body into the reflexive project of self-identity. The permeability of the body to the goals of the self is perhaps nowhere more graphically portrayed than in the removal of the bandages to reveal the bruised and bloodied features of a postoperative face job. But we should not see this as a matter of unpressured individual choice, as can be seen from recent debates within feminist theory. Kathy Davis, for example, has attempted a partial defence of cosmetic surgery. Drawing on interviews with women who have undergone surgery, she has come to the view that it represents the empowerment of women in situations where it is subjectively perceived as a form of control over their circumstances, allowing them to become more fully embodied subjects (Davis, 1995). By contrast, the dominant line of feminist interpretation has viewed aesthetic surgery as the reinscription of dominant patriarchal norms of beauty. Llewellyn Negrin, for example, criticizes Davis for failing to address the underlying structural issue of social inequality that leaves women dissatisfied with their bodies: in her view, it individualizes the problem of self-identity, and so is ultimately conservative (Negrin, 2002). Whatever view we take of this issue, cosmetic surgery cannot be understood outside existing relations of power.[2]

The tendency of cosmetic surgery to reinforce existing power relations can also be seen in relation to race. Here the normalizing role of cosmetic surgery is evident in the frequency of operations to remove markers of difference—difference, that is, from a white Caucasian, Anglo-Saxon, or northern European norm (Haiken, 1997). Surgery has inevitably concentrated on the most readily identified racial features: for African Americans, these have been noses and lips, for Jews, noses, for Asians, eyes, etc. Even when patients have explicitly requested something else, surgeons trained in the ideals of northern European beauty have found it difficult to adapt themselves to different standards, a process not made easier by their occasional protests that they are artists following abstract aesthetic norms (Matory, 1998).

Socioeconomically, cosmetic surgery has also served to sustain difference, with its popular association with wealth and the ready assumption that even if someone might quite fancy a nip here or a tuck there, it is financially out of reach. No doubt this is related to the categorization of it by health insurers as elective and not medical in nature—to the "stark reality of no government subsidy for body-aesthetic procedures," as one advice-dispensing website laments (Cosmetic Surgery, 2004). Yet it is also important to note that, even if it is never likely to be available to the poor (domestically, let alone internationally), in the US aesthetic surgery is not the sole preserve of the rich: Elizabeth Haiken reported in 1997 that only 23% of patients came from families earning more than $50,000 a year, while 30% came from families with incomes of less than $25,000 (Haiken, 1997, p. 161).

The influence of aesthetic surgery on social attitudes should also be noted, with its tendency to create new forms of exclusion. As it increasingly comes to be routine for significant sectors of the population, with consequent social and economic rewards, so the pressure grows for others to join them. "Most Americans," Haiken ventures, "would not go so far as to deem the decision not to have cosmetic surgery antisocial, but they are more ready than ever to concede that it may be impractical" (Haiken, 1997. p. 298). It can readily be projected that those who cannot or will not undergo surgery will increasingly be met with responses of incomprehension, pity, and even condemnation.

I have taken the example of cosmetic surgery because I think it illuminates some features about the insertion of new technologies of the body into the cultural flow that are likely to apply in the case of new genetic technologies. There are significant disparallels. The science and technology involved in genetic manipulation is vastly more complicated, and much of it as yet unproven, such that it is still possible that almost no genetic alterations will ever take place that affect the germ-line, except perhaps in the case of some single-gene disorders. Moreover, almost all nonsomatic genetic interventions are likely to be on gametes or early embryos, and so will be a matter of parents wishing for improvements for their children, not for themselves. This raises questions not only about the potential child's consent, but also about analyzing the desires people have for their children (Song, 2002).

However, more instructive for our purposes are the parallels. Some of the moral questions raised by cosmetic surgery would apply to genetic engineering, and are not part of the standard ethics repertoire. For example, the moral significance of improving one's looks would have some parallels, as would more broadly the moral significance of aesthetic considerations as mediated in popular culture through fashion and style (which are much more significant morally, socially, and culturally than they appear if they are portrayed merely as expressions of free choice). We should not be surprised to find genetic technologies also tending to reinforce existing power relations, in terms of gender, race, and socioeconomic class—though with a different range of specific impacts. There would no doubt be an intensification of the awareness of the plasticity of the body, with the paradoxical sense that the self can simultaneously both appropriate the body to

its own goals and, therefore, more easily identify with it, but also find itself alienated from the body because of the body's inherent instability. And this plasticity would bear on the self in turn, in the form of insistent questions of identity, and perhaps the emergence of new kinds of neurosis as individuals find it increasingly difficult to cope with the messy, intractable, recalcitrant parts of themselves—at the root of which lies the repressed truth of their finitude.

2.5 The Resurrection Body and the Body of Christ

How should the church respond? What are the demands of faithful discipleship? Let us recall the cultural dynamics of the body in the midst of which we find ourselves. The culture of modernity is one in which the body is moving from being something that is given and inoperable to being something that is constructed and controlled. Socially, as we saw with cosmetic surgery, this is mapped in terms of a movement from a situation in which nobody is able to choose in relation to their body, to one in which some people decide to choose, to the end point where not to choose is itself a choice that requires justification. This echoes the intrinsic logic of post-traditionality, in which the security of customary norms and social practices is replaced by the openness of a plurality of options, and people are forced to choose without the freedom to resort to uncontested tradition.

The general trend of much Christian theological response to the new enhancement technologies mirrors a similar logic. The initial instinctive assumption is that such techniques must be morally problematic, whether they be cosmetic surgery, life-extension technologies, or genetic enhancement. It is then slowly appreciated that the body itself is not a very secure basis for such firm pronouncements, at least if the body is taken as a psychophysical *corpus*: after all, the thought might go, cosmetic surgery is only a more radical version of taken-for-granted activities such as shaving, orthodontic braces for teenagers, and ear-piercing. Further, life-extension technologies only address more directly the delaying of death, already the implicit goal of much professional advice on diet and health, and genetic enhancements only take one step further the desire to give one's offspring the best start in life, already the concern of diligent parents who avoid alcohol during pregnancy and hand out fish oil supplements to enhance their growing child's brain development. The result of this is either a conscious embracing of the fluidity and lack of normative structure of the body (Graham, 2002), or a conservative gradualism that can find no principled reason for rejecting enhancements but insists that they must be undertaken slowly and with the right motives (Peterson, 1998).

I do not have definitive proposals to make in response to this, but if Christian theology is to address the question authentically, it will not be able to avoid a theological construal of the body. Within Christian theological ethics, much of the discussion about the ethics of genetic therapy and enhancement has left the

body bereft of adequate theological narration. As a result, the body has been treated as if naturally given, a status that leaves it dangerously open to construction in terms offered by the ruling ideologies of a secularized world. In what follows, I want to show how the body in New Testament terms should be defined in the light of the body of Christ, and explore some of the implications of this for genetic manipulation.

The body of Christ, writes David Cunningham, "should be the central image that gives meaning to the word *body*" (Cunningham, 1997, p 300). Or, in Graham Ward's terms:

> In the logic of demonstrative identification the impenetrability and discreet [*sic*] autonomy of the physical body provides the concrete means whereby these other bodies can be deemed metaphorical. But in the analogical account of bodies, within an account of incarnation and creation, only the body of Christ (hidden, displaced and yet always pervasive for always disseminated) is the true body and all these other bodies become true only in their participation within Christ's body (Ward, 2000, p. 93).

Ontological primacy, we might say, should be given not to the individual body but to the body of Christ. Whereas we might naturally be inclined to regard the physical body of the individual as primary, and other kinds of body (the body of the church, social bodies, political bodies, corporations, and so on) as metaphorical derivations from this, in Christian theology it is the body of Christ which is the true body, all other bodies finding their true meaning in terms of it.

That this is not just a post-Biblical theological development, but is central to New Testament teaching, can be seen from a study of Paul's theology; indeed all the essential elements can be drawn from just one letter, 1 Corinthians. Paul's argument at several points in this letter turns on the idea, as Dale Martin puts it, that "individual bodies have reality only insofar as they are identified with some greater cosmic reality," (Martin 1995, p. 131) and that for Christians, this greater reality is the body of Christ. "Do you not know," Paul writes to Corinthians who are using their Christian liberty to immoral ends, "that your bodies are members of Christ?" (1 Cor. 6.15).[3] In Paul's mind, sexual relationship directly parallels the relationship to the Lord, as is clear from his language in the following two verses: "whoever is united [*kollōmenos*] to a prostitute is one body [*sōma*] with her ... whoever is united [*kollōmenos*] to the Lord is one spirit [*pneuma*] with him" (vv. 16–17, author's translation). This licenses his shocking language that those Christians who have sex with prostitutes have taken the bodily parts of Christ and made them the bodily parts of a prostitute (v. 15). By contrast, Christians are called to glorify God with their bodies, since they have been bought with a price and so belong to Christ (v. 20).

That our bodies participate in Christ's body is evident even more decisively in 1 Cor. 15.12ff: Paul's argument about the resurrection the first phase of which memorably closes with the declaration that "if for this life only we have hoped in Christ, we are of all people most to be pitied" (v. 19). Paul is disputing with those who deny the resurrection of the dead, but the sole warrant he offers in defence of the general resurrection is the fact that Christ has been raised (v. 20). "If there

is no resurrection of the dead," he counters, "then Christ has not been raised" (v. 13), a logic that is echoed twice in subsequent verses (15, 16). But such a contention is only intelligible on the assumption, so obvious to Paul that it never occurs to him to state it directly, that believers participate in Christ in such a manner that for Christ to have been raised is *eo facto* for believers to be raised at Christ's coming again. It is this underlying logic of participation in a greater reality that is determinative for fundamental human identity and is implied in Paul's use of the "corporate Adam": "as all die in Adam, so all will be made alive in Christ" (v. 22).[4]

The language of the body of Christ is most prominent in Paul's theology of the church. In 1 Corinthians, this is brought to bear in his discussion of the spiritual gifts in Chapter 12. "Now you are the body of Christ and individually members of it" (v. 27): there are many members of a body, and each has its own role to play. Despite the diversity of gifts, there is one body, and its unity depends on the mutual recognition of interdependence. Yet Paul's insistence on the unity of the body is not just an application to the Christian community of the rhetorical strategy of appealing for *homonoia* (concord) in place of strife, a commonplace of ancient political oratory. It is also fused with a profounder metaphysical identification of the church with Christ. When he writes, "For just as the body is one and has many members, and all the members of the body, though many, are one body, so it is with Christ" (v. 12), we would expect him to say as the natural parallel, "so it is with the church." That he does not do so suggests that he has in mind an ontological and not merely metaphorical equation between Christ and the Christian community—and, as Richard Hays cautions, Paul would have recognized no contrast here between metaphorical language and mystical reality (Hays, 1997).

In relating the language of the body of Christ to the church, we should not think that individual bodies are no longer in Paul's mind. This is clear from Paul's discussion of the Eucharist in Chapter 11. Here his concern is with the replication of social divisions within the church by those who eat the Lord's supper without regard for others in the community: "one goes hungry and another becomes drunk" (v. 21). The consequence is that those who eat and drink without discerning the body are eating and drinking judgment against themselves (v. 29), with unambiguously physical consequences: "For this reason, many of you are weak and ill, and some have died" (v. 30). These symptoms should not be taken in a metaphorical sense (nor, for that matter, as the result of an insufficiently high view of the sacramental elements), but as evidence of an intimate correlation between the health of individual bodies and the unity of the Christian community. As Martin puts it: "[I]n Paul's logic, one puts one's own body in a state of vulnerability to disease by dissecting the body of Christ. By opening Christ's body to schism, they open their own bodies to disease and death" (Martin, 1995, p. 194).

I labor this point that our bodies, for Paul, must be understood through their participation in the body of Christ, because we cannot take it for granted that our intuitive understanding of the body as the possession of an autonomous individual is remotely close to the New Testament understanding of the body.

It also means that we cannot appeal directly to the nature of the resurrection body when trying to bring theology to bear on the question of bodily modification. This is not just because it is a futile subject for speculation, contemptuously dismissed by Paul as folly (1 Cor. 15.36), since we know nothing about our future bodies other than that our decaying, natural (*psychikos*) bodies will be transformed into imperishable, spiritual (*pneumatikos*) bodies that will be appropriate to the reign of God (15.35–57). It also fails to understand the primary ontological location of the body in its identification with the body of Christ.

Thinking about genetic manipulation is, therefore, not a matter of conjectures about the nature of the general resurrection, but of reflecting on the nature of the resurrection life that the church is to exhibit. We can embark on a sketch of this by countering some of the features of modern self-identity as influenced by the impact of enhancement technologies with some of the features that are to characterize the church, again drawing on Paul's teaching in 1 Corinthians.

First, against the tendency of the new technologies to reinforce existing inequitable power relations, we should note the entire thrust of the argument from beginning to end of Paul's letter. The divisions in the Corinthian church are divisions of social status, much recent scholarship concurs, and time after time Paul appeals to those of higher status to change their behavior in favor of the weak: in relation to resorting to the civil courts to settle differences (6.1–8), eating meat sacrificed to idols (Chapter 8), and Paul's self-supporting ministry (Chapter 9), for example, or partaking in the Lord's supper (11.17–34), where the rich have imported the expectations of the surrounding Greco-Roman culture and reproduced those socioeconomic divisions at a meal intended to break them down (Martin, 1995). Any social practices or behaviors that are intended or are likely to promote the social or economic advantage of some Christians over against others, or to exacerbate inequalities that lead to breakdown in fellowship, are to be greeted by calls to adopt the apocalyptic values of the reign of God. It may be that for many Americans cosmetic surgery "has become simply a realistic response to life in this most Darwinian of worlds," as Haiken puts it (Haiken, 1997, p. 298), but for Christians such competitive survivalism can form no part of their horizon. "On the contrary," says Paul, "the members of the body that seem to be weaker are indispensable, and those members of the body that we think less honorable we clothe with greater honor, and our less respectable members are treated with greater respect; whereas our more respectable members do not need this" (12.22–4).

Second, Christians will reject any attitudes or practices that treat the body as indefinitely plastic, or that regard the body as something to be separated from and opposed to the self. There is no evidence that Gnosticism as a distinguishable movement existed at the time Paul was writing; it is now usually recognized, but attitudes that depreciated the body are certainly to be found among those he inveighs against. "I am free to do anything," (6.12, NEB) declared the Corinthian *sophoi*, drawing the conclusion of autonomy over against all constraints from their Gospel freedom in Christ (Hays, 1997,

p. 101). And this radical freedom they saw as licensing a separation of the self from the body so that it was a matter of indifference how they treated their bodies, even if this extended to sexual immorality. "But the fornicator sins against the body itself," retorts Paul (6.18b), with the implication that the body is itself of moral significance. A similar moral might be drawn in relation to the absorption of the body into the reflexive project of self-identity, with its logical terminus in indefinite bodily transformation, a project which inevitably is complicit in fantasies of dematerialization, in which operations never go wrong and bodies never hurt (Negrin, 2002).

Third, following from the moral significance of the body, Christians will oppose any practices that foster cultural denial of human finitude and mortality, or symbolize a preempting of the decisive divine transformation of their bodies. Christians hope for resurrection as the fulfillment of the divine purposes for creation; but precisely because it is the hope of resurrection, they have no investment in the denial of death. Likewise, theological implications can be drawn from the difference between earthly bodies, which must die, and heavenly bodies, which are imperishable. Only after a seed has died can it come to life, Paul writes (15.36): the natural body is not the same as the spiritual body—"flesh and blood cannot inherit the kingdom of God" (15.50). This should not be read as an endorsement of fatalism in relation to the bodies we find ourselves with now, but a recognition that ultimately human beings are not in control of their identities: to pretend otherwise is to insinuate an attitude of justification by human technological works. It is this recognition that needs to find some appropriate symbolic enactment in relation to the practices of genetic manipulation.

These features of the church that I have elaborated are far from being exhaustive. Another emphasis, for example, might be on the necessarily variegated nature of the body of Christ in contrast with the uncanny tendency toward uniformity that seems to be one of the effects of normalizing biopower. Further, although these features do serve to show that the issue is not primarily the nature of the body as *corpus*, but the witness of the *ecclesia* into which it is inserted, they are not intended to help us predict from the outside what a church embodying such features in its life would discern in relation to body enhancements. The prior task is not to short-circuit such discernment through the pronouncements of professional Christian ethicists, but to become a community that is open to the judgment of God and so able to discover worldliness in itself and in the world. Moreover, by setting these technologies in a broader cultural and ecclesial context, we can see how virtues and practices that are ostensibly irrelevant to the question of genetic manipulation will bear directly on the formation of a community's powers of discernment: from practices that help parents not to find their own identities in their children's achievements, to the practice of meditation on one's death, as counseled by Thomas à Kempis.

Nevertheless, these features are sufficient to suggest that there are in principle some things that such a church would wish to reject. If there are some genetic technologies that could genuinely be used therapeutically and do not require use of or complicity in morally questionable means, equally there are likely to be

some and perhaps many nontherapeutic procedures, which will not be regarded as morally acceptable—even if the exact line between the acceptable and unacceptable may seem quite arbitrary in practice. For if body enhancements tend to perpetuate self-gratifying fantasies and cultural attitudes of denial and self-deception—as well as the socioeconomic injustices with which these are intimately linked—it must be the task of the church to speak against them if it is to witness to its belief in the resurrection of the body faithfully.

Notes

1. Explanations of the rise of interest in the body in recent sociology can be found in Shilling (1993, pp. 29–40), and Turner (1996, pp. 1–24).
2. A similar moral with respect to gender relations can be drawn from the differing cultural meanings cosmetic surgery has for men and women. Although male interest in it is increasing, dominant norms of masculinity prize rationality higher than muscular physique: it is questionable whether cosmetic surgery will help men achieve the cultural demands of masculinity. For the foreseeable future, it is likely to remain a predominantly female preserve (Davis, 2002).
3. All Biblical quotations are from the NRSV, unless otherwise indicated.
4. On participation in Paul in general, see for example, Dunn (1998, pp. 390–412).

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Chapter 3
Secular Humanist Bioethics and Regenerative Medicine

Ping-Cheung Lo

3.1 Introduction

As Daniel Callahan perceptively observed some 20 years ago, issues and dilemmas in bioethics might be new as a result of remarkable advances in biomedical science, but the moral questions they raise are "among the oldest that human beings have asked themselves" (Callahan, 2004, p. 278). Regenerative Medicine is a cutting edge medicine, devoted to the repair of damaged, diseased, or degenerative organs through bioengineering cells, tissues, and organs. The technologies are new and still developing, and so are the moral controversies, for example, therapeutic cloning, cultivation of human embryonic stem cells, and the destruction of human embryos. Yet, as Callahan suggests, the underlying and wider moral issues have been with us for a long time. To understand fully the current ethical controversies in regenerative medicine, one needs to analyze the wider and foundational bioethical traditions that inform our moral judgments. I submit that one influential bioethics tradition is that of Secular Humanism, of which Joseph Fletcher is a significant representative. In this chapter, I shall first attempt to retrieve some key, humanistic ideas in the modern West that render the worldview of Secular Humanism more intelligible and interesting. I shall then analyze and articulate a cluster of Secular Humanistic themes in Joseph Fletcher's bioethics that cohere with these Secular Humanistic worldviews. Fletcherian voices in the current discussion on moral issues of regenerative medicine will also be identified.

Although this chapter will not tackle any moral issue in regenerative medicine directly, the present author hopes to contribute by enlarging our horizons so that we can see the forest as well as the trees. As Tristram H. Engelhardt observes in his paper of this volume, "An analysis of the debates that we face must be appreciated in terms of the framing assumptions of incompatible world-views." This paper's contribution will be an in-depth analysis of one such worldview so that moral debaters of regenerative medicine can know, on a deeper level, where they part company with one another.

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Before I move on to Joseph Fletcher, I need briefly to clarify the term "humanism." For the purpose of this chapter, I submit that there are two senses of humanism; one is broad and heterogeneous, and the other narrow and doctrinaire. A representative of the former is Alan Bullock, a historian and former Vice-Chancellor of Oxford University. He deems humanism "not a school of thought or a philosophical doctrine, but a broad tendency, a dimension of thought and belief, a continuing debate within which at any one time there will be found very different—at times opposed—views, held together not by a unified structure but by certain shared assumptions and a preoccupation with certain characteristic problems and topics, which change from one period to the next" (Bullock, 1985, p. 9). A representative of the latter position is Corliss Lamont, who once was the President of the American Humanist Association, the founder of The Corliss Lamont Chapter of the American Humanist Association in New York City, and the author of the definitive Philosophy of Humanism for the movement (which went through eight editions). Humanism in this sense is one particular school of thought with a definitive worldview and a set of rather coherent beliefs closely related to anthropocentricism. It is "a philosophy of which man is the center and sanction" (Lamont, 1990, p. 11). In this chapter, "humanism" or "humanistic" is used only in the latter sense.

3.2 Joseph Fletcher as a Representative of Secular Humanist Bioethics

Although Joseph Fletcher published only three small books in bioethics (*Morals and Medicine*, 1954; *The Ethics of Genetic Control: Ending Reproductive Roulette*, 1974; *Humanhood: Essays in Biomedical Ethics*, 1979), he is generally known as a progenitor of bioethics outside the medical profession, and ranks with Paul Ramsey and Richard A. McCormick. He is classified as a theologian by Albert Jonsen and as a philosopher by David Rothman. I think both the hats sit uncomfortably on his head. He is, I submit, a Secular Humanist when he writes in bioethics, especially in his second and third book. It follows that Fletcher's place in the history of bioethics has not been adequately assessed by either Jonsen or Rothman.

In the first history of modern bioethics, written by a physician, author David Rothman credits Fletcher for being the first ethicist to venture into medical ethics (Rothman, 1991, p. 102). As a result, Fletcher's first book in the field, *Morals and Medicine*, becomes "[o]ne of the first efforts to break the physician monopoly and explore issues of medical ethics" (Rothman, 1991, p. 105). In addition to this pioneering role, Rothman also credits Fletcher for being a champion of patients' rights. "Fletcher moved the discussion away from the privileges of the physicians or the requirements of religious creeds to the prerogatives of the patient, and in 1954 such a formulation was highly original" (Rothman, 1991, p. 106).

In his wide-acclaimed analytical history of modern bioethics, Albert Jonsen credits Fletcher as the first of "three theologians [who] presided over the creation of bioethics" (Jonsen, 1996, p. 41), and spent six pages to explain his contribution (Jonsen, 1996, pp. 42–47, and subsequent pages). Fletcher is recognized first for being a champion of patients' rights and second as a refuter of Catholic arguments. Another notable feature of Fletcher's bioethics is that "[h]e had almost unstinting praise for modern medicine" (Jonsen, 1996, p. 43, cf. p. 55). Consequently, "[m]ost physicians and scientists found his philosophy congenial. It generally endorsed both their altruism and their conviction that science was uniformly beneficial" (Jonsen, 1996, p. 47).

Accordingly, Fletcher has very radical views on bioethics, even by today's standards. "He defended not only abortion, sterilization, and contraception, as he had in the past, but also genetic screening that was both voluntary and mandatory, negative and positive eugenics and euphenics, and human cloning and the creation of human-animal hybrids; and, going beyond his advocacy of euthanasia, he argued for infanticide … his essay 'Humanhood' … became famous (or notorious) …. This profile obviously ruled out embryos and fetuses, as well as the retarded, the moribund, and the senile, from humanhood or, as Fletcher qualified, from personal status" (Jonsen, 1996, p. 46). In spite of his unorthodox views, "Fletcher was a figure of influence. He wrote in a swift, breezy style that laypersons could read with pleasure. His manner of argument was not the sustained, logical analysis favored by philosophers. Rather, he argued his case as an experienced homilist …. His style irritated the analytically inclined but appealed to the intelligent, interested reader" (Jonsen, 1996, p. 47).

I find this portrait of Fletcher by and large accurate, but I think Jonsen's assessment of Fletcher's significance is inadequate. Fletcher's lasting appeal does not lie in his skillful homiletics alone. Jonsen further explains that "Fletcher is, his biographer remarks, 'a synthesizer, not a philosopher …. He was a creator of positions and perspectives, not theories'" (Jonsen, 1996, p. 45). But this assessment does not touch on the substance of Fletcher's views. In only one sentence, Jonsen does touch on substantive ethical values that Fletcher "rushed quickly into a personalist and situationist view of ethics that was profoundly humanistic and utilitarian" (Jonsen, 1996, p. 55). I submit that it is indeed the centuries-old Secular Humanistic values that were articulated and applied by Fletcher that explains Fletcher's lasting appeal, and Jonsen has overlooked this part in his assessment of Fletcher.

Among students of Christian ethics, Joseph Fletcher was generally known as a Christian ethicist, not as a Secular Humanist. He was once the dean of St. Paul's Cathedral, Cincinnati. When he published the well-received *Situation Ethics* (1966), he was the Professor of Christian Social Ethics at Episcopal Theological School, in Cambridge, Massachusetts. In the early sixties, he was elected the second President of the Society of Christian Ethics (Fletcher, 1993, p. 81). When he published *Morals and Medicine* (1954) in spite of the liberal moral views therein, in the preface of the book he still professed to "believe in 'the divine revelation of the Old and New Testaments'." Twenty-four years

later, however, in the preface to the paperback edition (in which there is no change in the text) he writes, "As far, at least, as my own thinking is concerned there is one element in this book which I have found no reason to change at all. I mean its basis or rootage in person, in human beings, as the first-order value or highest good by which to make ethical appraisals . . .. Such a humanistic ethics is appropriate as much to religious moralities as to a secular outlook" (Fletcher, 1979a, pp. xiv–xv). A silent deconversion has occurred. In his Memoir, he confessed that he "de-Christianized" himself, then quit the Episcopal Theological School, and took up a teaching position at the University of Virginia Medical School (Fletcher, 1993, p. 85).

In his second and third books on bioethics, the Secular Humanistic outlook comes to the foreground. In "The Author's Note" of *The Ethics of Genetic Control*, Fletcher boldly asserts, "the reader should know right away that this book is written from a humanistic perspective" (Fletcher, 1974, p. xix; emphasis original). In *Humanhood: Essays in Biomedical Ethics*, he also notes, "In my opinion, the task of manhood inventory should be carried out from the humanistic perspective rather than a theistic one" (Fletcher, 1979b, p. 9). In *Humanist Ethics: The Groundwork*, an essay presented in an international humanist ethics symposium in Buffalo in 1980, he declares, "Once upon a time I looked for the basis of morality and found it, I thought, in religion …. Then I began to wonder …that religion depends on morality and not vice versa. . .right and wrong are humanly perceived, not religiously revealed. In a word, ethics is humanist" (qtd. in Storer, 1980, pp. 253–54). Finally, in his Memoir (composed in 1984, published in Chinese in 1989, and in English in 1993), he publicly confesses, "My own ethics. . .was essentially humanist—humanist in the sense of nontheist. Like Protagoras I saw man as the measure of things, the determiners of value and truth, not God or a revelation of any kind …. In two summary words, I was at last a humanist situationist—in matters both personal and social …. I had de-Christianized myself" (Fletcher, 1993, pp. 84–5). His reverse conversion from Christianity to Secular Humanism is complete and final.

In spite of the lack of rigor in his arguments, Fletcher's unsophisticated bioethics is still appealing today. *The Ethics of Genetic Control* (1974) and *Humanhood* (1979) are currently still reprinted after more or less 30 years of publication. Fletcher's lasting appeal does not lie in his skillful homiletics alone. I submit that his bioethics does embody a certain intellectual tradition of the modern West that is still engaging in the twenty-first century. The quotations I selected in the last paragraph are only programmatic statements. In the next two sections, I shall first analyze the contours of Secular Humanistic vision that precedes Fletcher, and then examine Fletcher's bioethical views in the light of this intellectual tradition.

3.3 A Hermeneutical Retrieval of Key, Secular Humanistic Ideas in the Modern West

I submit that there are six tenets, each a legacy of a thinker, that constitute the secular faith that informs the Secular Humanist bioethics of Joseph Fletcher.

3.3.1 Protagoras and Human is the Measure

The dictum that "Man is the measure of all things" is attributed to Protagoras by both Plato and Diogenes Laertius. Regardless of the original context and meaning of Protagoras' saying, this dictum has become the motto of humanists in the eighteenth century (Davies, 1997, p. 123). A little more than a century ago, a British philosopher F. S. S. Schiller confesses in the preface on his book on humanism, "Fairly interpreted, this [the Protagoran dictum] is the truest and most important thing that any thinker ever has propounded …. Humanism therefore need not cast about for any sounder or more convenient starting-point" (Schiller, 1903, p. xvii). Lamont, the once President of the American Humanist Association and Director of the American Civil Liberties Union for 22 years, points out in his definitive book on Secular Humanism, "the first notable Humanist of whom there is reliable record was Protagoras" (Lamont, 1990, p. 31). As pointed out earlier, Fletcher himself confesses in his Memoir, "My own ethics … was essentially humanist—humanist in the sense of nontheist. Like Protagoras I saw man as the measure of things, the determiners of value and truth, not God or a revelation of any kind" (Fletcher, 1993, pp. 84–85).

The significance of this dictum for Secular Humanist bioethics is that it provides a foundation for rejecting any objective, universally valid moral norms; bioethics can feel free to break away from traditional views and taboos. As moral agents, we are not only the moral measurers but also the ultimate moral measure. We are not bound and constrained by any extra-human, metaphysical–moral entities as expounded by Moral Realism. In conjunction with other tenets to be explained below, the "human" here becomes the "person," the disembodied self.

3.3.2 Francis Bacon and Science as Salvation

Francis Bacon's idea of "knowledge is power" is famous in western intellectual history, and Gerald P. McKenny has done a wonderful job in discerning the "The Baconian Project" in much contemporary secular bioethics (McKenny, 1997). A few words can still be added to reinforce McKenny's point, though. Many of us are aware that Bacon's famous work in this regard is his *Novum Organon* (1620) (see also Zagorin, 1998), but not that many are aware of this book's subtitle: *Aphorismi De Interpretatione Naturae Et Regno Hominis*. In other words, the ambition of Bacon and his followers is not only to understand nature so that we can command nature, but also through such an endeavor to establish a Kingdom of Human (regnum hominis) over nature, on a par with the Kingdom of God (regnum dei). There is a revealing discourse in Book Two of *Novum Organon* that speaks well of this ambition:

> Further, it will not be amiss to distinguish the three kinds … of ambition in mankind …. But if a man endeavor to establish and extend the power and dominion of the human race itself over the universe, his ambition (if ambition it can be called) is without doubt both a more wholesome and a more noble thing than the other two. Now the

> empire of man over things depends wholly on the arts and sciences. For we cannot command nature except by obeying her (Bacon, 1863, CXXIX).

Furthermore, in another aphorism earlier in the work, he explains the religious nature of this aspiration:

> that at length (like an honest and faithful guardian) I may hand over to men their fortunes, now their understanding is emancipated and come as it were of age; whence there cannot but follow an improvement in man's estate and an enlargement of his power over nature. For man by the fall fell at the same time from his state of innocency and from his dominion over creation. Both of these losses however can even in this life be in some part repaired; the former by religion and faith, the latter by arts and sciences (Bacon, 1863, LII; emphasis added).

The significance of Bacon's regnum hominis for Secular Humanist bioethics is as follows. To subdue nature (including human biological nature) through science and technology is legitimate and praiseworthy; it is the entrance to the Kingdom of Human Persons. Science and technology are quasi-salvific, (Midgley, 1992) and biomedical scientists are created co-redeemers of the world. Bacon's idea of the regnum hominis can be deemed the origin of Religious Humanism to be developed in Europe later.

3.3.3 Auguste Comte and the Religion of Humanity

There are many European thinkers in the nineteenth century who advocate the "Humanitts religion," among whom Auguste Comte and Ludwig Feuerbach are the most significant. Comte spends the entire last chapter of *A General View of Positivism* on "The Religion of Humanity," in which he explains:

> . . .towards Humanity, who is for us the only true Great Being, we, the conscious elements of whom she is composed, shall henceforth direct every aspect of our life, individual or collective. Our thoughts will be devoted to the knowledge of Humanity, our affections to her love, our actions to her service …. Positivists then may, more truly than theological believers of whatever creed, regard life as a continuous and earnest act of worship; worship which will elevate and purify our feelings, enlarge and enlighten our thoughts, ennoble and invigorate our actions …. Thus Positivism becomes, in the true sense of the word, a Religion; the only religion which is real and complete; destined therefore to replace all imperfect and provisional systems resting on the primitive basis of theology (Comte, 1975, p. 365).

Comte then candidly admits, "Thus the philosophers of the future become priests of Humanity" (Comte, 1975, p. 367), which is not only the *great being*, but also the *supreme being*, of which every human being is a part.

> All our thoughts, feelings, and actions flow spontaneously to a common centre in Humanity, our Supreme Being; a Being who is real, accessible, and sympathetic, because she is of the same nature as her worshippers, though far superior to any one of them. . .. After having thus exercised our powers to the full, and having given a charm and sacredness to our temporary life, we shall at last be for ever incorporated into the Supreme Being, of whose life all noble natures are necessarily partakers" (Comte, 1975, pp. 438–439, 444).

The significance of Comte for the twentieth century faith in Secular Humanism lies in the following connection. Roy Wood Sellars, the major drafter of *Humanist Manifesto I* (1933), acknowledges his direct debt to Comte in his articulation of humanism (Sellars, 1918, p. 219; 1933, pp. 7–11). *Humanist Manifesto I* advocates "Religious Humanism," which is a watered-down version of Comte's religion of humanity. Although the religious cloak of humanism was soon discarded by the movement and the term "Secular Humanism" used instead, "In 1961 ... the U.S. Supreme Court acknowledged that there are religions that do not involve belief in the existence of God, including 'Buddhism, Taoism, Ethical Culture, Secular Humanism and others'" (Engelhardt, 1991, pp. 90–91). The Justices correctly see that there is a strong religious dimension in Secular Humanism, as in fact the movement is inspired by Comte's Religion of Humanity. The disclaimer concerning religion in subsequent manifestos and declarations notwithstanding (e.g., Humanist Manifesto II [Kurtz & Wilson, 1973]; *A Secular Humanist Declaration* [Kurtz, 1980]), the continuity in major tenets between these more recent manifestos and the one in 1933 is unbroken. The latter day American Secular Humanists are but the distant apostles of Comte.

This thesis and the first thesis explained above cohere well. By what right and privilege are human persons the supreme measure of all things in the universe? Comte provides the answer: this is because *humanity*, in which all human beings partake, is the *great being* and the *supreme being* of the universe!

3.3.4 Ludwig Feuerbach and the Divinity of Humanity

Many superficial readers of western intellectual history classify Feuerbach together with Marx and interpret him as wanting to abolish religion. Many contemporaries of Feuerbach also read him that way, and that makes Feuerbach's preface to the second edition of *The Essence of Christianity* much more interesting and informative. In this preface, he admits that there is a negative or destructive side in his work, "but, be it observed, only in relation to the unhuman, not to the human elements" (Feuerbach, 1957, p. xxxvi). He is against only a religion of a transcendent God, but is in favor of a religion of a deity who is entirely immanent in human nature, that is, a religion of humanity. As he puts it:

> The reproach that according to my book religion is an absurdity, a nullity, a pure illusion, would be well founded only if, according to it, that into which I resolve religion, which I prove to be its true object and substance, namely man, – anthropology, were an absurdity, a nullity, a pure illusion. But so far from giving a trivial or even a subordinate significance to anthropology, – a significance which is assigned to it only just so long as a theology stands above it and in opposition to it, – I, on the contrary, while reducing theology to anthropology, exalt anthropology into theology, very much as Christianity, while lowering God into man, made man into God (Feuerbach, 1957, p. xxxviii).

In short, he attempts to reform religion so that religion is homocentric and theocentric at the same time. This is because "religion itself, not indeed on the

surface, but fundamentally ... believes in nothing else than the truth and divinity of human nature" (Feuerbach, 1957, p. xxxvi).

One intellectual historian observe s perceptively:

> The Religion of Humanity, whether of French or of German hue, obviously rested on a belief in the greatness of man, or, at any rate, in man's ability to make his own providence. And, indeed, the estimate of human nature ran very high in the whole world of the New Enlightenment, higher even than in the Old...the New Enlightenment very nearly deified man in the sense of that it ascribed to him, to the species if not to the individual, many of the properties and powers that were formerly invested only in God (Baumer, 1977, p. 318).

This religion of "In Man We Trust" goes well with the Protagorean thesis that "Man is the Measure of All Things."

The significance of this new thesis of divinity is enormous for Secular Humanist bioethics: human rationality and benevolence are worthy of our ultimate trust, as they are divine. Human beings should play God boldly; that is our prerogative!

3.3.5 Thomas Henry Huxley and the Artificial Versus the Natural

Thomas Henry Huxley's famous lecture, "Evolution and Ethics" (1893), should be read as "Evolution versus Ethics," as a scholar rightly interpreted (Himmelfarb, 1962, p. 405). This is because Huxley writes the essay to refute "attempts to apply the principles of cosmic evolution...to social and political problems" (Huxley, 1894, p. 22). In proposing the "ethics of evolution," Herbert Spencer is still a child of the Enlightenment, believing that human beings can get moral guidance from nature. Huxley, though a self-appointed "Darwin's bulldog," "repudiates the gladiatorial theory of existence." Although the aim of the "cosmic process" is the survival of the fittest, the aim of the "ethical process" is the survival of "those who are ethically the best," that is, those who possess goodness or virtue (Huxley, 1893, pp. 81–82). Toward the end of this essay, he provides an eloquent summary of his "ethics versus nature" thesis:

> Let us understand, once and for all, that the ethical progress of society depends, not on imitating the cosmic process, still less in running away from it, but in combating it. It may seem an audacious proposal thus to pit the microcosm against the macrocosm and to set man to subdue nature to his higher ends; but I venture to think that the great intellectual difference between the ancient times with which we have been occupied and our day, lies in the solid foundation we have acquired for the hope that such an enterprise may meet with a certain measure of success. The history of civilization details the steps by which men have succeeded in building up an artificial world within the cosmos ... [man] is competent to influence and modify the cosmic process. In virtue of his intelligence, the dwarf bends the Titan to his will (Huxley, 1893, pp. 83–84, emphasis added).

In short, for Huxley, "the ethical process ... is in opposition to the principle of the cosmic process" (Huxley, 1894, pp. 30–31). Ethics belongs to the realm of "the artificial," which is antagonistic to "the natural" (Huxley, 1894, pp. 11, 13). This form of understanding ethics is enthusiastically picked up by some subsequent bioethicists.

3.3.6 Bertrand Russell and the Freedom from Nature

Although Bertrand Russell admits of an ambiguous attitude toward humanism, he has been welcomed as a major spokesperson for Secular Humanism. His early essay, *A Free Man's Worship* (1903), is his most widely reprinted essay and is very influential both within and outside the humanists circles. Some key ideas in this essay are freedom from the tyranny of nature, to resist and defy nature, and Promethean rebellion. Many of Fletcher's bioethical ideas reflect such views.

For Russell, nature is "omnipotent but blind"; "wanton infliction of pain" is its major characteristic. "The savage, like ourselves, feels the oppression of his impotence before the powers of Nature." Hence, "the tyranny of non-human Power," "the tyranny of outside forces," or "the wanton tyranny that rules his outward life" is a constant refrain in this essay. "Blind to good and evil, reckless of destruction, omnipotent matter rolls on its relentless way." Thus, this essay sounds like an essay of cosmic despair, as "the world of fact, after all, is not good." But Russell does not counsel resignation; rather, he encourages rebellion to gain our freedom from this brutal nature. We should "maintain our own ideals against a hostile universe." A free person does not follow nature, submit to nature, or seek to live in harmony with nature. Russell's free person, "undismayed by the empire of chance, to preserve a mind free from the wanton tyranny that rules his outward life; proudly defiant of the irresistible forces," seeks to defy not only tyranny of human origin but also tyranny of natural (biological, physical) origin. Although the phrase "freedom from nature" does not appear in this essay, this phrase is indeed a good summary of this essay's thesis. To worship nature in the light of our comparative finitude is slavery. A free person worships only human ideals (Russell, 1976, pp. 11–13, 18–19).

The implications of this very influential essay for Secular Humanist bioethics are obvious, viz., distrust nature! Fight for freedom from nature! Manipulate and subdue nature! Curb the natural by the artificial! Resist, counteract, combat, and defy nature, which is blind, reckless, hostile, powerful, oppressive, tyrannical, and bad. Freedom or autonomy in Secular Humanist bioethics is freedom from our biological nature, which is deemed deeply flawed. "From Chance to Choice" is thus a self-evident truth for this school of bioethics.

3.4 Secular Humanist Themes in Fletcher's Bioethics

Although Joseph Fletcher is an avowed situation ethicist and a subscriber of agape-utilitarianism, his actual bioethical reasoning relies also on some intermediate rules other than just love and the promotion of greatest happiness. He admits in *The Ethics of Genetic Control* that there are six "guidelines" to inform his bioethics, viz., "compassion, consideration of consequences, proportionate good, the priority of actual needs over the ideal or the potential, a desire to enlarge choice and cut down on chance, and a courageous acceptance

of our responsibility to make decisions" (Fletcher, 1974, p. 148). How these moral guidelines cohere with his avowed "humanistic perspective" (Fletcher, 1974, p. xix) is not made clear.

I submit that many of the key bioethical views of Joseph Fletcher would become more intelligible against the list of humanistic tenets outlined above. Only then can we offer a fairer assessment of Fletcher's contribution to bioethics than Rothman and Jonsen have done.

3.4.1 Human Person is the Measure of All Things

As explained before, Fletcher embraces this Protagorean humanistic dictum with enthusiasm. In the context of his bioethics, the "man," who is the measure of all things, is not a human being "in flesh and blood." Rather, it is the human person in detachment from the biological constitution. The essence of humanity is personhood, and "the essence of a person is reason" (Fletcher, 1974, p. 136), and "perhaps something like a score of 20 on the Binet scale of I.Q. would be roughly but realistically a minimum or base line for personal status" (Fletcher, 1974, p. 137). Our biological nature is merely what is "raw in nature"; just as marble is raw nature to a sculptor, bone and flesh are raw nature to a surgeon (Fletcher, 1974, p. 35). To say that the human person is the measure of all things, in bioethics, means that the human person should align our biological nature to our reason and will rather than to live a life in consonance to our biological nature. (Here the Protagorean dictum is reinforced by Russell's worldview.)

Another implication of this modified Protagorean dictum is that neither God nor nature is the ultimate moral guide; there is no ultimate moral frame of reference beyond the perspective of human reason. Human beings can and should play God. This is self-evident in the light of Comte's thesis of Humanity as *supreme being* or Feuerbach's thesis of *divinity as humanity*. Hence it is no surprise to find Fletcher suggesting provocatively, "Let's Play God" (Fletcher, 1974, p. 126). This is because "we should see acts of God in events the natural causes of which we fully understand. The position now is that men, not God, are the ones who are 'abrogating' natural process" (Fletcher, 1974, p. 128).

3.4.2 Freedom from Biological Nature and Human Absolute Control of One's Bodily Processes

With strong echoes of Russell's ideas in "A Free Man's Worship," a constant refrain in Fletcher's bioethics is the striving for freedom from our biological nature and, the other side of the same coin, the struggle to gain absolute control of one's bodily processes and physiology. For instance, first, Fletcher is in favor of suicide because suicide enables us to be free from the natural timing of death

and to be the master of one's life. The concluding sentence of his essay on suicide goes, "Suicide is the signature of freedom" (Fletcher, 1990, p. 73). Second, he also supports euthanasia because euthanasia enables us to be free from mortality (deteriorating health, dependency, and other undesirable circumstances of dying) and to be the master of the last journey of one's life, as "we are not as persons of moral stature to be ruled by ruthless and unreasoning physiology, but rather by reason and self-control" (Fletcher, 1979b, p. 208). In the worldview of Secular Humanism, one should beat death (and biological nature) by meeting it wholly on one's own terms and not on death's (and biological nature's) terms. One would rather kill oneself than to be killed by diseases. Besides these two instances of "death control," third, Fletcher is also in favor of full "birth control"—of the quality as well as the quantity of children we bring into this world (Fletcher, 1974, pp. 151, 157–158). Fletcher is in favor of using all kinds of reproductive technology, including cloning, because such uses enable one to be free from natural "reproductive roulette" and to be in full control of one's destiny in forming a family. As he says, "Producing our children by 'sexual roulette' without preconceptive and uterine control, simply taking 'pot luck' from random sexual combination, is irresponsible—now that we can be genetically selective and know how to monitor against congenital infirmities . . .. Not to control when we can is immoral" (Fletcher, 1974. p. 158). Fourth, Fletcher is also in favor of genetic therapy and enhancement, somatic as well as germ-line, because genetic engineering can enable us to be free from the natural genome and to be in full control of our descendents, and our destiny. As he puts it, "We cannot accept the 'invisible hand' of blind natural chance or random nature in genetics . . .. To be men we must be in control. That is the first and last ethical word. For when there is no choice, there is no possibility of ethical action. Whatever we are compelled to do is amoral" (Fletcher, 1979b, p. 91). In short, "Control is human and rational; submission, the opposite of control is subhuman" (Fletcher, 1974, p. 157). And as he further notes, "We began our human history by learning to control the physical environment (and still make serious mistakes). We have made some progress in controlling our social life, and we are learning to control our behavior. It is time, then, that we accepted control of our heredity" (Fletcher, 1974, p. 158).

3.4.3 Nature as Seriously Flawed and in Dire Need of Human Correction

Implicit in the principle of freedom from our biological nature and absolute control of one's bodily processes and physiology is a negative assessment of nature in the manner of Russell. Mother Nature is not to be worshipped because she is a despot. In an approving discussion of euthanasia, Fletcher speaks of the "ruthlessness of nature" and "ruthless and unreasoning physiology" (Fletcher, 1979, pp. 183, 208). In advocating human genetic engineering,

he cites three scientists' views to support him. First, "H. J. Muller ... once remarked that 'we have about as much to be ashamed of in ourselves genetically as to be proud of'" (Fletcher, 1974, p. 38). He then cites the immunologist Peter B. Medawar: "It is a profound truth ... that nature does not know best; that genetic evolution, if we choose to look at it liverishly instead of with fatuous good humor, is a story of waste, makeshift, compromise, and blunder" (quoted from Fletcher, 1974, p. 131; 1979, p. 11). He also cites Maeterlinck that "there will come a day when Science will protest its errors and will shorten our sufferings" (quoted from Fletcher, 1979a, p. 210). In short, Fletcher is convinced that biomedicine reveals that the source of human suffering and predicament is nature, whose workings are accidental, random, unpredictable, blind, capricious, ruthless, and even tyrannical. The convention wisdom of not to fool with Mother Nature is only slavish submission to fatalism and an irresponsible surrender. "The issue is whether we can and ought to take away the blindfold over our eyes or go on trying to live under the tyranny of the Fates" (Fletcher, 1974, p. 129). Human persons, as the measure of all things, should revolt against nature and work for our independence. This is an echo of T. H. Huxley, "In virtue of his intelligence, the dwarf bends the Titan to his will" (Huxley, 1893, p. 84).

In short, we not only can and should play God in bioethics, but also can and should outplay God by correcting God's (or nature's) mistakes. Human biological nature needs radical revision. Eden can be restored or remade. Paradise can be regained and the regnum hominis (echoing Bacon) be established! As Jules Castagnary, one nineteenth century child of the New Enlightenment, puts it, "Beside the divine garden from which I have been expelled, I will erect a new Eden .... At its entrance I will set up Progress ... and I will give a flaming sword into his hand and he will say to God, 'Thou shalt not enter here'" (quoted from Baumer, 1977, p. 335).

3.4.4 Expansion of Human Choices and the Preference for the Artificial to the Natural

In the light of the imperative to gain freedom from our body and to have absolute control of our biological nature, we need to create more choices for ourselves than Mother Nature allows. Advances in reproductive technology and genetics can provide us such "artificially" expanded choices. Biomedical science reveals the source of our suffering, and new biotechnology brings us the gospel of salvation. With new biotechnology, human beings finally can save themselves from this seriously flawed biological nature. Reproduction can be technology-assisted so that we can overcome reproductive roulette, and our genome can be artificially modified so that our lives will not be at the mercy of our arbitrarily given genes. Although these procedures are often criticized for being unnatural, for Fletcher, the artificial/natural distinction is morally

irrelevant. In fact, in human reproduction, the artificial is preferable to the natural. As Fletcher bluntly puts it, "Coital reproduction is, therefore, less human than laboratory reproduction" (Fletcher, 1979, p. 88). As he elaborates:

> The uneasiness behind lots of opposition to biological control is related often to a feeling that the natural is better than the artificial . . .. Art, artifice, the artificial—these are creative manipulations of what we find 'raw' in nature . . .. It is precisely artificiality which is man's hallmark . . .. Or should we be responsible about it, that is, exercise our rational and human choice, no longer submissively trusting to the blind worship of raw nature? (Fletcher, 1974, pp. 34–36).

Fletcher often justifies this principle of "artificial is better than natural" by appealing to his Secular Humanism, his concept of the distinctiveness of human persons in particular. As he explains:

> Man is a maker and a selecter and a designer, and the more rationally contrived and deliberate anything is, the more human it is. Any attempt to set up an antinomy between natural and biologic reproduction, on the one hand, and artificial or designed reproduction, on the other, is absurd. The real difference is between accidental or random reproduction and rationally willed or chosen reproduction. In either case it will be biologic—according to the nature of the biologic process. If it is unnatural it can be so only in the sense that all medicine is.
>
> It seems to me that laboratory reproduction is radically human compared to conception by ordinary heterosexual intercourse. It is willed, chosen, purposed, and controlled, and surely these are among the traits that distinguish Homo sapiens from others in the animal genus, from the primates down. Coital reproduction is, therefore, less human than laboratory reproduction (Fletcher, 1979, pp. 87–88).

A baby made artificially, by deliberate and careful contrivance, would be more human than one resulting from sexual roulette—the reproductive mode of the subhuman species (Fletcher, 1979, p. 17).

To further defend his principle that the artificial is to be preferred to the natural, Fletcher tries to ease the general uneasiness over the unnatural by first explaining, "The unnatural is simply our control over the blind workings in raw natural process" (Fletcher, 1974, p. 35). He then argues for understanding nature in the broadest sense possible, viz., "the sum total of things in time and space." Fletcher then goes on, "This means that laboratory fertilizations, cloning, and glass wombs are as natural as love, life and death, and the sunset" (Fletcher, 1974, p. 132). With such a contrived sense of "nature," Fletcher can then declare that "new and refined modes of reproduction are still thoroughly biological and natural—and because they are highly rational and purposive, not just sexual roulette or marital lottery, they are more fully human, as well as more humane" (Fletcher, 1974, pp. 167–68).

In virtue of this preference of the artificial to the natural, Fletcher is an apostle of the faith in technology. Back in the 1970s, he wrote boldly of chimeras, cyborgs, and other artificial possibilities:

> If the greatest good of the greatest number (i.e., the social good) were served by it, it would be justifiable not only to specialize the capacities of people by cloning or by constructive genetic engineering, but also to bio-engineer or bio-design parahumans or

> 'modified men'—as chimeras (part animal) or cyborg-androids (part prosthetes). I would vote for cloning top-grade soldiers and scientists, or for supplying them through power plot by other cloners—a truly science-fiction situation, but imaginable. I suspect I would favor making and using man-machine hybrids rather than genetically designed people for dull, unrewarding, or dangerous roles needed nonetheless for the community's welfare (Fletcher, 1979, p. 85; cf. 1974, pp. 170, 172–73).

In light of these enthusiastic views and the four Secular Humanist "credos" explained before, it is only fair to infer that all possible procedures and technologies in the service of regenerative medicine would be enthusiastically endorsed by Fletcher and his disciples.

> To conclude, Fletcher should not be called a theologian, pace Jonsen; and he is only a philosopher in a very loose sense, pace Rothman. The fact that two of the three bioethics books authored by Fletcher (first published in 1974 and 1979, respectively) are still reprinted today, and being reprinted by Prometheus Books, a publisher that champions Secular Humanism, indicates clearly the heritage of Joseph Fletcher that is being treasured. The lasting contribution of Joseph Fletcher to bioethics, besides his pioneering role, is his consistent articulation and application of a certain strand of Secular Humanist values to bioethics.

In the final analysis, Joseph Fletcher is an evolved or mutated child of the Enlightenment. Like the French philosophers, Fletcher believes that human beings can attain perfection and can build a perfect society through the extensive use of biotechnology. But unlike them, Fletcher deems that raw nature is never to be trusted—human reproductive and genetic nature in particular. Laws of nature are to give way to strictly laws of human persons. If Fletcher the bioethicist can be called a public theologian, he is the theologian of the secular faith of Eugenic Utopianism.

3.5 Echoes in Other Bioethicists

Many bioethicists have a Secular Humanist moral orientation similar to that of Fletcher's, though they are not "confessional Secular Humanists." The family resemblances among them are plain and obvious, though.

One good example is Gregory Pence, a contemporary active participant in American bioethical debates and author of a number of books in bioethics. He frequently speaks in Fletcher's language in his discussion of genetic ethics, for example, in pitting "reproductive fatalism against expanded genetic choice" (Pence, 2000, p. 100). "Why should a couple be happy with any child that the flick of the genetic roulette wheel sends their way?" (Pence, 2000, p. 101). Or "why shouldn't such parents be allowed to try to create the best possible child?" (Pence, 2000, p. 101). He even employs "nurture argument" to support his "improved nature" thesis: "Historically, even twentieth-century parents tried to improve on the fickle allotments of fate: pregnant women didn't drink alcohol, parents stimulated infants . . ., didn't smoke, and ate nutritional foods. All these actions contradicted fatalistic acceptance" (Pence, 2000, p. 104).

In the skirmish on human cloning back in 1998, he charges that the National Bioethics Advisory Commission under President Bill Clinton was too conservative and "needed to have been 'Fletcherized' by having someone like the late Joseph Fletcher" to voice the liberal views (Pence, 1998, p. 35). The very last sentence of the conclusion of his procloning book says it all, "call me Joe Fletcher's clone" (Pence, 1998, p. 175). Expectedly, then, he is all in favor of research on embryonic stem cell (Pence, 2000, pp. 72–73; 2004, pp. 52–68) and other developments in regenerative medicine.

Another example is Lee M. Silver, a Princeton biologist. His eugenic utopianism is even more pronounced. He envisages a future society in which some human beings (those who can afford it) are so much genetically enhanced that they become another species (Silver, 1997, pp. 227–39). He picks a provocative title for his book—*Remaking Eden*—and each of the five parts of this book are prefaced by a carefully selected biblical proof text to support his contention (Silver, 1997, pp. 13, 61, 89, 131, 197). The intention is clear; though the body discussion of the book does not make any appeal to religion, he wants to give a religious overtone to the entire book. Again, he is hoping that the "religion of humanity" can replace the "religion of God."

In short, Joseph Fletcher's bioethics is a typical example of one broad bioethical movement that is still in vogue; his bioethics has a legacy that is received and retransmitted. In spite of the claims of posthumanism, this strand of Secular Humanistic thought is alive and well in academic bioethics. In spite of the postmodernist movement, the Enlightenment secular faiths of Utopian progress and perfectibility of human beings are also alive and well in academic bioethics. There is no lack of torch-bearers of the so-called Geneticists' Manifesto (1939), authored by Hermann J. Muller, Nobel laureate, and 22 other geneticists, of which the most memorable line is "Thus everyone might look upon 'genius' .... as his birthright .... [A]nd all steps along the way will represent a gain, not only for the possibilities of the ultimate genetic improvement of man, to a degree seldom dreamed of hitherto, but at the same time, more directly, for human mastery over those more immediate evils which are so threatening our modern civilization" (Muller, 1939, pp. 521–22).

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Chapter 4
Radical Disagreements of Chinese Views on Fetal Life and Implications for Bioethics[1]

Nie Jing-Bao

4.1 Introduction

A widespread myth exists inside and outside China on the Chinese views of induced abortion and fetal life. This myth holds that Chinese, in striking contrast with Westerners, have little if any concern with the morality of terminating pregnancy. For instance, Chinese medical ethicist Yali Cong, in her review of bioethics in China for Western audience, has summarized the common Chinese perception on the topic:

> The reality of abortion in China is that most people do not regard it as an ethical issue. This is related to the policy of family planning but also to the traditional idea a human being begins at birth (Cong, 2003, p. 252).

In the most recent comprehensive review of population policy and demographic developments in P. R. China, German scholar Thomas Scharping asserts:

> [B]ecause popular medical knowledge continuously pre-dating the beginning of life is unknown, because modern psychology bestowing a soul to infants has not entered the peasant mind and because basic religious ideas are different, the question of abortion in China does not lead to the passionate pro and con arguments we witness in the West (Scharping, 2003, p. 12).

Many Western anthropologists and observers also support the general conclusions that Chinese people do not consider abortion ethically problematic because they believe that human life does not begin until birth (Rigdon, 1996; Potter & Potter, 1990; Jennings, 1999).

Induced abortion was allegedly never treated as a serious ethical issue in the history of China (Luk, 1977; Qui, 1992). Scholars have emphasized the permissive position of Confucianism on abortion. It is claimed that Confucianism not only permits almost any kind of abortion, but even tolerates infanticide. The most important reason given for this permissiveness is that Chinese, Confucians included, believe that the unborn fetus does not constitute a human life. It has

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been suggested that most Chinese would agree with the great Confucian master Xu Kung (286–238 B.C.E.) that "human life" begins at birth and ends with death.

Under the direct influence of this myth, I once summarized the cultural characteristics of Chinese understandings of abortion from an angle of Chinese–Western comparison in such sweeping and careless words:

> Among ancient Chinese philosophers, doctors, and lay people, the practice of abortion evoked little explicit discussions (if any concern), not to mention public debate, as is still the case in contemporary China. Even though no ancient Chinese thinker explicitly advocated that both abortion and infanticide are justifiable on utilitarian grounds as did Plato and Aristotle, neither was there a Chinese "Pythagoras" to hold that abortion is killing because of the belief that human life begins at conception. The Chinese did not consider abortion morally objectionable mainly because they, like Jewish law and Platonists in ancient Greece, maintain that human life does not begin until birth. Confucians and Daoists rarely treated the fetus as a human being. So neither the "Absolute Sincerity of Great Doctor" (the Chinese "Hippocratic Oath") by the "King of Medicine," Sun Simiao, nor any other premodern professional maxims written by medical doctors clearly claimed that physician should "not give to a woman abortion remedy" as does the well-known Hippocratic Oath (Nie, 1999, p. 469).[2]

Although having mentioned that imported Buddhism teaches that the fetus is a form of life and, therefore, put limits on induced abortion, I found it unquestionable that in general Chinese, together with Confucians, almost always take a permissive attitude toward abortion and that this was true in the past as it is today.

Is this common wisdom correct? Is it a sound generalization that Chinese people have always seen abortion as ethically permissible because they do not consider fetal life to be a human being? The answer is negative. The in-depth and first sociological study on the subject in any language I have undertaken—with a survey of 600 people throughout China in different walks of life and interviews with 30 women and 30 doctors—provides with compelling evidence on how wrong, or at least misleading, the widespread myth on the Chinese perspective of abortion is, how diverse the Chinese views and experiences of abortion are, and, in a word, how different voices exist behind the apparent public and even private silence (Nie, 2005). In this chapter, by extensively drawing empirical information from the study, I will first demonstrate the radical difference in Chinese perspectives on fetal life, that is, how greatly Chinese people differ on the question of when a human life begins—whether at conception or at birth or sometime during pregnancy. Then, I will discuss some of the normative implications of these radical disagreements in Chinese views on the fetus, for theoretical and practical issues of bioethics in general and ethics of regenerative medicine in particular, especially why and how bioethics should take China's internal diversity seriously.

4.2 Radical Disagreements of Chinese Views of the Fetal Life

4.2.1 The Official Discourse or the Socialist Perspective

It is true that in the contemporary official and public discourse, no significant moral attention is given to fetal life in particular and human life in general is not

always accorded the highest respect. The basic characteristic of the moral definition of fetal life in contemporary official discourse is that the unborn has no significant moral and legal value. In the Chinese public discourse, the external or social value of fetal life has been emphasized in discussing abortion, if indeed any discussion takes place. A widely shared assumption in the official discourse seems to be that, even though the fetus is a human life and taking a human life is usually wrong, abortion is morally acceptable, because the moral status of the fetus never weighs as heavily as the interests of the woman, parents, family, and especially the society and the state. This official perspective has been articulated and promoted in many contemporary textbooks of medical ethics published in mainland China.

It should be noted, however, that the official discourse on abortion and birth control is not fixed, coherent, and unified, but is always in flux. In the first decade of the People's Republic, the official standpoint was antithetical to that advanced today—induced abortion was legally prohibited to ensure "the life of the next generation," among other reasons. Besides, diverse and even dissident views exist within the discourse, such as the moral sentiment favoring the interests of family and even the life of the unborn child among family-planning cadres at the local level. More importantly, today's official perspective does not necessarily represent both the mainstream beliefs of contemporary Chinese people and the historical heritage of Chinese culture.

4.2.2 Disagreements Among Contemporary Chinese People

It is often assumed that most Chinese people accept the official position and consider abortion morally acceptable on the grounds that human life begins at birth. However, the results of the survey I conducted in 1997 proved this wrong. In fact, most Chinese believed that life began at some point before birth and thus regarded the fetus as a human life. Overall nearly half (48%) agreed that human life began at conception; only slightly more than one-quarter (28%) of respondents considered life to begin at birth. A sizeable majority (72% overall, nearly three-quarters) of informants thought that life begins sometime before birth—whether at conception, or when the mother feels the first movement of the fetus ("quickening"), or when the fetus is able to survive outside the mother's womb ("viability"). Table 4.1 represents the responses of different samples to the question on the starting point of human life.

Conception and birth were regarded as more significant criteria for judging when life begins than either "quickening" or viability, each of which were favored by fewer than 20% of any group. A large majority (76%) of responses settled on one of the two extremities of pregnancy: *either* conception *or* birth as the point at which life began, with significantly more informants overall choosing conception (48%) rather than birth (28%). The 12 groups had diverse views. A large majority of Catholics believed that human life starts at

Table 4.1 Responses to the question, "When does a human life begin?"

Sample groups	Conception	"Quickening"	Viability	Birth
Catholics (23)	87% (20)	9% (2)		4% (1)
Buddhists (26)	62% (16)	19% (5)	8% (2)	12% (3)
Chinese Medical Students (57)	65% (37)	12% (7)	4% (2)	19% (11)
Protestants (39)	64% (25)	15% (6)		21% (8)
City (South) (105)	47% (49)	18% (19)	14%(15)	21% (22)
University Students (43)	42% (18)	19% (8)	16% (7)	23% (10)
City (North) (45)	53% (24)	18% (8)	4% (2)	24% (11)
Biomedical Student (26)	42% (11)	12% (3)	19% (5)	27% (7)
Village C (84)	36% (30)	18% (15)	10% (8)	37% (31)
Village A (50)	40% (20)	18% (9)		42% (21)
Village B (43)	37% (16)	12% (5)		51% (22)
Med. Humanities Scholar (17)	19% (3)	6% (1)	12% (3)	64% (11)
Overall (558)	48% (269)	16% (88)	8% (43)	28% (158)

Note: The number of respondents is in parenthesis, and the order of the samples is arranged by the lowest to highest percentage, which agrees that a human life begins at birth.

conception, with much smaller numbers choosing viability and birth. And, while more than half of the Protestant, Buddhist, Chinese medical students, and respondents in northern city samples opted for conception, medical humanities scholars and Village B residents were more inclined to see birth as the starting point. Most informants believed that a human life started sometime before birth, rather than at birth itself. In only two sample groups—Village B and medical humanities scholars—did fewer than half the subjects hold that human life began sometime before birth.

Questions about the status of the fetus in the other part of the questionnaire provoked responses that support the above findings. Confronted with the statement, "A fetus is a life," overall 84% of respondents agreed. Most groups strongly supported the proposition: Catholics (96%), Village B (96%), Protestants (95%), Buddhists (92%), Chinese Medical Students (89%), City (South) (86%), University Students (83%), Village A (81%), City (North) (78%), Village C (78%), Medical Humanities Scholars (74%), and Biomedical Students (71%). But when asked to comment on the proposition that "the fetus does not become a human being until it has left the mother's womb," overall support for the fetus as a human being fell to 46%, less than half. The figures for those *disagreeing* with the statement, that is, agreeing with that the fetus is a human being, were overall (46%), Catholics (85%), Protestants (62%), Chinese Medical Students (59%), Buddhists (54%), University Students (50%), Medical Humanities Scholars (47%), Village C (42%), City (South) (41%), Biomedical Students (41%), City (North) (32%), Village A (31%), and Village B (31%). The large discrepancy in the responses to these two questions probably reflects the ambiguity and uncertainty of Chinese views on the status of the fetus. The strong agreement that the fetus constitutes a life versus the divided opinions on its precise status at birth may reflect Chinese beliefs about the development of a "life" into a "human being."

I still vividly remember one occasion in my field work on Chinese views and experiences of abortion in 1997, where ten rural people—men and women, young and old—gathered in a village house to fill out the questionnaires I had given them. After completing the forms, several of them started to discuss or, more accurately, to debate the items I had listed in the questionnaire. This fascinating discussion revealed that the two most divisive issues were whether aborting a fetus was equivalent to taking a life and the question of when human life began. They just could not agree on whether human life started at conception, at birth, or at some time in between.

For women who have had abortion, it is almost always a bitter experience, physically painful (due to the rare use of anesthesia) and emotionally distressful. Thirty women I interviewed demonstrate a radical disagreement in their feelings on the fetus in general and the aborted one in particular. While the majority did not report that they had ever given much thought to their aborted fetuses, some had very strong feelings about the fetus (the unborn child, in their terms) and this feeling constitutes a significant source of bitterness regarding their abortion experiences. The most common term used by women to refer to the fetus is "*maomao,*" a phrase for the infant and very young child. Sometimes, the fetus is also referred as "*xiao wawa,*" more unmistakenly, the little child. Even some interviewed doctors who routinely perform abortion refer the fetus by "*maomao*" or "*xiao wawa*."

It should be pointed out that people's reservation to abortion and strong feeling about the fetus are not necessarily based on religious beliefs. One of the women I interviewed revealed that she already had three abortions. Although there was little emotion associated with her first abortion, she was very miserable after the second and third terminations. She referred to the fetus her child and found the procedure morally flawed:

> After several abortions, I really think that abortion is wrong in some way. Everyone [in China] says abortion isn't a big deal. Some people look as though nothing has happened after having a termination. The older I got, the more terrible I felt within myself about the abortions I'd had. I'd destroyed my children, my *own* children by that.

When asked whether her feelings had anything to do with her religious beliefs, she replied that she did not have any particular religious commitment, at least not yet. She could not identify any particular reason for feeling so bad about her terminations: "Maybe they're due to a woman's and mother's natural instincts."

4.2.3 Forgotten Controversies in Imperial Era

In ancient China, at least some Buddhist physicians (and those influenced by Buddhism) obviously took a much more conservative attitude than many modern Japanese Buddhists. A story from Zhang Gao's *Yi Shuo* (Medical Compendium) written in the thirteenth century illustrates this ancient Chinese

Buddhist viewpoint on abortion vividly. The section on medical ethics in Zhang's work is one of the most influential ethical texts in Chinese medical literature. Through 12 anecdotes, Zhang addressed crucial moral issues in medical practice. The abortion anecdote reads as follows:

> In the capital city lived a woman whose family name was Bai. She was good-looking and people called her "Bai Mu-dan" (The White Peony). She made a living by selling abortifacient drugs. One day, she started getting violent headaches: her head swelled up and increased in size day by day. All the prominent physicians treated her, but no one was able to cure her. After many days, an ulceration developed and the smell became unbearable. She cried every night and her crying could be heard near and far. Eventually, she gathered her family and begged them: "Burn all the prescriptions that I've kept." She also made her children swear not to pass on her trade. Bewildered, her son asked: "You have built yourself up through this work. Why do you want to give it all up?" His mother answered, "Every night I dream that hundreds of little children are sucking on my head. This is why I cry out in pain. All this is my retribution for selling drugs to damage fetuses." Right after saying this, she died (Unshuld, 1979, pp. 48–49).[3]

The moral of the anecdote is very clear: because the fetus is a human life and at least a potential child, abortion is tantamount to killing a child. In the story, there is no hint as to the gestational period involved. Nevertheless, the author—who is best described as a Buddhist–Confucian physician—clearly maintained that abortion in general was morally indefensible and a medical professional should not perform abortions.

Although physicians in imperial China lacked techniques such as B-ultrasound that allow us to monitor fetal development directly, this did not prevent both physicians and laypeople from knowing a great deal about what happens in the womb after conception. By the time of the Sui Dynasty (581–618), Chinese medicine, especially the gynecology and obstetrics literature, already possessed amazingly detailed knowledge of fetal development from conception to birth. Such knowledge may well have originated from empirical observations of miscarried or aborted fetuses made by both women and physicians. While this is not the place to explore traditional Chinese conceptions of fetal life in detail, some important characteristics should be pointed out. First, the early Chinese, and physicians in particular, were well informed about fetal development. Second, medical knowledge distinguished between the embryo, the unformed developing fetus, and the fully formed fetus. Third, Chinese medical beliefs about fetal life were a part of traditional knowledge about cosmology and human physiology. Fourth, it is unmistakably evident that human life was regarded as beginning before birth, as early as the first month of pregnancy, and that the human being was physically formed at some time during pregnancy. Fifth, fetal development was seen as not merely a process of physical growth, but a spiritual component—named variously as "soul" or "spirit" (*hun, po, shen, ling*)—was added or "infused" from some moments of pregnancy.

Based on its knowledge of fetal development, Chinese medicine developed a distinctive theory of *taijiao* (fetal education) at an early stage. According to this theory, the fetus in the womb is directly influenced by the mother's experiences.

The food she eats during pregnancy, as well as the things she hears, sees, and reads, was held to influence the physical, intellectual, and moral character of the fetus. Parents were encouraged to begin their children's education in the womb and many early medical works contain special sections on the subject. Fetal education as a social practice was popularized in late imperial and modern China. It has been revived in mainland China since the 1980s. This is not the place for a detailed discussion of this subject, which raises many complex sociocultural and ethical issues. The point I wish to make is that many Chinese, including Confucians and Confucian physicians throughout history, consider that a human being is formed sometime between conception and birth, if not at conception itself. Fetal education would make no sense unless the fetus was considered to constitute a real human life.

Confucianism is far from permissive on abortion, contra to what the widespread myth on the Chinese perspective on the subject suggests. Little information has come to light on how Confucians and neo-Confucians in imperial China addressed directly the issue of abortion, although historical materials indicate that Confucian physicians in late imperial China, opposing abortion in principle, had no moral problem with terminating a pregnancy in the interests of the mother's health. Nevertheless, thanks to William LaFleur's fascinating anthropological and historical study on abortion in Japan (LaFleur, 1992, pp. 103–118), we have some knowledge of how Confucians and neo-Confucians responded to the question of abortion as a means of birth control. During the late Edo period (between 1721 and 1846), despite rapid social development and modernization, Japan's population remained surprisingly stable—especially given periods of rapid growth before and after and the situation in neighboring China where the population doubled between 1749 and 1819. Historians and demographers attribute this unexpected downturn to a combination of infanticide and abortion. The Japanese euphemism for the use of infanticide and abortion as birth control measures was *mabiki*, which literally means "the culling of seedlings," especially in rice fields. According to LaFleur, "a constant Confucian objection to mabiki" was heard in Edo Japan, and Confucian moralists "repeatedly tried to solicit the help of Buddhist priests in getting their anti-mabiki message across to common people" (LaFleur, 1992, pp. 106–107). In contrast to the Japanese government that opposed the practice from economic and utilitarian considerations and neo-Shinto apologists who criticized it on religious grounds, Japanese Confucian moralists condemned *mabiki* on moral grounds and in terms of Confucian ethical concepts such as "true humanity." It is a pity that in LaFleur's work, Confucianism, including its moral objection to *mabiki*, is reduced to the level of secular, pragmatic, and economic belief system—reflecting a long-rooted stereotype of Confucianism which strips it of its spiritual and transcendental elements.

As a matter of fact, a normative Confucian account of abortion can be based on the ethical ideals and principles specific to Confucianism while drawing on wider medical, cultural, and religious understandings of fetal life. Confucianism contains a rich and complex array of ethical resources, which provide an ethical basis for *restriction* of abortion. For example, essential Confucian concepts and

practices such as ancestor-worship, *xiao* (filial piety), *cheyin* (empathy, compassion), *shengsheng* (to preserve and nourish life), and the relational conception of personhood, all act to undermine the moral legitimacy of abortion.

Therefore, the official and dominant discourse in contemporary China today does not represent the inevitable historical development of traditional Chinese perspectives on fetal life. Traditional attitudes are maintained more strongly in Taiwan, or even Hong Kong, than in Mainland China. A recent anthropological study has shown that in Taiwan, as a result of Japanese influence as well as traditional Chinese ideas, there has been a resurgence of belief in fetal ghosts and demons, and aborted fetuses are often "memorialized" in Buddhist temples as a way of appeasing them (Moskowitz, 2001). Although being clearly at odds with official standpoints in contemporary China, such beliefs fit comfortably with the traditional Chinese understandings of fetal life presented above.

4.3 Why and How Should Bioethics take Seriously China's Internal Diversity

4.3.1 Implications for Bioethics

Based on and directly drawing on the empirical information from my sociological study on abortion in China, I have presented in the previous section radical disagreements in Chinese views of fetal life. To summarize, Chinese perspectives on induced abortion are always diverse; there simply does not exist a single and unified Chinese view of fetal life. The widespread myth that holds that Chinese do not consider abortion morally problematic because they believe that a human being begins at birth must be dismissed due to overwhelming empirical data.

The question is what normative implications Chinese radical disagreements have for theoretical and practical issues in bioethics in general, and the ethics of generative medicine in particular. The moral status of fetal life constitutes a central issue in bioethics. It can never be avoided in addressing ethical problems that arise from regenerative medicine, such as cloning, tissue engineering, stem-cell research and treatment, gene therapy, and so forth. Among many other normative implications, the most salient one is that bioethics should take seriously China's internal diversity, a general point I have argued elsewhere (Nie, 2000).[4]

4.3.2 For the Chinese–Western Cross-Cultural Dialogue

"Taking cultural differences seriously" has become one of the most resounding slogans in this age of globalization, multiculturalism, or "the clash of civilizations." When differences between or among different cultures are often highlighted, unfortunately differences or diversity within every culture, especially the non-Western ones, are usually downplayed and even ignored. Bioethics as an academic

field and a public discourse is paying more and more attention to the importance of culture and cultural practice in its inquiries into various issues. Certainly, bioethical discussions would never be sufficient without addressing the multifaced dimensions of culture. Yet, some widespread misconceptions on and misuses of culture exist in bioethics. One of them is the assumption of a homogenous or single, culturally distinctive medical ethics in every society and, in relation, the dichotomous way of approaching Western and non-Western medical ethics. Another is that the present mainstream or standard viewpoint or practice in a particular culture or society is often treated as representing *the* particular way in the culture and society as a whole. I believe that my account of the diversity of Chinese perspectives on fetal life offers a compelling example of how misleading and distorting these two misconceptions about and misuses of culture could be. In other words, it is essential for cross-cultural bioethics to avoid overgeneralizations on cultural ideas and practices as much as possible, to acknowledge and take seriously the plurality, diversity, flux, changeability, historical complexity, local richness, openness for new possibilities, and contradictory elements of any culture on any bioethical issue.

The common myth inside and outside China about the Chinese perspective on fetal life maintains that Chinese are radically different from Westerners, having or lacking the moral concern of the fetus. But the reality is much more sophisticated. In comparing and contrasting Chinese and Western perspectives on the fetus, one must be clear which and whose Chinese perspectives are under discussion.

4.3.3 For Social Policies

So much is made of the pluralism and diversity in the West; it is easy to overlook the fact that China has, throughout its history, been socially and culturally as diverse as the West and even the United States. China has long been treated as a typical, traditional, homogenous society of the Far East. By contrast, the United States as the typical Western country represents the modern, multiracial, multicultural, plural society. As I see it, however, the crucial difference between the two nations with regard to sociocultural pluralism is *not* that China is homogenous and the West diverse, but the opposite ways in which the two nations view and deal with this diversity. Because diversity is acknowledged, accepted, discussed, and treasured constantly and widely in the public discourse and private lives of Westerners, the West has developed a series of values and institutions to address people's differences in all spheres of life seriously and successfully. Of course, the success has not been achieved without struggles and cost; many problems remain to be solved. But by comparison with China, the success of the West, especially the United States, in dealing with the sociocultural diversity is remarkable. Unfortunately, the obvious and profound plurality of Chinese society and culture has never been given serious attention, either inside or outside China.

Viewing the history of China in the past two centuries as a whole, one is struck by the turmoil, disorders, violence, and destruction Chinese people have had to endure. There are many complicated sociopolitical and intellectual reasons for this, but one of the major roots of these conflicts lies in the fact that China has not worked out a way of adequately addressing the ethnic, regional, sociocultural, economic, religious, and historical diversity of its people. On the one hand, profound diversity among Chinese people in all spheres of life is obvious. On the other hand, the myth or dream or illusion of a united and homogenous China persists. The inevitable result, as the history of modern China unfortunately proves, is either the forced unity by a totalitarian state to significant members of the society or a country in disorders, chaos, or civil war. If there would not exist fundamental diversity in all spheres of life among its people, how could modern China have suffered so many irreconcilable civil conflicts and such internal turmoil?

Taking seriously the inevitable plurality of China, my motherland, is thus far more urgent practically. The tragic history of China in the second half of the twentieth century proved once again that the plurality within her society cannot ever be destroyed or even reduced, no matter how hard people like Mao and his cult have tried. If, after two centuries of extraordinary hardship, China fails again to find an effective way of dealing with this plurality, Chinese people will be unable to avoid another massive social upheaval.

Unfortunately, so far social policy making in general and regulations on bioethics issues in particular rarely take China's internal plurality seriously. It is imperative that any social policy in China on ethical issues in regenerative medicine, whether therapeutic or reproductive cloning or stem-cell technology, ought to attend the radical disagreements among Chinese on fetal life. Otherwise, it will not be sound empirically and morally.

Notes

1. All empirical materials of this chapter come from my book, *Behind the Silence: Chinese Voices on Abortion* (Nie, 2005).
2. This article is reprinted in Benett, B. (Ed.) (2004). *Abortion*, The International Library of Medicine, Ethics and Law Series (pp. 427–439), Ashgate, Hampshire, UK; and in May, L., Collins-Chobanian, S. & K. Wong (Eds.) (2005). *Applied Ethics: Multicultural Approach*, 4th edition, Prentice Hall, Englewood Cliffs, NJ.
3. English translation modified.
4. The Chinese and modified version of the article published in December 2001, in *Chinese and International Philosophy of Medicine* 3, 4, 135–158.

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Part III
A Human Embryonic Stem-Cell Research: The Geography of Persistent Disagreement

Chapter 5
Using and Misusing Embryos: The Ethical Debates

Brenda Almond

5.1 Introduction

Many areas of biomedicine have become the subject of intense debate and moral soul-searching in the last few decades, and there are a number of issues of practical policy where the moral map seems unclear and opinion is divided. Some of these have emerged in the last few years, and more are on the horizon. In particular, discoveries in the biomedical sciences, especially genetics, are increasingly presenting us with questions at the margins of life. On the one hand, there is the unprecedented control we already have over human life at the embryonic stage and the decisions we must make about how to handle that control; on the other, issues of lifespan, aging and deterioration, our attitude to death and dying, and the use we now find that the living can make of the dead—from organ transplants to transplants of hand and face. This provides an extensive area for discussion; but in this chapter, I propose to focus on those problems that concern the beginning rather than the end of life, and to comment briefly on a range of topics involving the early embryo that are currently posing difficult challenges to society, policy makers, researchers and bioethicists.

5.2 Technology at the Beginning of Life: The Embryo and Reproductive Choice

There are, and will continue to be, many contentious issues in the area of reproductive medicine. Already, individuals wanting to access stored information about their genetic origins are seeking resolution of the issue in the courts, in the light of earlier policies in many countries that mandated donor anonymity in assisted reproduction. In one influential case in the UK, a young woman who was born as a result of fertility treatment, the records of which could not be found, claimed a duty on the part of the UK Government and the HFEA to assist her in

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seeking to establish the identity of her natural father. The case was lost, but the Department of Health did in fact later set up a voluntary register (UKDonorLink) to help people trace relatives (*Rose v. Sec. of State for Health and the HFEA*, 2002). As many children born from anonymously donated sperm reach their childbearing years, it seems likely that this issue will become increasingly important. Many of these children would agree with a recent contributor to the debate who discovered her origins only late in life and illustrated her own feelings with this quotation from the Roman orator Cicero: "To be ignorant of what occurred before you were born is to remain always a child. For what is the worth of human life, unless it is woven into the life of our ancestors by the records of history?" This writer went on to say: "For older donor offspring there is anxiety at the lack of paternal family medical information with which to allay genetic predisposition to serious hereditary conditions. There is certainly almost universal agreement that honesty and openness is of paramount importance in donor conceived families to minimize dysfunctionality in family relationships" (Whipp, 2004).

Of course, for a variety of reasons that legislators and politicians cannot control, children may lack information or be mistaken about their parentage, but as J. David Velleman argues in a philosophical paper on the link between personal and biological identity, deliberately to create children with the intention that they will be cut off entirely from their biological origins is morally problematic (Velleman, 2005).[1]

Reproductive choice also raises social issues of a broader nature because of its potential for creating nonstandard families—for example, families founded by single people, by gay or lesbian couples, or by cooperating groups. Regarding such issues, it is often argued that human rights claims are involved. But the question is which rights? Whose rights? And how should these rights be interpreted? Here, the rights of adults to form different kinds of associations may conflict with a child's right not to be deliberately deprived of a mother, or a father, or even—albeit a more debatable claim—of the wider circle of genetic (family) relations, such as grandparents, cousins, aunts, uncles, and so forth, into which a child is ordinarily born. For the child, then, the issue may be a matter of confused identity and the loss of potentially rewarding relationships. It is significant, then, that a number of international declarations are framed to give protection not only to the dignity but also to the identity of human beings. The Convention on the Rights of the Child (1989) specifies that

> States parties undertake to respect the right of the child to preserve his or her identity, including nationality, name and family relations as recognized by law without unlawful interference.
> Where a child is illegally deprived of some or all of the elements of his or her identity, States parties shall provide appropriate assistance and protection, with a view to re-establishing speedily his or her identity (Office of High Commissioner of Human Rights, 1989, Article 8).

It is worth noting that there is a similar reference to the protection of identity in Article 1 of the European Convention on Human Rights and Biomedicine, which specifies that Parties "shall protect the dignity and identity of all human

beings and guarantee everyone, without discrimination, respect for their integrity and other rights and fundamental freedoms with regard to the application of biology and medicine" (Council of Europe, 1997).

The interpretation of these conventions is liable to dispute, but it does seem that claims to unlimited procreative autonomy on the part of adults may well involve a conflict of rights with those of their potential offspring. For the manipulation of genetic material at the embryonic stage, which separates the donor-conceived from access to their genetic origins, necessarily deprives them of any future ability to claim access to their original biological identity, with all that implies. The idea of a rights violation that takes effect only at some future date may seem at first glance novel and challengeable. But the fact that an action precedes its consequences, even by a number of years, does not eliminate the moral responsibility of its originators, and it has recognized application in some other unusual situations, such as, for a convincing comparison, the laying of time-delayed bombs or landmines.

Nevertheless, the principle of procreative autonomy has many eminent advocates. Ronald Dworkin seeks to derive such a right from the American Constitution, arguing that in guaranteeing religious freedom, the Constitution protects choices based on moral and religious grounds (Dworkin, 1995, p. 160). Writing in a European context, John Harris also supports the claim that this is an area where the state should not intervene. But while Dworkin's focus is the issue of whether there is a right not to reproduce, in particular by limiting abortion, Harris takes the argument further, extending it to cover the right to reproduce in the variety of ways made possible by the new reproductive technologies. The concept of a prima facie moral right to reproduce in this extended sense is also defended by the American legal philosopher, John Robertson, who argues that control over reproduction is "central to personal identity, to dignity, and to the meaning of one's life" (Robertson, 1994, p. 24).[2]

Against this, another commentator, Maura A. Ryan, deploys the powerful argument that this fails to respect offspring as autonomous beings. She writes "the success of Robertson's argument depends on accepting the view that persons can be the object of another's right. . .he is asserting the right to acquire a human being" (Ryan, 1990). This pithily expresses the paradox in the position of those who advocate 'procreative autonomy.' In stressing the primary agents' autonomy, it neglects the autonomy of the human being who, at that early stage, is incapable of defending his or her own future interests or rights.

5.3 Preimplantation Genetic Testing and Eugenics

Developments in reproductive medicine have also provoked another range of questions, arising from the fact that techniques involving in vitro fertilization make it possible to examine and possibly alter the embryo prior to its implantation and development through the fetal to the infant stage. The question this

raises is sometimes described as the designer baby issue, although the issue is not so much design, that is, imposing an ideal pattern on an embryo, as embryo-selection. And indeed, the pattern followed in clinical practice is usually to create a number of embryos in vitro and selectively to retain only those, or even just one, that meet the desired criteria. There are a number of situations in which this procedure may be chosen. Primarily, it will be a matter of parents seeking to have a child free from a genetic condition already known to be a risk factor in the family. However, in seeking to exclude such conditions, the process has given rise to objections from groups representing the disabled, who claim that selection on such grounds disvalues disabled lives and disabled people.[3]

The same situation can also be approached by simply selecting embryos by sex, where the condition involved is sex-linked. But it is usual to separate the issue of medically related sex selection (used to avoid passing on a sex-related adverse genetic condition) and sex selection for cultural or social reasons, since the latter raises broader issues concerning the relative values set on male and female and the possible impact on the balance of the sexes in society. One less controversial reason for which arguments in favor of social sex selection may be deployed is, however, family balancing, since this is less open to these practical and cultural objections.[4] Finally, PITT (Pre-Implantation Tissue-Typing to produce a compatible donor for a sick family member) takes the discussion onto new grounds, since it raises questions about the exploitation of the resulting child and the violation of its own human rights claims.[5]

When selection is based on reasons that are more broadly construed than these fairly explicit objectives, they raise a different kind of objection: the spectrum of a new eugenics.[6] A modern eugenics has its advocates, nevertheless, and they include the geneticist James Watson, who, with Francis Crick, discovered just 50 years ago the double helix structure of DNA. This scientific viewpoint is rejected from an evolutionary point of view, however, by some contemporary writers, who describe the practice of eugenics, with its convergence on a monoculture of ideal types and its uncritical elimination of traits, which may turn out to have evolutionary advantages, as evolutionary nonsense. These authors express the hope that "simple evolutionary arguments will convince society as a whole to cherish its imperfections" (Brosius and Kreitman, 2000). How far genetics can make possible the formula creation of ideal 'types,' though, is itself a matter of dispute, and questions are already being raised about behavioral genetics: its scientific validity as well as its social and ethical implications.

5.4 The Control of Personal Genetic Information

Given these concerns, it is hardly surprising that the control of genetic information has become another area of debate.[7] Currently, it is more likely to be seen as a problem of social rather than medical ethics, confronting existing adults and children, but the fact is that, given routine testing of the fetus in utero and the

serious consideration being given to the DNA-profiling of newborns, it may be relevant to take into account aspects of this debate at the earliest stages of human life. Already, as discussed above, the selection of embryos in relation to genetic conditions is undertaken in some circumstances, and the increasing scope and efficiency of genetic screening and testing suggests that genetic information may be accessed from the earliest stages. But the earlier the genetic information is uncovered and recorded, the more difficult the privacy issue becomes.

What, then, are these concerns? First, it is necessary to recognize that we are likely to see more public acceptance of DNA databases, perhaps in the form of numerical bar codes kept on computer, rather than the storage of actual DNA samples. It is not difficult to see how this might raise genuine issues of confidentiality, consent, and privacy. And, while raising these issues in relation to the embryo may be problematic, experts are already talking of a 'gene identity-card' for the newborn, setting out the likely onset of various diseases through life. The positive aspect of this suggestion is that adverse health findings might result in preventive action, especially where profiling can be used to find the ideal individualized drug for treatment. But a less welcome consequence is the risk that this may create an uninsurable underclass. There are, too, questions about consent and confidentiality in relation to this kind of personalized and extensive screening, as well as an interesting question about how much we want—or need—to know about our life-chances. The newborn baby, issued with its genetic 'profile,' will not have had the benefit of counseling and a chance to consent to or refuse this potentially overwhelming 'gypsy's warning'. There is also another consideration in relation to some disease threats that finding out about one family member—for example, where late-onset diseases or carrier-status are involved—may inevitably mean finding out about others, again without their consent, and possibly against their positive refusal. In other words, one person's right to know may be set against another person's right not to know.[8]

5.5 The Use of Embryos in Stem-Cell Research

In this brief overview, I have so far tried to lay out some of the contentious questions raised by our capacity to understand and adapt to our use of the human embryo, enrolling it in the service of our immediate objectives. Many of these issues are practical and ethical, but the issue of stem-cell research raises questions of an even more fundamental, or indeed metaphysical, nature. Where questions about early life are concerned, one widely heard accusation is that the new technological developments involving human beings, and genetics in particular, have preempted a prerogative that belongs to nature itself, if not to God. For in a very literal sense, modern science does take on a creational role when an embryologist combines sperm and egg in the laboratory, bringing into existence an embryo that is capable of becoming a unique individual person.

But, as the issues I have so far discussed have shown, it is not only creation that is possible. There is also the possibility of altering the embryo's genetic structure either to eliminate some genetic diseases or, more controversially, to promote sought-after characteristics such as intelligence or sporting potential. It is already a practical option to examine various potential lives (embryos) in vitro and then choose which should be given a chance of life and which should be allowed to perish. So it is not simply the creation, but the control, shaping, and disposal of life that are at issue. For when combined with developments in the fertility clinic, this provides all the elements needed for a 'brave new world' of scientific eugenics.

In this situation, the Kantian principle that each individual should be treated as a person, as an end in himself or herself, not simply as a means to someone else's ends, may well have a role to play. But if this principle is held to apply to the very earliest stage of a human life, it may sit uncomfortably with the ethical duty to pursue life-saving and life-enhancing research. Deciding which way the ethical balance falls, however, is something that will, it seems, be increasingly determined by politicians rather than philosophers or theologians, especially where the scientifically promising and potentially lucrative area of stem-cell research is concerned.

In discussing this issue, I will set aside the issue of cloning for reproductive purposes in order to focus on what is usually called therapeutic cloning. The historical position at which we now find ourselves is the result of a series of scientific developments, beginning with the success of microbiologists in 1950s and 1960s in cloning bacteria. In parallel with this, work in the area of reproductive medicine by researchers such as Patrick Steptoe and Robert Edwards was moving toward what has now become the IVF era and to the birth in 1978 of the first test-tube baby, Louise Brown. The subsequent discovery that cord blood contains multipotent stem-cells that can be multiplied in vitro raised the possibility of using the new technologies for cloning animals, a possibility that burst dramatically into public consciousness when Dolly the Sheep was born at the Roslyn Research Institute in Edinburgh in 1997, and it has now become a viable technique already in use in farming and food production in the USA. A more cautionary approach has so far prevailed in the UK, however, and there was a public outcry at the discovery in January 2007 that the offspring of a US-cloned cow was alive and well and living on a farm in England.

In the area of human medicine, however, where their use for reproductive purposes has been widely banned, stem cells have various and quite dramatic therapeutic possibilities. They have a particular value for medical research in that they can provide laboratory models of disease for study. They are also the essential ingredients of what has been called the 'medicine of regeneration.' They are the potential source of all the different types of cells the body needs, from red blood cells to bone or organ tissue and, therefore, have the potential to generate healthy new blood or tissue. Parkinson's disease, leukemia, heart disease, Alzheimer's disease, cancer, diabetes, and spinal cord injuries are all potentially treatable by stem cells, and tissue grown from genetically identical

cells formed from the patient's own body would avoid the risk of rejection by the body's immune system.

The embryos used for these purposes may be existing unwanted or 'surplus' human embryos, left over following IVF treatment, or they may be created in the laboratory for this purpose. The distinctive process involved is known as cell nuclear replacement (CNR). This is a complex procedure that has been frequently described not only in the scientific literature but also in the media: briefly, it involves creating an embryo by combining the nucleus of a cell with an egg that has had its own nucleus removed. The human eggs sought for CNR are, however, in short supply. They can sometimes be obtained for research following some other procedure such as hysterectomy. There have also been cases where ova have been obtained by purchase from women with no personal medical needs, specifically for purposes of stem-cell research.[9] They might also be donated for research by an altruistic volunteer. But because of the risks and discomfort involved in ovarian stimulation, there is reluctance on the part of doctors and researchers to seek eggs by this route. So, faced with these difficulties, some researchers have sought to circumvent the problem by using denucleated ova from other mammals into which human DNA has been inserted. Some researchers, noting that the practice of somatic cell nuclear 'reprogramming' in animal species has become routine in laboratory practice, argue that it could be more ethically acceptable to use this method to produce genetically matched cells and tissue for human patients who suffer from tissue loss or dysfunction than to use embryos that result from fertilization (Lanza, Cibelli, & West, 1999, pp. 975–977). However, the proposal to license this technique in the UK has given rise to a new debate about the ethics of creating hybrids or chimeras and the issue has not, at the time of writing, been resolved.

5.6 Legal Debate and Developments

In the USA, research on embryonic stem cells may be carried out with private funding, but federal funds cannot be used for this purpose, a decision influenced by ethical arguments put forward by antiabortion or prolife campaigners who wish to extend protection of the fetus to the embryo. They argue that the use of an embryo in this way is the killing of a human being. Nevertheless, although federally funded scientists may not create new lines of embryonic stem cells, they are allowed to work with existing lines. In contrast, because of Europe's plurality and its lack of a common position on the moral status of the embryo, regulations vary from country to country. Germany can be singled out as showing particular sensitivity to the issue of respect for human life, because of its still vivid recollection of the excesses of the 1930s and 1940s in respect to both medical experimentation on humans and eugenic policies. The legal debate in Germany has focused on the question of whether an embryo attracts the moral protection awarded to 'a subject of human dignity.' The question was originally

posed in relation to abortion, but it came to the fore again more recently when a scientific research institute in Bonn was allowed to import embryonic stem cells for research. In response to the controversy this provoked, Chancellor Schroeder was quoted as defending the proposed research, saying that "the ethics of healing and helping deserve the same respect as that which we have for creation." So, while extracting stem cells from a human embryo is contested in Germany, it is legal to import stem cell lines.

More broadly, the Convention on Human Rights and Biomedicine of the Council of Europe, effective from December 1, 1999, bans the creation of embryos solely for research, although it does not ban research using 'spare' embryos; this whole position is now being reconsidered in view of the potential value of stem-cell work requiring cell nuclear transfer and not all EU countries have ratified the Convention. There is, though, a general ban on human reproductive cloning and human germ-line modification. In addition, an EU regulation "on the Legal Protection of Biotechnological Inventions," dated July 6, 1998, considers "the use of embryos for industrial and commercial purposes"; and, basing its considerations on the principle of the noncommercialization of the human body, deems them to be nonpatentable inventions. This leaves open the question of whether or not cultured stem cells should be patentable and whether and how their use should be regulated. A recent addendum to this account is a report (BBC, March 8, 2004) that Italy has given the fertilized human egg the same status and protection as a full human being. (This means that in IVF, for instance, only three embryos may be created and all must be implanted.)

5.7 The UK Position

In many matters concerning human reproduction, the UK has one of the most permissive regimes in the world. In particular, therapeutic cloning based on CNR is now legal in the UK, although as mentioned above, this has been based on using embryos formed from exclusively human material. Discussion in Britain takes as a starting point the fact that embryo research using both 'spare' and 'created' embryos is already allowed under the terms of the 1990 HFE Act—itself based on a majority recommendation of the Warnock Committee, although in practice, researchers have preferred only to use the first option. The Act allowed embryos of up to 14 days of development to be used for research in certain specific areas, mainly concerned with fertility, contraception, and other family-related areas (Warnock, 1985). Ten years later, an additional clause was added by Parliament, voting 366–174, to extend the scope of these permitted purposes to cover research into disease in general, so opening the door to the development of the new technological possibilities of stem-cell research.

5.8 The Philosophical Debate in Britain

Much turns, then, on how the early embryo is viewed. Is it a human person, at least incipiently? Or is there validity in the concept employed by the Warnock Committee of the pre-14-day entity as a pre-embryo—a concept that has acquired a role of crucial significance in the new circumstances? There is certainly continuity between the two, but the case for recognizing the pre-embryo as lacking personhood is that it still lacks a unique identity—it has the ability to divide and become more than one individual. The concept of a pre-embryo seems to be that it is something which is not yet an embryo, although it will be.[10] The concept, though it has appeal for philosophers fascinated by metaphysical reasoning about whether two can be the successors to one, has been discarded by many scientists working in this field. It is indeed of dubious value even to metaphysicians for, as a letter-writer to *The Times* pointed out, it appears to be a claim that *homo sapiens* is the sole mammalian species that does not immediately reproduce itself, or, as Alan Holland pointed out in an article with this title, it would oblige each one of us to say, if we attempted to track our origins back in time, "A fortnight of my life is missing" (Holland, 1990, pp. 25–374). Before entirely dismissing the notion that a pre-embryo has a distinctive status, however, it is important to recognize that if the pre-embryo is not uniquely different, then the question remains, what is special about the embryo? Do we recognize it as a human individual? If not, should we still treat it with respect, and for what reason? But if we do recognize it as an incipient person, can we justify destroying it, or turning it into material for beneficial medical purposes, or using it for profit-making commercial ends? Is this not the pure commodification of human life?

Certain philosophical and practical points, however, have emerged in the context of the UK debate that, taken together, provide the background for the position set out in an official Department of Health Report that offers human embryonic life a degree of respect combined with its use or, as the British philosopher Alistair Campbell puts it, offers "a form of gradualism, which treats the development of the embryo with increasing moral seriousness as it develops biologically" (Department of Health, 2000). These can be briefly summed up as (1) the argument that the stage of development is relevant; (2) that a 'good cause' justification is available; (3) consideration of the fact that embryo research has already been allowed in the UK for certain specific purposes since 1990; and (4) the provision that the use of embryonic material should be a 'last resort.'

In his discussion of this approach, Campbell relates it to the 14-day principle enshrined in the Warnock Report (Warnock, 1985). But it is, in fact, a rather different principle: the Warnock recommendation was based on the idea of a sharp transition at a readily identifiable stage—gradualism is a more flexible concept. At this point, however, it is worth noticing that even the definition of an embryo has become a matter of controversy. For CNR or 'cloning' is a new procedure not envisaged by Warnock or by Parliament in 1990. The 'created'

embryos envisaged in the Act would have been created in the laboratory by the fusing of eggs and sperm. So-called 'bespoke' embryos would not be inseminated—they are not a fusion of male and female elements. This has led some to question whether the result of the process is indeed an embryo. Two very different answers are possible: *yes*, in the sense that it can become a human person; *no*, in the sense that an embryo was previously legally defined as a fertilized egg. The product of CNR, however, does not undergo fertilization.

In the light of these considerations, the Pro-Life Alliance brought a legal case challenging the UK Government's assumption that it was possible to ban human reproductive cloning while at the same time as permitting therapeutic cloning (*Quintavalle v Secretary of State for Health*, 2002). The assumption of the Pro-Life Alliance was that the new legislation would be rejected if, as they believed, it permitted human reproductive cloning, since this is almost universally regarded as ethically unacceptable. The Court of Appeal, however, ruled against the Pro-Life Alliance. On this matter, contrary to the views of the Pro-Life Alliance and given the proliferation of cloned animals, it would be difficult to say that these animals had arrived in the world without ever having been embryos. But if this is the case, it is our definition that must change, as we reconsider what is essential to our concept of the embryo. If so, serious consideration could be given to the proposal of one international group of researchers who suggest a new terminology in which the term pseudo-zygote is used for the product of somatic nuclear replacement and pseudo-embryo for the result of the division of the pseudo-zygote. 'Zygote' and 'embryo' would then be the terms used only where fertilization has been involved. They write: "The term zygote is after all a word derived to explain the syngamy of male and female gametes. If an embryo were defined as the product of division of such a zygote, it would not include the 'product' of somatic nuclear replacement" (Nielsen et al., 2001). These scientific considerations cast some doubt on the validity of the Court of Appeal judgment, which depended on arguing that fertilization and CNR are simply alternative ways of creating embryos and, hence, that the product of CNR could be considered to be covered by the 1990 Act.

However, it would be useful to pursue the ethical argument a little further here, setting aside for the moment questions of the status or definition of the embryo. For if we accept in other contexts, for example, in war, or in connection with abortion, euthanasia, or capital punishment, that killing human beings can sometimes be justified, then even an embryo granted full human status may be killed if the good to be achieved by doing so is sufficiently great. Rather than seeing this as just another version of the utilitarian argument that the end justifies the means, some have argued that there is a 'moral imperative of compassion', which renders it, after all, a position of principle rather than of expediency. Opponents ask, however, why the relief of suffering should have achieved this trump status? It is how we live that matters, they say, not how long we live. And an important aspect of the question regarding how we live is our willingness to stick to moral principles and respect human life. We do have a duty to be compassionate but, as Paul Ramsey once noted, we are not gods and cannot claim a responsibility to overcome all the ills in the world. Echoing

Ramsey, Gilbert Meilaender, a contemporary American commentator, imagines us replying to future sufferers from diseases that could have been helped by stem-cell research: "We could have helped you only by destroying in the present the sort of world in which both we and you want to live—a world in which justice is done now, not permanently mortgaged in service of future good" (Meilaender, 2001).

5.9 Isolating the Ethical Issues

So let us attempt to sum up the issues from an ethical point of view. The embryo's best claims to consideration are (i) its species membership, (ii) its developmental continuity, (iii) its potentiality, and (iv) its genetic individuality. But can we assign it full human rights? Or, as the question can also be put, is it the possessor of human dignity? The German debate has shown the confusion that has surrounded this question. Legal statutes, drawn up before the new possibilities were envisaged, ruled that any destructive research not in the interest of the embryo itself was criminal. On the other hand, the fact that a woman's rights may sometimes conflict with those of an embryo led lawmakers to decide that there could be no constitutional right to life for the embryo, and, for this reason, in 1993 embryos were specifically excluded from the 'dignity' protection afforded by full human status.

Philosophers ask a similar question, though whether it is indeed the same question is itself a matter for debate. They ask, is the embryo, even in its earliest stages, a person? The criteria for personhood, set out in connection with issues such as abortion and euthanasia, and also animal rights, include such factors as consciousness, sensation (ability to feel pain, to suffer), self-awareness, memory, and the ability to form future plans and projects. As far as any of these are concerned, the embryo is, of course, deficient, although some argue that despite its weak or modest claim, the embryo has some moral status and is due some moral respect.[11]

One practically useful way of sidestepping these questions and so neutralizing ethical censure has already been mentioned. This is the notion of the pre-embryo. So is there a difference between embryo and pre-embryo, which would mean that the latter has no particular need of special respect and treatment, while the post-14-day embryo should be accorded the status of a genetic individual? For the reasons given earlier, I believe that this distinction has some validity, as has, too, the question of the source and destiny of the gametes used. Nevertheless, the suggestion of a scale of consideration—not a slippery slope, but a gradual ascent to full human status, may well have more intuitive appeal for politicians and policy makers. A Dutch legal philosopher, Wibren van den Burg calls this the principle of "growing protectability" and, without making any metaphysical claims, it is possible to argue that respect should indeed increase with the advent of neural development at around the 14th day (Van Den Burgh, 1996). Rights

theory may well be too strong here, and indeed the right to life could in fact be weakened by bringing embryos into its scope.

For this reason, I believe we should accept the weaker notion of respect in preference to that of full human dignity. But this should not be construed as the outcome of a contest between full human beings and embryos, although some have presented it in these terms. For example, the German philosopher Reinhard Merkel proposes a thought-experiment—a laboratory fire in which one must choose between saving some embryos or saving a person—perhaps a newborn baby. He sees it as incontrovertible that one would choose the latter—I would not disagree on that—but Merkel uses this to justify a much larger moral claim: it is in general right to weigh the concerns of embryos against those of existing persons. I do not think one can go so far. No doubt most of us would also rescue the child if we had to choose between it and its 90-year-old grandfather suffering from Alzheimer's disease. But we would be wrong to go on to infer from this that the elderly infirm could rightly be used as raw material for medical experiments.

But if after all we do still owe the embryo respect, what does that involve? There is a case for accepting the argument that this does not necessarily exclude destroying or making use of it. For example, the traditional attitude of North American Indians toward the grizzly bear, which they both venerated and used, provides a real-life illustration of this theoretical possibility. A further example is provided by Japan, where people make shrines for aborted or miscarried fetuses, while another story, also emanating from Japan, is told of a group of scientists who held a memorial service for dead monkeys they had used in their research (observed and reported by the British researcher Pamela Asquith). The concept is also discussed in connection with embryos by Meyer and Nelson who write "we can reasonably combine genuine moral respect for extra-corporeal embryos with their intentional destruction" (Meyer and Nelson, 2001).

The ethical frontier might even be pushed further: could there be a moral case for accepting that something is wrong, acknowledging our guilt, but still going ahead regardless? There might be an analogy here with abortion, since it seems that some people believe that abortion is killing but is still pro-choice. There are also stark examples from wartime; soldiers have been known to have been sent to kill rather than to rescue a captured colleague to prevent him betraying vital secrets under torture. I believe in such a case a person might carry a burden of guilt, but nevertheless accept the necessity of the deed. These situations present more of a problem to nonutilitarians than to utilitarians, of course, since utilitarians will see a solution in straight quantification—they can relate the idea of a sliding scale to the amount of good to be achieved.

Nevertheless, these might seem like ethically desperate expedients—and difficult to sell to the general public. Instead, then, I would like to return to the question of the status of the embryo, and to shift attention from consideration of the embryo's origins to its potential future. And the one respect in which the embryo does meet the personhood requirements is that it can have a future—a 'personal narrative'—just like our own. When clinics lose or misplace

embryos, the subsequent outcry from would-be parents brings a deafening reminder of this. Bearing this in mind, let us return to the distinction between using surplus embryos and creating embryos for research, whether by combining male and female gametes in vitro or by CNR. Most comment seems to see the first as a less ethically problematic means of obtaining stem cells for research. But is it so? For this 'surplus' embryo has a graspable alternative future—it could have been the sibling of another, which actually exists and has a full human life, and the existing child provides an ongoing measure of what might have been. The laboratory-created embryo, on the other hand, never had such a potential destiny and has no relatives in the world, although an indefinite number of cloned siblings could, of course, be created. So, contrary to what appears to have emerged as a consensus, particularly in Europe, I would see the creation of embryos for research as more ethically justifiable than using embryos resulting from IVF, especially where the separate gametes have not been donated for reproductive purposes. This approach was briefly envisaged in a Nuffield Bioethics Committee Discussion paper, which explicitly drew attention to the possibility that "embryos could be created through in vitro fertilization (IVF) from donated gametes with the sole purpose of producing cell lines" (Nuffield Council on Bioethics, 2000). They queried the general point of whether the creation of embryos in the laboratory was too instrumental an approach and, clearly sensitive to this point, concluded that it would be better to use 'spare' embryos as long as these were in good supply. Nevertheless, they recommended keeping the matter under review rather than banning it.

So can stem-cell research be ethically defended? In favor of moving forward, we have seen appeals to freedom of enquiry and to the duty of medical science to relieve suffering. Against it, we have seen the fear of commodification of what is human and the danger of a trivialization of respect for human life. I have suggested here a possible solution in terms of accepting scientific work in the laboratory, which uses gametes that have no personal history and no potential future. But some—including scientists and technicians themselves—may find this unacceptable, and those who object should not, of course, be expected to involve themselves in such research. But the general principle, to which I believe these reflections lead, is that a separation should be maintained between the area of reproductive medicine and that of scientific or commercial development of stem-cell lines.

5.10 Future Directions

If we are looking for sign-posts to the future—and identifying some moral markers is surely the point and purpose of bioethics—it is as well to remember, when pursuing possibilities to their limits, that in fact medicine cannot actually achieve as much as most of us like to believe. The reduction in infant mortality rates is due more to public health measures than to medicine, and nature ensures

that useful life remains on the whole as long or as short as it always was. Much of the increase in life expectancy of those who survive infancy is consumed by the ills and problems of old age that have become a dominating social concern and absorb a disproportionate share of the ever-increasing sums of money spent on healthcare. At the same time, the circumstances in which life termination—abortion and euthanasia—may be legally or morally permitted have risen to the top of the ethical agenda.

The issue I have been concerned with here has been the contentious question of our treatment of embryonic life, particularly the uses we choose to make of embryos and embryonic material. I have argued that the standard utilitarian approach we adopt to human material at the beginning and end of life—the margins of life—could erode valuable reservations, in particular, the Kantian tradition of respect for persons and the notion of human rights that is part of the history of civilized communities. This is not a Luddite claim; I am not necessarily saying we should not go down this road. Indeed, I hope I have suggested a reasonable way to move forward in the matter of stem-cell research, while respecting moral scruples about the value of an individual human life. But I do say, we should not go down that road with eyes closed. Let us at least be aware of what we are doing.

I would conclude by saying, then, that bioethics will continue to be faced with challenging questions—some we have already encountered and others of which we, at present, have no conception. Sometimes, we may be confronted by quintessential ethical dilemmas in which it is impossible to be consistently and unambiguously right. In considering how to decide such issues, it is important not to narrow the range of persons who have moral responsibilities in determining the answers. Both bioethicists and lawmakers must look for guidance from the public, not only from scientific and business interests, and the public have a special duty, which the media should assist in a responsible way, to be well-informed in these complex matters.

Notes

1. For a detailed discussion of this issue by the present author, see Almond (2006a, pp. 171–187).
2. See, for example, Harris & Holm (1998, pp. 5–37).
3 See, for example, Scott (2005, pp. 65–82). However, for a counterview from a writer who himself represents disability interests, Scott cites Tom Shakespeare (1998, pp. 665–81). A number of relevant articles are to be found in Buchanan, Brock, Daniels & Wikler (2000).
4. See Pennings (1996, pp. 2339–2345).
5. Recognizing this problem, Susan M. Wolf, P. Kahn, and John E. Wagner propose the introduction of guidelines to protect the donor sibling against exploitation (2003). See also Gitter (2005). Gitter proposes as an additional safeguard that participating medical centers should maintain psychological and medical records of the effects of these procedures on the participants, making them available in anonymous form to legislators for subsequent consideration.
6. On this issue, see, for example, Paul (1998). See also Thom & Jennings (1996, Chapter 10, pp. 211–123).

7. These issues are comprehensively discussed in *Inside Information: balancing interests in the use of personal genetic data,* a report by the Human Genetics Commission, London.
8. For a comprehensive discussion of the ethical issues involved in neonatal genetic profiling by this author, see Almond (2006b). See also Human Genetics Commission (2005).
9. A report of this taking place at the Jones Institute for Reproductive Medicine, at the Eastern Virginia Medical School in Norfolk, Virginia, appeared in the London newspaper, *The Times*, July 12, 2001.
10. An early pioneering discussion of the status of the early embryo is Elizabeth Anscombe's *Were you a Zygote?* (1985). More recently, Derek Parfit has explored a number of related metaphysical issues in a wider discussion of personal identity (1984; 1987).
11. For a full argument to this effect, see Warren (1997).

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Chapter 6
Trading Lives or Changing Human Nature: The Strange Dilemma of Embryo-Based Regenerative Medicine

Glenn Mcgee

6.1 Introduction

It is, perhaps, the most important scientific advance in the past one hundred years, and its potential is not even close to realization. It is the most controversial technology imaginable, an improbable combination of the abortion, cloning, fetal tissue, transplantation, gene therapy, animal rights and regenerative medical technology debates, raising worries about women in research, sex, the regulation of in vitro fertilization (IVF) clinics, the danger of changing the human germ line, and the war against aging. Before it is developed, some of the most powerful politicians on earth will find themselves forced to modify deeply entrenched views, and a few dozen scientists will become billionaires through patents on bits and parts of embryos. More than 150 million Americans and perhaps another billion around the world may be treated with it before the decade comes to an end, yet almost no significant research involving human subjects has yet been performed with it. It commands the attention of the major newspapers, news media, and scientific and business press every day, yet not a single book has been written about it. It is the human embryonic stem (hES) cell, perhaps the most important innovation in the history of humanity's quest to understand its own origins, and key to dozens, perhaps hundreds, of advances in medicine. It is also the most controversial technology imaginable, viewed by many as a Faustian bargain involving the trade of innocent potential lives to extend other lives, and by many more as a necessary sacrifice of part of human procreative mystery in the interest of curing disease.

6.2 Milestones on the Road to Regenerative Cellular Biology Research

The work that led to the development of a conceptual identification of what are today referred to as stem cells and to the development of research programs around the world has early origins. In 1963, Bob Edwards, Robin Cole, and

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John Paul identified stem cells from cleaving embryos and blastocyst inner-cell masses (Cole, Edwards & Paul, 1966, pp. 385–407). Cell lines developed from cells isolated from inner-cell mass would not stop dividing and retaining their genetic characteristics, even after cryopreservation for several years. If blastocysts were cultured intact, Edwards and colleagues found that their inner cell mass formed colonies on trophectoderm and produced blood islands, nerves, muscle, connective tissue, phagocytes, and so forth. Richard Gardner, a student of Edwards', produced the first chimera following the transfer of a single stem cell into a recipient mouse blastocyst. It was then seen that stem cells colonized all tissues except trophectoderm. However, to gain full advantage of the potential therapeutic developments from the isolation of the stem cells, it was first necessary that significant research using human cells be undertaken. This was among the goals of Edwards, the pioneer of human IVF (Edwards & Steptoe, 1974, pp. 932–936). The work of Edwards in bringing to fertilization and implantation the first human embryo through IVF, later to be born as Louise Brown in 1978, was most significant in this regard (Steptoe & Edwards, 1978, p. 366). In clinical settings, the birth of the first "test-tube baby" was the precursor not only for the treatments of infertility, but also for preimplantation genetic diagnosis (PGD), and chromosome studies. More importantly, in laboratory settings, it provided the opportunity for embryo research as grounding for what is today stem-cell research (Edwards, 1996, pp. 199–211). At the same time, Peter Hollands, another of Edwards's student, used stem cells from mice to colonize lethally X-irradiated mouse recipients and showed how they migrated through liver to bone marrow, spleen, and perhaps elsewhere (Hollands, 1987, pp. 69–76). The stem cells colonized and became active within 3–6 days in recipients, saving mice from an earlier death and sustaining them through a complete lifespan. No cancers, inflammation, or damage occurred in recipients, and rat stem cells were as effective as mouse stem cells (Hollands, 1991, pp. 79–84). In the early 1980s, Edwards and his group attempted to move this work forward by trying to get human stem cells from few spare blastocysts, but these experiments were stopped due to ethical concerns rather than a failure to progress (Edwards, 1985, pp. 564–570).

In 1998, Drs. John Gearhart and James Thomson published the identification the pluripotent hES cell (Gearhart, 1998, pp. 1061–1062; Thomson, Iskovitz-Eldor, Shapiro, Waknitz, Swiergiel, Marshall & Jones, 1998, pp. 1145–1147). Long before any clinical demonstration that hES cells could have therapeutic efficacy in the treatment of human disease, many scientists, advocates for those with degenerative disease, and politicians spoke and wrote of "the profound potential" of stem cells for medicine (Wolpe & McGee, 2001). Those who object to abortion, fetal tissue research, and/or IVF on moral grounds have condemned embryonic stem-cell research and treatment in the strongest possible terms, advocating instead the use of stem cells derived either from adults or from blood obtained from the umbilical cord (Farley, 2001, pp. 113–119). The scientific facts that would make clear whether adult-or embryo-derived stem-cell therapy would be most efficacious are not yet in evidence, yet both pro- and anti-hES arguments in the clinical and bioethics

literature have focused on science. Thus, there is much confusion about how the scientific facts of the matter relate to underlying moral concerns. Both sides have sought middle ground, albeit largely without success.

From the point of view of consumers, activists, and patients, amazing and overblown claims that stem-cell research will lead to human regenerative medicine seem to have materialized from nowhere, a miraculous discovery with great potential (Okarma, 2001, pp. 3–14). Unlike contemporary genomics, which has become very much goal-directed and focused in character, the labs of stem-cell research have not one or two therapeutic goals, but in fact hundreds of possible research and clinical trajectories for their laboratories. Moreover, stem cells have long figured prominently in basic research in human and veterinary cell biology, in clinical trials of possible therapeutic techniques, and even in a number of successful therapies (Okarma, 2001, pp. 3–14). Basic research involving stem cells is most often focused on fundamental problems of developmental biology, for example, how it is that specialized cells come into being, and how groups of specializing cells come to participate in coordinated activities (Okarma, 2001, pp. 3–14). Basic stem-cell research thus focuses on the time in, manner through and extent to which somatic cells specialize during the development of an organism, and the role of stem cells in repopulation and repair of damaged or otherwise depleted cells in the mature organism.

6.3 Embryo Research as a Grounding for Stem Cells in Regeneration

For the purpose of this chapter, an embryo is the developing organism, understood to exist from the time of fertilization until the fetal stage. As described earlier, human embryos became broadly available for research purposes only following the development of IVF, developed in the 1970s by Patrick Steptoe and Robert Edwards primarily to treat infertility. In 1978, Steptoe and Edwards documented the first birth through IVF (Steptoe & Edwards, 1978, p. 366); 4 years later, they reported their intention to freeze spare embryos for possible clinical or laboratory use. Since that time, scientists and clinicians have made use of embryos for solely research-directed purposes. At one level, it has been noted that embryos are the centerpieces of basic anatomy and pathology research concerning the basic units of a process of development. This research is also demonstrably useful in improvement of the clinical efficacy of IVF, and for the investigation, at another level, of the diagnosis and treatment of hereditary and other diseases and injuries with the aid of PGD.

The roots of stem-cell research are to be found in understanding the chain of events and set of structures involved in processes of embryonic and fetal development. At the root of this interest is the question of how a human embryo transforms into a complex human being.

There are at least two kinds of hES cells; best classified are totipotent cells and pluripotent cells. The totipotent hES cells are found in the dividing fertilized egg. These cells have the unique ability to develop into any cell or tissue types found in the human body, for example, liver, cardiac, nerve, or blood cells, and in addition they have the capacity to form a complete organism. Pluripotent hES cells are found in the inner-cell mass of the blastocyst: at the stage of development in which the dividing cell mass forms the shape of an almost hollow ball. While pluripotent human hES cells can develop into many if not all cell and tissue types, it is not currently believed that they would have the ability, if implanted in the human uterus, to divide and mature into an organism. Pluripotent stem cells are the cells most often used in embryonic stem-cell research.

In order to obtain embryonic stem cells, the inner-cell mass of a blastocyst must be isolated from its outer shell, removing the embryo from what would have developed into the placenta. Moreover, the inner-cell mass is disassembled by taking out individual embryonic stem cells for research purposes. The embryos used for hES cell research usually come from embryos created through IVF but not utilized for that purpose. The euphemism "spare" or "left over" embryo has been coined by clinicians and used by politicians to describe this source of cells for hES research and therapy.

6.4 New Concepts of the Clinical Utility of Embryonic and Stem-Cell Research

Although it was not completely clear at the time of Edwards's, Gearhart's, and Thomson's publications exactly what would result from the identification and cultivation of pluripotent hES cells, it was immediately apparent that their findings had great importance both for basic and clinical research in humans and animals. First, a key discovery was the identification of a crucial point in the development of the human embryo at which the DNA in the nucleus of particular, undifferentiated cells no longer has the power to make another identical organism—the point at which totipotency is definitely not present. Second, and more important, these cells' nuclei can produce a wide range, and perhaps all, of the kinds of cells that populate a developing or mature human organism. Third, it is possible to derive these cells from the embryo, and to isolate them from other cells. Fourth, once derived, these isolated pluripotent hES cells can be cultured and frozen, transported and grown, fed, and measured in a variety of ways. Fifth, these cells can be induced to produce differentiated cells. These cells might then themselves produce more cells which might be transferred from culture into the bodies of patients to replace a wide variety of damaged cells, or to perform a range of other tasks, from inoculation to the destruction of cancerous tissues to the delivery of drugs.

Several well-publicized clinical trials involving the transplantation of fetal tissue into patients with degenerative diseases of the brain and nervous system, such as Parkinson's disease, have been conducted with essentially no success, despite successes using essentially the same modality in mouse and primate trials. While these trials did not specifically measure the activity of stem cells, they raised basic questions about the utility and toxicity of immature cells for transplantation. Clinical research that involves stem cells has included a wide variety of tests for the effectiveness of transplanted stem cells in repopulating certain needed cell types in patients with, for example, bone cancer and diseases of the immune system (Chapman, Frankel & Garfinkel, 1999). Techniques already in use include the harvesting of stem cells from umbilical cord blood, and the transplantation of stem cells for the treatment of leukemia.

Enthusiasm about embryonic stem-cell research quickly led to a larger discussion of the future of the work, and the implications of stem cells for broader debates about how to allocate healthcare resources, how to proceed with caution in new areas of clinical research, and how to regulate research involving embryos, fetuses, or abortion. Wide calls for governmental investment in stem-cell research were entertained both as part of the 2000 presidential campaign in the United States and as part of governmental hearings the world over. It was noted in the US and elsewhere that like mammalian cloning research, researchers whose work was funded by small companies rather than national or regional governments were making most innovation in stem-cell research. Arguments for government funding of stem-cell research were almost always linked to the claim that the government funding would enable regulation, and if necessary restriction, on stem-cell research. This argument received the endorsement of many ethics advisory boards, including, for example, the U.S. National Bioethics Advisory Board (NBAC), an arguably partisan board of ethicists appointed by President Clinton (NBAC, 1999). What did not emerge immediately was the question of how patents filed in association with Gearhart, Thomson, and others might make it difficult for the government to exercise as much regulatory authority on groups like the NBAC, AAAS, and others that sought research leadership.

6.5 Ethical Issues in Regenerative Stem-Cell Research and Therapeutics

While the subject of research on embryos presents a variety of ethical and legal issues, the central issue in the western debate has long been the moral status of the embryo. The debate over the moral status of the embryo is not unique to 20th and 21st century scholarship in science and bioethics. On the contrary, this controversy originates and is deeply rooted in different religious and philosophical views. In the western philosophical tradition, the debate over the status of the embryo can be traced to Aristotle, who wrote of the ensoulment of the human at a particular stage, as did the pre-Socratic philosopher Heraclitus

before him. Religious views of conception have been extensively debated in Judeo-Christian and Muslim scholarship dating to the earliest religious texts in those traditions. The contemporary question of the moral status of the embryo emerged during the US controversy over the legality of abortion in the 1960s–1980s, and continues to be an issue in the discussion of the use of most reproductive technologies today. Views on the moral status of the human embryo normally take one of the following three forms:

(1) The human embryo has no intrinsic moral status; it derives its value from others.
(2) The human embryo has intrinsic moral status, independent of how others value it.
(3) Embryos begin with little or no moral status and continue to achieve more and more status as they develop.

The position that an embryo has no moral status can be argued in several different manners. Because the fetus fully depends on the pregnant woman for development, many ethicists believe that it cannot be viewed as a unique entity. Instead, several ethicists, most famously M.I.T. philosopher Judith Jarvis Thomson, argue that the best metaphor to describe the status of the fetus is that of parasite (whether desirable or not), possessing no moral status independent of the mother. Those who hold this position do not object to embryo or fetal research on the grounds of the moral status of the fetus, and would refer, for example, to fetal surgery (whether conducted ex utero or in utero) as a procedure, strictly speaking, on the mother. The concerns expressed by those who hold this position about embryo research are focused on the long-term social implications of embryo research for the status of born persons, particularly those with disabilities. However, it is not held that the destruction of an embryo is inherently morally problematic.

The position that the fetus has intrinsic moral status is grounded in the view that a person is created at a moment in time that can be linked both to the consummation of an act by those who participate in its creation, and to the physical and legal initiation of that person's participation in the human community. The metaphor most often used to describe the status of the fetus for these purposes is that of baby; the ever-increasing presence of the fetus in public and private life has contributed to the view that from the moment of conception a person can be identified, independent of the risks that face a person so defined, and regardless of the plain differences between such a person (e.g., in the case of a frozen embryo) and a person who participates as a baby, child, or adult in the institutional life of the community. Given this view of conception and the embryo, the use of an embryo for research purposes is exactly tantamount to the use of any other vulnerable subject in research without consent—research that poses not only a great risk but in many cases has the clearly anticipatable outcome of death for the subject.

A variety of philosophers and scientists have argued for a developmental model of the moral and legal status of the human embryo and fetus, beginning

with the claim that clinical changes in the embryo and fetus have moral significance because they represent, if not ensoulment, the development of concomitant ability of the being to participate in the human community. One way in which this position has been expressed is in the Roe decision, which held that pregnancy can be divided into three periods, corresponding to the degree to which the embryo has developed, and the opinion issued in that case by the Supreme Court to the effect that these periods represent the increasing standing of the emerging human person in the human community. Contemporary neonatal technology has made it possible to construct a clinical definition of viability, a time at which the developing fetus would be able to survive outside the womb. Important, though, is the fact that not only does the fetus change over the course of pregnancy, the technologies of neonatal care evolve as well, so that in the course of 5 years the moral status of a 22-week fetus would change with the state of the technology, rather than remain fixed at some natural point in development. Those who hold that the development and viability of an embryo is morally relevant to research on embryos, fetuses, and stem cells must face an interesting array of problems: how can values (e.g., the rights of the embryo) be derived from facts? What moral status is conveyed to a laboratory creation, for example, an embryo-like creature made from parts taken from several different species? What if any moral standing does the specialized cell in an adult have if it can be demonstrated that all that is required to turn that adult cell into a cloned embryo is a jolt of electricity or bath of enzyme? This position, held (polls show) by the majority of registered voters in the US and UK, is in many ways the most complex in virtue of its attempt to be responsive to changing science.

6.6 Law and Embryo Research in Curative or Regenerative Projects

The moral issues surrounding embryo research leave the status of the embryo highly contested. The difficulty for the law is that when dealing with this terrain, fraught with confusion and presented to the courts in the form of a particular case—and often in a context where little expertise is available or admissible on the subjects of the science and ethics of the matters at hand. Moreover, in courts, as opposed to the institutions of religion and philosophy, some consensus must be reached in order for the institution to complete its appointed task in each case. Even when the Supreme Court in the US passes over a case on abortion, it has taken an action that is both important for the purposes of allowing others to determine where the law stands, and for the purpose of the completion of the judicial task. This is inherently problematic for a number of reasons: not only does relatively little agreement exist between scientists, ethicists, lawyers, lawmakers, and religious leaders in regard to the status of the embryo, but it is also unclear what path embryo research should take from the perspective of the "experts about

the matter" because in a legislative, judicial, and economic leadership vacuum, it is difficult to determine who the experts are.

The lack of consensus about the status of the embryo and the morality of research has resulted in what might be somewhat contradictory and unclear legal definitions in the US at the state and federal level. Since it is extremely difficult to define the status of the embryo and the question still remains hotly contested, most of the legislation tries to steer away from making a definitive statement that would outrage either side of the debate. The legality of embryo research varies too from country to country.

Experimentation on the embryo for the purposes of developing stem cell and other technologies, and for general knowledge, is legal in the UK and three Australian states under certain circumstances. In Germany, embryo research is banned completely. In the US, debates over the legality of embryo research tend to pivot on prior state court holdings, federal agency rules and directives, or state laws on the status of the embryo.

Even though the courts have already attempted to resolve the debate over the status of the embryo, they must also undertake a new set of questions. For example, should experimentation be allowed at all? If so, under what circumstances should it be prohibited? For the majority of US residents, polls show that some experimentation is desirable, so the question the courts face in the political arena is how to draw the line between acceptable and unacceptable experimentation.

6.7 Law and the Status of the Embryo

Historically and under common law, the fetus has not been legally protected until after complete separation from the mother's body. This view holds that because the fetus is not independent in utero, it cannot possess individual rights. Consequently, any harm caused to the fetus in utero has not been legally protected. Recent decisions criminalizing the termination of pregnancy or even activities that might result in eventual harm to a potential future person under certain circumstances have altered the tradition of common law concerning the fetus and embryo, as have lawsuits concerning wrongful birth. Mother and child are now able to make a tort claim for malpractice that takes the form of medical negligence if predictable harm to the embryo in utero has had a negative effect on the newborn child.

For purposes of defining the status of the embryo, courts have also relied upon the personhood test: when, and under what circumstances, and given what kind of creature is an embryo considered an embryo, and when is it considered a person for the purpose of legal protection? In *Roe v. Wade* (1973), the US Supreme Court denied that the unborn be considered persons under the 14th Amendment. However, they failed to set forth a clear definition of personhood or explain why they denied the unborn such status. Consequently, there has still been much

debate concerning the legal status of embryos, even given the aforementioned court interest in recognizing three periods of pregnancy and the clinical and legal significance of the third period or trimester for assigning increasing interests (if not rights) to the fetus.

Because *Roe v. Wade* did not clearly define personhood, the Court had to use other means to construct a definition of an embryo. This task, as most involving embryo experimentation, was and remains highly problematic. It is a task that has been taken up in many nations and states, and one contingent on whether fertilization should be assumed to confer individuality and, if so, if fertilization is an event or a process. It is as a result of debate on this matter that the courts and their advisory bodies, and legislation, have come to focus on the metaphysical question of identity, and whether or not personhood or individual identity ought to play a part in determining at what point an embryo is too mature (and thus possessed of moral standing) to be subjected to involuntary (thus, any) testing.

The Warnock Committee published a report in 1984 stating that destructive embryo research should only be permitted up to 14 days into development. The 14-day limit was based on the following argument:

(1) Twinning can occur up until 14 days of development, and if twinning is still possible, then an embryo cannot be considered an individual,
(2) Only individuals can have moral status, and
(3) Beings without moral status have no right to be free from destruction and thus can be experimented on.

The 14-day rule rests on the assumption that being an individual confers moral status on a being, and provides its own definition as to when this individuation occurs. But other standards have also been proposed. One is the constantly evolving notion of viability: perhaps the viable fetus has moral standing, while the fetus that cannot survive outside the womb does not. Another is the standard of birth or even of informed consent with parental surrogacy, which would either rule in or rule out embryo and fetal research depending on one's (or one court's) view of the importance of informed consent or the nature of surrogacy for a fetus. This question has been raised in fetal surgery. Still another is the assertion that at conception or fertilization, there is a person in place, but here the question remains at what moment the actual fertilization or conception takes place, and under what circumstances one could perform any clinical or research procedures on a conceptus, and by whose authority.

6.8 Foundations of Ethical Debate in Stem-Cell Research and Therapy

It has been maintained that not only does one's position on the ethics of stem-cell research depend on the question of when conception occurs and what bearing each developmental milestone has on the moral standing of a fetus, but also on

the underlying view one holds about values and ethics: one's ethics will determine the horizon of the moral inquiry; one's view about whether a moral matter tends to involve personal choices by involved actors who are rational, or is instead a broader and more social dialog leading to either a social contract or the creation of social institutions, will bear on whether one is willing or capable of engaging in deliberative democratic discourse on this complex set of questions. There are several theoretical questions in ethics that are of this variety.

6.8.1 Theory of Rights

It is claimed by some that because the embryo has no interest in living, it does not possess any right to live. This argument rests on the assumption that killing is wrong because it deprives a person with an interest in life of his/her necessary interest in life. If an embryo is neither conscious of life nor cares for the duration of its own, it has no intrinsic moral status under the theory of rights articulated by Robert Nozick and others. It has neither a positive right to be thawed out from a nitrogen tank and given a womb, nor a negative right against being demolished while proceeding through development ensconced in the womb. The emphasis is on liberty interests attached to the idea that a person is rational and capable of articulating interests, an emphasis with a number of weaknesses and strengths when elevated to a legal and moral argument.

6.8.2 Consequentialist Theory

For the consequentialist, an action's moral status is determined by the ends it serves and good ends justify the means necessary to achieve those ends. Embryos can be experimented on or even destroyed, consequentialists have argued, because the ends of embryo research outweigh whatever damage is done to embryos-including the destruction of embryos-as long as it is clear that the embryo's suffering or death is not more morally undesirable (to itself or to others, understood in a variety of ways) than is the suffering of the patient or community or family affected by a treatable or potentially treatable disease under investigation, which uses stem cells that require the destruction of embryos.

6.8.3 Religious Views

A number of religions express views about abortion and indeed about reproduction and research have been debated in intradenominational and social forums. It is important to take note of one view that held by the Vatican since 1859, because that view is in play in the political debate more than any other in the West. This is the view that the embryo obtains moral status at a moment of

fertilization. Recently the Vatican has gone so far as to link fertilization and moral standing to genes: with a unique genetic makeup, an embryo is given a soul. Because twinning can occur up until the 14th day of development and two zygotes can fuse, a theory of individual ensoulment predicated on genes and fertilization faces scientific hurdles no less than other views.

6.9 The Derivation Dilemma

Whatever its religious or scientific underpinnings, the ethical debate surrounding hES cells has recently centered on how the hES cells are derived and on whether or not they should be protected from destruction, much like an adult is. Using leftover IVF embryos for the purposes of hES cell research raises complex questions about the status of the embryo, the value of human life, and whether there should be set limits regarding the interventions into human cells and tissues. Furthermore, questions about adequate informed consent, oversight, and regulation also come prominently into play.

Those who support hES cell research argue that an embryonic stem cell, even though it is derived from an embryo, is not itself an embryo and thereby would never continue to develop into a fetus, child, and adult. Each stem cell is only a cell that can be triggered to become a specific kind of tissue yet could not be triggered to become an individual. Furthermore, the embryo at the blastocyst stage has not developed any kind of nervous tissue and thus extracting individual stem cells would not be painful for the embryo. Since the embryos used for stem-cell research come mostly from the leftover IVF embryos, which would otherwise be discarded, the proponents of stem-cell research argue that it is better to use such embryos to find cures for debilitating diseases rather than to discard them, benefiting no one.

It is also argued by proponents that many of the embryos used to make hES cells are not embryos at all but instead something else, either "pre-embryos" or merely partially human cells. In many cases, no conception occurs in the creation of these cells, for example, in the case of nuclear transfer to make a genetically identical embryo-like human that grows to blastocyst but might not be able to survive implantation in a womb. What is an embryo, and what does it mean to make something that behaves like an embryo but could not come to term in a womb?

One attempt to resolve the debate over stem-cell research involved the suggestion that researchers might obtain stem cells from embryos without actually engaging in the destruction of those embryos (McDonald, Liu, Qu, Liu, Mickey, Turetsky & Gott, 1999, pp. 1410–1412). It was also suggested that totipotent cells might be removed from four or eight cell preimplantation embryos destined for IVF (without destroying the embryo, a technology performed with some frequency in contemporary reproductive therapeutic settings for the purposes of PGD) (NBAC, 1999). This was originally proposed by the

US National Institutes of Health under the Clinton administration, and was in substance taken up by President George Bush. He suggested that although it is immoral to destroy embryos, some hES cells have already been derived from embryos that have already been destroyed and the matter of the availability of those cells can be considered distinct from the matter of creating new cells through the destruction of additional embryos. He thus decreed that only stem cells derived from embryos destroyed prior to his speech would be made available for federal funding. As the President framed his compromise, "only those cells for which the life or death decision has already been made" would be eligible for use (Bush, 2001). He noted that 66 stem cell lines have already been obtained from embryos, "more than enough" to allow that research to proceed.

Predictably, a number of concerns were raised about the President's rationale and his policy. However, the overriding question was whether enough embryonic stem cells in fact exist. The issue of the suitability and scarcity of hES cell lines already derived at the time of Mr. Bush's speech in turn called attention to the fact that many hES cell lines are subject to US and international patents, and that many of the innovations necessary to derive, culture, differentiate, or otherwise manipulate stem cells are also subject to patents (Friend, 2001). However, should stem cells, embryos, embryo-like organisms, or the cells derived from them be eligible for consideration as intellectual property, whether through patents or other protections of law? Did President Bush compromise the principle that life begins at conception, making a political attempt at consensus, or did he merely address the political reality of overwhelming support for the research set against an incredibly vocal minority opposition that constitute the bulk of the conservative party?

Another central problem is the permissibility of making embryos specifically for research purposes. There are two different types of embryos used: those classified as "spare" embryos that are left over from unsuccessful IVF and those cultivated specifically for purposes of being tested. Some people have ethical concerns about both of these methods; however, those who support research are more likely to question the ethical nature of the second of these two alternatives.

The argument that it is acceptable to use spare embryos but not to create embryos specifically for that purpose centers on Kant's categorical imperative, specifically the formulation of the imperative that centers on the claim that the ultimate moral wrong is to treat someone as a means to some other end, rather than as an end in him- or herself. Those who do not support the use of embryos for the sole purpose of enhancing research argue that it is morally unacceptable to use embryos for scientific purposes on the grounds that this is a clear use of a person as a means. Some of these same arguments can apply to the use of embryos under any circumstances. In the case of spare embryos, by contrast, many are too old or morphologically inappropriate to be implanted, and thus have no other use; it is thus argued that the use of these for research is not nearly as questionable. Moreover, opponents claim that if the cultivation of spare embryos is legalized, scientists will act on the incentive to produce as many embryos as one could produce. Even many of those who do not oppose the

creation of embryos for research on Kantian grounds have voiced concern that creating embryos merely for research might cheapen the act of creation.

6.10 Clinical Implications for the Physicians who may Use Stem Cells in Research and Treatment

Whatever the form of embryonic stem cells to be utilized in research, the involvement of clinical assisted reproductive technologies (ART), embryologists, technicians, and clinicians is omnipresent. The processes whereby embryos are created (whether from donor eggs and/or sperm intended for research purposes, or as a byproduct of reproductive healthcare), analyzed, stored, removed from nitrogen freezing, or destroyed are all processes that require, as a matter of course, the technologies, clinical expertise, patient population, and institutions of ART. It is thus no surprise that the largest research programs to date in the field have employed obstetricians, andrologists, reproductive endocrinologists, and even ART psychologists and social workers. Ethical issues related to participation in stem-cell research include three key problems. First is the question of whether and under what circumstances patients or research subjects should be allowed to participate in the donation of reproductive materials for stem-cell research, particularly where that research involves the creation of embryos for research purposes. Second is the question of whether reproductive clinicians and technologists should be involved in the nonreproductive use of cloning technologies for the creation of nuclear transfer derived stem cells. Third is whether and when clinicians involved in the derivation of embryonic stem cells should be held responsible for the failure of those cells in clinical trials or therapies using those cells. On none of these issues is there professional consensus at this point, although all three issues will receive the attention of the ethics boards of professional societies such as the American Society for Reproductive Medicine in the US, and of bioethics scholars such as those gathered for this conference and others in China, Japan, and other parts of the Asian continent and subcontinents in particular.

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Chapter 7
Therapeutic Cloning, Respect for Human Embryo, and Symbolic Value

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The field of regenerative medicine is fraught with moral controversy. This paper explores only one cluster of the disputes it provokes: the ethics of therapeutic cloning in the context of human embryonic stem (ES) cells research, that is, the ethics of the application of the technology of somatic cell nuclear transfer (SCNT) to produce human embryonic stem (ES) cells for research or therapy.[1] The technique involves creating human embryos, which can serve as sources of human ES cells. In the process of deriving the human ES cells, the cloned human embryo, that is, the enucleated human egg transplanted with a somatic cell nucleus, will be destroyed at the blastocyst stage. That is the main source of the controversy of the application of the technology.[2] The application of the cloning technology, being controversial, however, has significant implications for clinical applications and medical researches. First, human ES cells produced from unfertilized egg cells transplanted with a nucleus from a human somatic cell may be able to serve as a renewable source of cells for tissue implantation, cell replacement, and gene therapy since they are capable of self-renewal and differentiation into any other type of cell in the human body. This is a good news for thousands of patients who suffer from diabetes, neurodegenerative disorders, heart diseases, and other illnesses.[3] Second, human ES cells can be used for research purposes that include in vitro studies of normal human embryogenesis, abnormal development, human gene discovery, and drug and teratogen testing. It is precisely these advantages that prompt scientists such as Ian Wilmut to endorse using the cloning technology for therapeutic and biomedical research purposes (Wilmut, 1998).[4]

As stated above, therapeutic cloning involves the destruction of cloned human embryos. Whether using the technology is morally permissible depends at least in part on what moral status the cloned human organisms have. There can be three responses to the question about the moral status of the cloned human embryo. They are what I call the no-moral-status view, the equal-moral-status view, and

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the middle view. It should be noted, however, that it is not the purpose of this paper to discuss which of these views stands or falls. Rather, the paper aims to discuss some major arguments that are frequently used to support the middle view. The paper argues that none of these arguments stand. In what follows, I shall give a brief description of the three views concerning the moral status of cloned human embryos so as to set the stage for our discussion. This paper recognizes that there may be other grounds advanced for prohibiting therapeutic cloning and the destruction of human embryos, including those grounded in divine command accounts of morality (Engelhardt, 2000, Chapter 7).

Let us turn to the no-moral-status view first. The no-moral-status view is that the human organism produced by therapeutic cloning does not have moral status at all. One argument for this view is that the organism does not have the moral status of a human individual or even that of an ordinary human embryo because it does not result from the normal egg–sperm fertilization process. Let us call this argument 'normal fertilization process argument (or NFP argument in short)'. J-E S. Hansen, for instance, puts forward a version of the NFP argument to argue for the moral permissibility of using the therapeutic cloning technology.[5] According to Hansen, there are significant biological differences between an enucleated human egg transplanted with a somatic cell nucleus, that is, a transnuclear egg cell, and a fertilized egg. And it is these differences that lead Hansen to conclude: "It may therefore be questionable whether the biological in vitro entity resulting from therapeutic cloning should be considered a human embryo or pre-embryo at all. Rather it seems to be a modified egg cell that might be turned into an embryo through further artificial procedures" (Hansen, 2002, p. 87).

If the cloned human organism is not a human embryo or pre-embryo, then Hansen states: "Production of embryonic stem cells from transnuclear unfertilized egg cells seems to entail even fewer ethical problems than harvest of stem cells from fertilized eggs in surplus from fertility treatment" (Hansen, 2002, p. 88).

Whether the NFP argument can support the no-moral-status view or not falls outside the scope of this paper. I just want to point out that to treat cloned human embryos as human organisms that have a lower status than that of an ordinary human embryo resulting from the fusion of a sperm cell and an egg cell is a move that seems to be quite arbitrary. It is because both the cloned human embryo and the ordinary human embryo have the same set of intrinsic properties. They have similar biological structure and are governed by the same set of biological laws. Under favorable conditions, whether natural or artificial, they both are capable of developing into an individual similar to any one of us. There are, of course, dissimilarities between the two. For instance, to quote Hansen, "The genetic complement of the fertilized egg is a unique result of a fusion of a sperm cell and an egg cell . . ..This is not the case with an enucleated egg cell that has been transplanted with the nuclear material from a somatic cell. Neither is the genetic content unique, for it is identical with the nuclear donor" (Hansen, 2002, p. 86). But the question is why the genetic uniqueness of the fertilized egg is so important and why lacking that property is a reason for conferring a lower

moral status to the cloned human embryo. And a more important question is why other properties such as the property of being capable of developing into a human individual are pushed aside in considering the moral status of the cloned entity. In view of these queries, it seems to be a more coherent strategy to treat the cloned human embryo and the ordinary human embryo on par and deny both of them moral status. This position can find its support from what Bonnie Steinbock called 'the person view.' According to Steinbock:

> The person view is that moral status is not a matter of species membership, but rather of psychological features, such as ability to think or feel or experience. Human embryos, on this view, are not persons, or even close to persons. . .Early embryos cannot feel or experience anything, much less think or want anything. Nothing you do to an embryo, including killing it, can harm it or set back its interests because embryos do not have any interests. In this respect, embryos are more like gametes than developed fetuses or born babies, and they may be used in research as long as their progenitors give informed consent (Steinbock, 2000, pp. 182–3).

The second response to the question about the moral status of the cloned human embryo is that the cloned human embryo has a moral status, which is not only the same as that of an ordinary human embryo, but also the same as that of a human individual. Let us call this 'the equal-moral-status view.' This is the view held by people such as Peter Garret, research director of *Life*, an anti-abortion group in Britain, or Lord Alton, a prominent pro-life campaigner in Britain. For instance, in a BBC interview, Garret argued that therapeutic cloning is simply a form of technological cannibalism. He states "that 'therapeutic cloning' is a form of technological cannibalism. These tiny embryonic copies of an individual sick patient are to be plundered for their valuable embryonic stem cells then jettisoned once the parts required for the treatment of the patient have been removed. That is clearly violating the traditional ethical principles that we should not use others as a means to an end" (BBC report of 6 April, 2000).

The moral reasoning behind such an emotional language used by Garret is that cloning a human embryo to harvest stem cells would be equivalent to creating an individual to plunder the individual of his or her body parts. This line of reasoning presupposes the equal-moral-status view. Without this presupposition, one should have no qualm about using the 'tiny embryonic copies' of an individual sick patient as merely a means to an end.[6] According to Steinbock, the equal-moral-status view can find its support from what she called 'the species or genetic humanity view' which holds that "human embryos are human beings, just like you and me. They have all rights of any human being, including a right to life and the general Kantian right not to be used as a 'mere means'" (Steinbock, 2001, p. 21). On Steinbock's view, "this assumes, however, that it is genetic humanity or species membership that has moral significance" (Steinbock, 2001, pp. 22–3). In other word, the core tenet of the species or genetic humanity view is the assumption that moral status depends on genetic humanity or species membership.

The third response attempts to find the middle way between the no-moral-status view and the equal-moral-status view to approach to the question about the moral status of the cloned human embryo. This is the view that "while human embryos do not have moral status, or full moral status, or human moral status, they are a form of human life and, as such, deserving of respect" (Steinbock, 2000, p. 183). Let us call this 'the middle view.' According to Steinbock, the middle view is consistent with the person view that only personhood confers moral status or the interest view, a variation of the person view, that only beings that have psychological properties such as ability to think or feel or experience have interests. However, from the person view or the interest view, Steinbock argues, it does not follow that it is morally permissible to do anything we like to embryos. On the contrary, we should demonstrate respect for embryos.[7] But if embryos are not persons, why one needs to display respect for them? Steinbock gives the following reply: "The significance and importance of embryos is, in my view, symbolic. They are owed respect because they are 'potent symbols of human life.' In this respect, embryos are like dead bodies, which also do not have interests" (Steinbock, 2000, p. 185).

However, it is not clear what it is meant by calling a value 'symbolic' or calling embryos 'potent symbols of human life.' If 'potent symbols of human life' means no more than an embryo's potential to become a person, then I shall argue later in this chapter that this potential provides no moral basis for according the embryo the respect in question. But if saying that an entity has a 'symbolic value' means no more than assigning a certain moral value to the entity, then in the case of embryos we need to ask where this value comes from. Without making clear the source of such a value, to accord a 'symbolic value' to embryos is simply an arbitrary assignment of value to the entities in question.[8]

Steinbock has argued that respect for embryos is in some way analogous to our respect for corpses as follows:

> We show respect for dead bodies by burying them in accordance with certain social or religious tradition, instead, say, of putting them out with the trash. . .Similarly, we show respect for human embryos by not using them in unimportant or frivolous ways, say, to teach high school biology or to make cosmetics or jewelry. However, respect for embryos does not require refraining from research likely to have significant benefits, such as treating disease and prolonging life (Steinbock, 2000, p. 185).

Thus, Steinbock might be able to explain the symbolic value of human embryos by assimilating the value in question to that of the dead bodies. However, this strategy also has difficulties. Allowing embryos to be destructed for treating other individuals' diseases or prolonging other individuals' lives makes Steinbock's notion of respect for embryos a strange kind.[9] This strangeness aside, it is just begging the question to place respect for embryos and respect for dead bodies under the same moral category. If 'respect for dead bodies' is to be understood literally, that is, meaning that the respect is displayed for the dead bodies' sake, then the notion is not an intelligible kind, because it does not matter to the dead bodies whether we respect them or not just as it does

not matter to the trees or rocks whether we respect them or not. Indeed, 'respect for dead bodies' is just a convenient way of expressing the idea that the dead bodies are the bodies of persons who once existed and now ceased to exist, and burying them in accordance with certain social or religious tradition, instead, of putting them out with the trash is to show our respect for these persons who once existed. In other words, it is in these persons' interest that we show our respect for their bodies. By contrast, given the interest view, which Steinbock accepts, respecting the embryos would not be in the interest of any human individual.

Another argument that Steinbock used to explain the 'symbolic value' of human embryos is that human embryos are potential human beings:

> Respect for persons means, as Kant instruct us, never treating persons as mere means to our ends, but always treating them as ends in themselves. This obscure phrase means that we must take seriously the ends, the projects, the goals – that other people have (at least if there're morally permissible ends). Now we cannot do this with embryos since they do not have ends of their own. . .embryos cannot be given the respect that is due to persons. At the same time, embryos are not just things, but potential human beings. This potential gives them a significance and importance that does not belong to other cells of the body, imposes restrictions on what it is permissible to do to embryos (Steinbock, 2000, pp. 184–5).

To appeal to the embryo's potential to become a human being seems to create more puzzles. For one might ask: if this potential gives embryos a significance and importance that does not belong to other cells of the body, why cannot we argue from this same potential that it is wrong to destroy human embryos? Indeed, this is exactly the strategy that Don Marquis used to argue against abortion. Marquis argues that abortion is wrong because killing a nonsentient fetus deprives it of its life and, therefore, its valuable future. In other words, abortion is wrong because it thwarts the fetus's potential to become a human being who will have a valuable and joyful life (Marquis, 1989). Although the target of Marquis's argument is the killing of fetuses, the same line of argument can be used to argue against destroying embryos. Let us call this 'the potential argument.'

One way to respond to the potential argument is to draw a distinction between two types of potential, namely, identity-preserving potential and non-identity potential (McMahan, 2002, p. 304) and, then, argue that embryos do not have the type of potential that the potential argument presupposes, that is, the identity-preserving potential. This is exactly the strategy that Steinbock, when responding to the challenge of the potential argument, used to defend the interest view, which implies that embryos and fetuses do not have interest. In responding to the charge that the fetus may have interest because it will go on to have a valuable future and that future is in its interest, Steinbock makes the following rejoinder: The claim that the fetus may have a valuable future and that future is in its interest presupposes that the valuable future in question belongs to the fetus. However, whether the future in question is its future is not obvious. It depends on the theory of identity that one accepts (Steinbock, 2001,

p. 25). Steinbock's point is that in order for the fetus to have a valuable future, the identity thesis that the fetus and the future individual that the fetus develops into are one and the same individual must be true. But whether the identity thesis is true or not depends on the theory of identity that one accepts. Although what Steinbock talks about is fetuses, everything she says in the above applies to embryos too. Thus, on Steinbock's view, if an embryo is to have a valuable future, the identity thesis that the embryo and the future individual that the embryo develops into are one and the same individual must be true. Now let us continue Steinbock's argument. On one plausible theory of identity, Steinbock argues, the identity thesis that the embryo and the future individual that the embryo develops into are one and the same individual is not true. According to that theory, personal identity requires some degree of psychological continuity. A certain set of past experiences is what makes an individual the person she is and the experiences that she has, her experiences. Since an embryo does not have any psychological feature at all, it cannot be identical with any human individual. That being the case, an embryo does not have a personal future. The valuable future is someone else's future and not the embryo's future. However, this is not to deny that the embryo has the potential to become a human individual. Indeed, Steinbock's reply to the charge from the potential argument implies that the embryo has the potential to become a human individual. What Steinbock denies is that the potential that the embryo has is identity-preserving.

Now it is clear that when Steinbock says that human embryos are potential human beings and, therefore, deserving of respect, the potential that Steinbock refers to is nonidentity potential. And this nonidentity potential would not make it wrong to destroy the embryos for the purpose of medicine or research. This rejoinder, while avoiding the charge from the potential argument, however, has some other difficulties. For instance, if the nonidentity potential is the basis of according embryos a certain respect, why cannot we argue from this same potential that sperms and eggs are also deserving of respect since sperms and eggs also have the nonidentity potential to become human individuals? Before turning to these difficulties, I want to make the notion of 'identity-preserving potential' and 'nonidentity potential' more explicit by defining them as follows so as to facilitate our discussion:

(D1) X has the identity-preserving potential to become Y if and only if the following conditions are satisfied: (1) there exist some causal relations between X and Y such that X would develop into Y; and (2) X and Y would be one and the same individual.

(D2) X has the nonidentity potential to become Y if and only if the following conditions are satisfied: (1) there exist some causal relations between X and Y such that X would develop into Y; and (2) X and Y would not be one and the same individual.

According to (D1), X has the identity-preserving potential to become Y only if X will continue to exist as Y. Thus, Prince Charles has the identity-preserving potential to become the King of England, since he would continue to exist as the

king. If he realizes that potential, he and the king will be one and the same person. By contrast, the gametes about to fuse do not have the identity-preserving potential to become a zygote, because the gametes and the zygote will not be one and the same entity. Once the zygote is formed, the gametes cease to exist. Nevertheless, the gametes about to fuse have the nonidentity potential to become a zygote. It is because although the gametes do not continue to exist as the zygote, the zygote originates from the gametes. Now if the nonidentity potential to become a human individual is a ground for saying that an entity with that potential is deserving of respect, then the same potential should also be the ground for according the gametes the same respect. One might even argue that in view of the potential use of SCNT technology, every cell in the human body has the nonidentity potential to become a person and, therefore, is deserving of respect. Even Steinbock herself would not accept that gametes and cells in human body deserve the same respect as that which the embryos are said to be deserving of. This is, then, the *reductio ad absurdum* to Steinbock's view that human embryos are deserving of respect because they are potential beings.

Having criticized Steinbock's arguments, I do not suggest that cloned human embryos have no intrinsic value, or that only human persons have intrinsic value. Indeed, I agree with Ronald Dworkin's view that great paintings, wilderness areas, human cultures, languages, some species, traditional crafts, and human life itself all have intrinsic value (Dworkin, 1993, pp. 71–84). In developing a sound bioethics, it is a sensible strategy to accord embryos, fetuses, or babies some sort of moral significance and importance. The problem is to find a reasonably justifiable basis for according those entities the moral significance and importance in question. In the case of embryos, there are two different ways to find out such a basis. One strategy is to pick out some property of an embryo, such as its potential to become a person, and take that as the basis for its moral significance and importance, just like the interest theory ethicists take the capacity of having interest as the basis for the moral status of persons. However, if that potential is understood as nonidentity potential, then, as I have shown, one has a hard time to show why this potential is important and for whom. The other strategy is to start with a certain view of human identity, and argue from this view that an embryo is numerically identical to some person, should it realize its potential, in this case, identity-preserving potential, to become a person. Then from this, one can argue that an embryo is one of us and, thereby, not merely some*thing* but some*one*, deserving of respect. This strategy seems to be a more promising one, if one wants to find a basis for according embryos a certain respect. Of course, the plausibility of this strategy depends on the theory of identity that we accept.

As these reflections show, advances in the biomedical sciences have once again brought moral reflection to the exploration of fundamental philosophical issues that lie at the basis of moral claims regarding how properly to develop and apply new medical–technological possibilities. There are both foundational conflicts regarding the moral standing of early human life, and also significant issues at stake regarding the nature and meaning of personal identity and of the

potential to become a person. The promises of regenerative medicine have proven a case in point regarding the contentious controversies marking bioethics (Engelhardt 2006). The challenges of the future will not only be scientific and technological, but will require further and more careful reflection in bioethics.

Notes

1. In late 1998, two groups of scientists, led by James Thompson (Thompson, et al., 1998) and John Gearhart (Shamblot et al., 1998), separately announced the success of insulating and culturing human ES cells by replicating the SCNT technology, which is the technology used by Ian Wilmut and his colleagues from Roslin Institute in Edinburgh, Scotland, to clone the famous sheep, Dolly (Wilmut et al., 1997). In the fall of 2001, a biotech company, Advanced Cell Technology in Worcester, announced the fist successful accomplishment of cloning human embryos (Cibelli et al., 2001).
2. This is not to say that the destruction of human embryos is the only ethical concern about using the technology. Beside the destruction of human embryos, therapeutic cloning also raises other ethical issues such as patient safety and efficacy. However, for the purpose of this paper, the focus will be merely on the ethical issue in connection with the destruction of human embryos.
3. Although it is technically possible to obtain human embryonic stem cells from aborted fetuses and frozen IVF embryos, from the medical point of view, scientists have stronger reason to develop the therapeutic aspects of the cloning technology because this would yield perfect match tissue that would not be rejected by the patient.
4. The U.S. National Academy of Science is also one of the supporters of therapeutic cloning (see Stolberg, 2002, A1, A12).
5. This is also the position of the ethics advisory board for Advanced Cell Technology (Magill, 2004, pp. 265–6).
6. This is not meant to say that only human individuals have moral considerability. Nonhuman animals or living things may have a certain kind of moral considerability. But the fact that a nonhuman animal or living thing has a certain kind of moral considerability would not disallow us using them 'as merely a means to an ends.' For instance, one might regard inflicting unnecessary pain on animals as morally wrong without endorsing the view that using animals as merely a means to our ends is morally impermissible.
7. The view that human embryos, including cloned human embryos, as a form of human life, deserve respect also has been endorsed in a number of official reports issued by the US national bioethics advisory committees (National Institutes of Health, 1994; National Bioethics Advisory Commission, 1999). In the NBAC's 1999 report on human stem-cell research, for instance, we can find statements such as "We believe that most Americans agree that human embryos should be respected as a form of human life" (NBAC, 1999, p. 2) and "we have found substantial agreement among individuals with diverse perspectives that . . . human embryo and fetus deserve respect as forms of human life" (NBAC, 1999, p. xi). While the NBAC's 1999 report is satisfied with basing the aforementioned moral position on the "substantial agreement among individuals (most Americans)," Steinbock further elaborates why this moral position is defensible.
8. The above criticism also applies to Robertson's claim that the imperative of commending a special respect for embryo symbolizes our respect for human life. According to Robertson, the moral position that draws a line between the permissibility of using spare embryos for research and the impermissibility of creating embryos for research can be better understood in symbolic term. He argued that since the embryo is too rudimentary to have

interests and thus cannot be harmed or wronged when used in research, the value on which the moral position is based must be a symbolic one, that is, as one of demonstrating respect for human life. For Robertson, this value can be traced back to the fact that the embryo is 'a potent symbol of human life':

> If the embryo is too rudimentary in development to have interests, it may nevertheless be a potent symbol of human life . . . the embryo is the product of successful fertilization of egg and sperm and might, if placed in the uterus, implant and come to term. How we treat this stage of a "developing human life" thus reflects and even defines the value that we place on human life generally (Robertson, 1995, 37).

9. Callahan has expressed some doubt about the idea of respecting what one destroys. He suggests that the only way successfully, and more honestly, to make the case for embryo research is not by showing that research needs to take precedence over the respect due to the embryo, but by simply stripping preimplantation embryos of any value at all (Callahan, 1995). See also Curzer (2004, pp. 554–558) and Lysaught (2004).

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Part IV
A Search for a Larger Picture: Regenerative Medicine and the Moral Enterprise

Chapter 8
Medical Biotechnologies: Are There Effective Ethical Arguments for Policy Making?

Ruiping Fan and Erika Yu

8.1 Introduction

The intensity of moral controversy over the development of groundbreaking medical biotechnologies can hardly be overstated.[1] Studies conducted by scientists in genetics, cloning, and stem-cell research have often become the news headlines that are not only exciting but also disquieting. On the one hand, by gaining new knowledge and technologies in areas such as genetic engineering or stem-cell therapy, biomedical scientists hold a great hope that a number of debilitating but currently incurable conditions, such as cystic fibrosis, Tay-Sachs disease, Alzheimer's disease, spinal-cord injury, and diabetes, can in time be prevented or cured. If the technologies mature and expand, a healthier-than-ever population can be expected. Yet, on the other hand, these medical miracles may have to be accomplished at a moral cost that many argue is too high. For instance, there have been extensive disputes on the moral permissibility of conducting embryonic stem-cell (ESC) research that involves destroying human embryos or engaging therapeutic cloning (see, e.g., Robertson, 1999; Green, 2001). Advancement of genetic knowledge, which may open up the possibilities of reengineering mankind and society, has provoked the fear of eugenics and the condemnation of playing God (see, e.g., Buchanan et al., 2000).

Is there a proper ethics to guide society in formulating appropriate public policy regarding the research and application of such technologies? Is there an effective role for moral philosophers to play in this policy-making process? Evidently, people hold different moral values and incompatible ethical principles in contemporary secular, pluralistic societies.[2] Of course, in such societies there remain groups of devout religious believers, who evaluate and draw specific conclusions on biotechnologies stringently in accordance with their religious convictions and commitments. They usually are not affected by the ethical argument of any philosophers who are nonreligious or from a religious

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sect different from their own. However, these people are minorities in such societies. Instead, the majority of people appear in a situation of this kind: they are no longer fully committed to any religion or a system of traditional morality, but are still seriously concerned with certain traditional or communitarian values that are essentially the remnants from, or fragments of, a coherent and prevailing religion once held by most people in the respective society;[3] at the same time, however, they are both attracted and confused by the liberal ethical principles that emphasize the equality and liberty of individuals as well as the neutrality of the state in public policy making.[4] Since these people make up the majority in the contemporary secular, pluralistic societies, they constitute the most important forces that can be affected by moral philosophers to determine the results of policy formulation, because these societies have generally adopted the democratic method for public policy making in which the view of the majority plays a crucial function.

Indeed, given the potentially widespread and profound impacts of these biotechnological advances, relevant moral issues must be discussed and reflected at the public level in order to gain most people's understanding and form appropriate public policy. Moral philosophers should shed light on the moral discourses of such technologies by clarifying basic concepts and offering moral arguments so as to help most people apprehend the issues at stake. Of course, it is not illegitimate or incoherent for a religious ethicist to offer religious arguments on the issues.[5] However, in order to affect most people so as to provide effective policy guidance, it would be methodologically better for moral philosophers to offer ethical arguments that are not solely based on the thick metaphysics of a particular religion, which is no longer seriously held by the most people in a society. In particular, this article suggests that the two following moral methodological requirements are heuristically helpful for moral philosophers to satisfy in providing moral accounts on biotechnologies for public policy concerns. First, a moral account should be able to offer clear, substantive, and coherent guidance on the issues concerned. Second, a moral account should be based on certain fundamental moral considerations or values that can readily be appreciated and accepted by most members of society. We will illustrate what these requirements mean in detail in the subsequent sections.

With these methodological requirements in mind, this article attempts to argue that neither the liberal ethical arguments nor the Christian moral doctrines, so far the most often and widely heard moral responses regarding the expansion of the modern biotechnologies, can provide helpful guidance on policy concerns in contemporary secular, pluralistic societies. As an alternative, the paper proposes that arguments based on Confucian moral (not strictly religious) teachings can provide a rewarding perspective on the issue, because they can be easily understood and appreciated as founded on the commonly shared humanity. Toward this end, the following section of this article discusses contemporary liberal ethical views and the liberal policy responses to the genetic engineering technology as articulated by Ronald Dworkin. Then, in Section 8.3, H. Tristram Engelhardt's traditional Christian bioethics of

sexuality and its implications in public policy formulation are considered. Section 8.4 is first a brief introduction to the Confucian morality, followed by a discussion of its significance and implications concerning the modern biotechnology. Some concluding remarks concerning the contribution of Confucianism in the wider ethical context and policy concerns with medical biotechnologies are given in the final section.

8.2 Liberal Bioethics—Is It a Clear, Substantive, and Coherent Guide for Public Policy?

It is hard to deny that liberal individualism, by affirming the Enlightenment values that individuals are born to be equal and free, holds a prestige position in the modern moral discourse, though it is quite another matter whether it provides satisfactory moral guidance in public policy formulation. Liberals can generally agree that public policy should be a social arrangement by means of which autonomous individuals can secure equal opportunity to pursue their diverse views, wishes, and preferences; yet, this seemingly straightforward agreement cannot be clearly arrived at when confronted with specific policy decisions, for the liberals must first settle which of their rival interpretations regarding policy proposal qualifies as the best candidate to fit the liberal agenda. Underneath this difficulty are certain no less problematic assumptions on which liberal ethics is founded, though it is not the purpose of this paper to elaborate on them. Instead, the current discussion will focus on the implications of this difficulty for the liberals in regards to guiding a coherent policy concerning medical biotechnologies.

The liberal controversy over the morality of genetic engineering can serve as a prominent case illustrating the impossibility of formulating a clear, substantive policy based on the liberal ethics. A discussion offered by Ronald Dworkin (2000) is heuristic here.[6] In exploring the possible threats posed by genetic engineering on the modern liberal morality, Dworkin first summarizes two fundamental liberal ethical principles that should guide policy formulation—the principle of equal importance and the principle of special responsibility:

> ... the first principle holds that it is objectively important that any human life, once begun, succeed rather than fail—that the potential of that life be realized rather than wasted—and this is equally objectively important in the case of each human life ... the second principle acknowledges this importance, but insists nevertheless that one person—the person whose life it is—has a special responsibility for each life, and that in virtue of that special responsibility he or she has a right to make fundamental decisions that define, for him, what a successful life would be (Dworkin, 2000, pp. 448–449; see also pp. 5–6).

These principles set forth the liberal individualist ideals of individual equality and liberty as fundamental moral values to be protected in society through public policy. Consequently, argues Dworkin, policies so directed would be both egalitarian due to the first principle and liberal due to the second principle

(Dworkin, 2000, p. 449). In the case of genetic engineering, for Dworkin, liberal ethicists must not cast a veto on the development of the technology, for prohibition would mean holding back the prospect for individuals to employ this potentially powerful technology to lead a successful life, or at least a more successful life, which is obviously in violation with the first principle. Moreover, since the second principle avows that individuals must be left free to define their own notions of successful life, it thus follows suit that individuals who consider their works on genetic engineering as essential ingredients in attaining a successful life, such as scientists and doctors, should be allowed to devote their effort in the field (Dworkin, 2000, p. 452).

However, the issue is not so straightforwardly conclusive. In fact, Dworkin acknowledges that genetic engineering could dramatically destabilize the long established boundary between chance and choice, upon which the liberal ethical discourses have heavily rested. He defends that this challenge could indeed underscore the importance of his version of liberal individualism to serve as an indispensable moral background against which critical crisis of this kind can be responded (Dworkin, 2000, pp. 444–449). The key challenge of genetic engineering, from the perspective of liberal individualist ethics and according to the analysis of Dworkin, is that it could bring a new age of choices wherein individuals could have a say on matters of profound importance for each human life—matters once regarded as given, thereby imposing on individuals an enormous load of responsibility which they could find difficult to bear. Yet, "change it must": a clear approval to the technology is signaled by Dworkin as he responds to the potential of the radical shift from chance to choice (Dworkin, 2000, p. 446). Such a reply, of course, can hardly be a surprise since individual choice is highly valued by liberal individualist ethicists; otherwise, relocating the boundary between chance and choice would not warrant such attention. What can be a surprise, however, is that although Dworkin recognizes that this expansion of choices could result in wrong decisions and significant consequences, his critical morality offers no guidance on how to face this challenge. He fails to put forward a substantive theory to tell right from wrong. His liberal individualism simply turns the commonly perceived threat posed by genetic engineering into a valuable opportunity that should be equally open for all individuals. Genetic engineering, as he observes it, "is not a fear of what is wrong; it is rather a fear of losing our grip on what is wrong" (Dworkin, 2000, p. 446). It appears that the implication of this fear for him is that individuals must grip firmly the opportunity to employ this technology, for it is all too clear that what is wrong is to restraint room for choices, regardless of what one chooses.

Thus conceived, this article would argue that the liberal individualist ethics can hardly serve as a critical moral backdrop on the issue of genetic engineering, as Dworkin envisages. On the policy level, a coherent guidance based on the liberal individualist response is unlikely to be achieved. Liberal individualists, as explicitly articulated by Dworkin, must not advocate absolute prohibition or even moral paternalism in the provision of genetic engineering technology. Individuals, as long as they have been informed about the potential risks,

should be allowed to decide whether to employ the technology in order to pursue their own conceptions of successful life, for which they have special responsibility. However, this account inevitably raises the question of whether a decision to employ genetic engineering should still be justified if it would impose significant impact on another's life. For instance, should an individual be permitted genetically to engineer an unborn individual with certain determined traits, such as being nonaggressive, tall, musically talented, or deaf, if becoming a parent of such a child is of great importance to his or her notion of a successful life? In this case, it appears that either permission or prohibition would be at odds with the two principles of liberal individualism. If permission should be granted, it would not have considered the successful life as defined by the engineered individual to be important as those of some other individuals, such as the prospective parents or even scientists and doctors. But if prohibition should be favored, then by the same token the conceptions of successful life envisaged by the prospective parents, scientists, or doctors would have to be counted as less important than those of the engineered individuals. It is also worth elaborating that although it can be rather common to argue that parent and child often share similar instead of diverging or even incompatible views of successful life, and it is also likely that scientists or doctors can still find some middle-ground applications of genetic engineering so as to justify their aspiration to develop the technology, none of these should matter much if the liberal individualist account is taken critically. This is because, for the liberal individualism, what lies crucially in the sovereign virtue is that it must assure that each individual can stand in objectively equal relation to define their own notion of successful life and the sovereign must be neutral to any of these notions (Dworkin, 2000, p. 6). Consequently, the sovereign would have to be caught in a dilemma concerning the development and application of genetic engineering. On the one hand, the technology could open a door for some individuals to determine important characteristics of other individuals, and the creation of such designed qualities implies unequal individual relation between the designer and the engineered. Yet, on the other hand, it is plain that prohibition would entail the impossibility of the exercise of the sovereign "virtue."

In short, the liberal individualism not only falls short of offering a clear, substantive, and coherent account to guide public policy concerning the development and application of the biotechnology, it also leaves the common anxiety unaddressed, if not exacerbated. Accordingly, the liberal ethical account fails to meet the first methodological requirement that we have proposed for assisting policy formulation by affecting most people in society. When it is clear, it offers a conceptual account of the biomedical challenge to the basic liberal distinction between chance and choice, but fails to offer a substantive instruction about what public policy should be adopted; when it attempts to offer substantive support to the biotechnology, it becomes unclear (because it has to hesitate) and even incoherent (because it may logically lead to incompatible conclusions).[7] For many people, some biotechnological transformations do come with

whispers of warning, even though they may not lead to fear of greater dangers, such as the danger of playing god (which Dworkin defies). Given that the warning of playing god has constantly been brought up in discussions regarding modern biotechnology, it may be fruitful to explore if religious moral argument can serve as a convincing policy guide.

8.3 Religious Bioethics—Is It Feasible as a Policy Guide?

In contrast to the Dworkian, or liberal individualist, welcoming response to the state-of-the-art biotechnology, moral accounts based on religions often lie at the other extreme and are sustained by specific metaphysical views rooted in particular religions. This section focuses on the moral resources that are offered by Engelhardt (2000) and based on the Orthodox Christianity, the most Ancient Christian religion that has a rising influence when many other denominations of Christianity are in a declining trend in the Western societies.

On Engelhardt's view, paramount in the Orthodox Christian tradition is the love of God and the ultimate goal of reaching union with God. The relation between this theological goal to holiness and sexual morality, according to his traditional Christian bioethics of sexuality, can present moral guideposts that contrast sharply with the guidance offered by merely moral reflections that can only sketch and respond less than ideally to the broken and sinful world. In the tradition, humans are created by God as either man or woman whose ontology is fundamentally different from the other. Since marriage is in essence an institution set up by God to unite a pair of mutually loving man and woman into companionship to achieve salvation, marital sexuality must above all ascetically direct to the pure love of God and toward union with God, although carnal sexuality is allowed for procreation of God-loving children or promotion of intimacy and loving bond between husbands and wives within church-blessed marriages. Since sexual and reproductive activities are permitted only between the husband and the wife, this not only entails that no third party outside a marriage should engage in sexual or reproductive activities, forbidding acts such as adultery, fornication, and bestiality, but it also declares pornography, masturbation, and certainly homosexuality to be sinful. Since humans, as self-conscious beings, are to be condemned for their failure to control themselves from committing such sexual sins, it is considered apt for those who suffer from improper desires to commit any sexual sins to seek help such as counseling, psychological therapy, or psychiatric treatments, in order to get back on the correct path toward union with God. In addition, since a human being is always a creation of God who continuously receives love and mercy from Him, human life is to be devoted eternally in the worship of God and not to be taken away by other persons. Thus, no matter under what circumstances, taking human life, even that of an unborn child in order to save the mother's life, is always an act that goes off the path toward holiness (Engelhardt, 2000, pp. 237–239).

In response to the modern biotechnological advances, the traditional Christian moral account on their appropriateness must depend on whether they follow the moral sexuality that can lead one to union with God. To start with, discussion on the moral permissibility of the advances in assisted reproductive technology, which involve diverse options of artificial procedures that are related to sexuality, may serve as a rich starting point to shed light on the morality of other potential modern biotechnologies that also employ similar practices. In the Christian morality, although procreation is a key purpose of marriage, it does not necessitate justification of whatever measures to achieve it, for reproduction is an act that must be associated with the love and intimate sexual union of the marital couple in the absence of any third-party involvement. Accordingly, while assisted reproductive procedures that require no third party both in gamete donation and sexual act can be judged as morally permissible, reproductive techniques involving donated gametes or implementation of in vitro fertilization that takes place outside a wife's body by a third party are adulterous, and by nature of this should be forbidden. Moreover, in vitro fertilization also gives rise to difficult moral issues concerning the lives of those un-implanted surplus zygotes and early embryos (Engelhardt, 2000, pp. 251–255).

The same prohibition also applies to human cloning and ESC research that involve similarly wrong practices or perhaps even more evil ones. Human cloning is wrong because in addition to the absence of marital intimacy in the procreation, as in the case of in vitro fertilization, it comes even closer to the evil by permitting reproduction as an asexual act that is absolutely against the will of God. As for ESC research, which harvests stem cells from zygotes or early embryos that are produced solely for research purpose, either through in vitro fertilization or therapeutic cloning, it is also morally sinful for the above illustrated reasons and also because it entails deliberative acts against an instance of human life (due to the destructions of zygotes or early embryos). Moreover, it is also plain that production of any human–animal hybrid embryos by fusing human and nonhuman gametes is profoundly wrong, even if it is only for research or experiential purposes (Engelhardt, 2000, pp. 259–261).

Finally, with regard to genetic engineering, the key proscription that must not be violated is that the engineered person must remain a rational moral agent who is either male or female and has the ability to procreate. Apart from this limitation, contrary to the common perception, the traditional Christian bioethics finds no ground, even in the case of germ-line genetic engineering, to prohibit a technology that can bring forth improved health. In fact, its development is welcome for it may serve to minimize the incidences where couples seek abortion because their child is inherited with genetic diseases (Engelhardt, 2000, pp. 272–273).

No doubt, Engelhardt's religious account has met the first methodological requirement that we have put forward for policy-making concerns: it has offered clear, substantive, and coherent answers to the issues at stake. However,

while many people may find themselves as advocates of at least some of the cautious prohibitions set by Engelhardt's account on the development of biotechnological innovations, the above sets of religious moral reasoning would still fail to serve as effective ethical arguments for guiding policy formulation by not affecting most people in contemporary society. It is true that, ethically, most people share certain values supported by Orthodox Christianity (e.g., they do enjoy the lifelong love and companionship brought forth by marriage and value the virtue of fidelity). However, metaphysically, they do not share the underlying guideposts founded in the traditional Christian convictions (e.g., they do not consider that family love and fidelity must supervene on the love of God). Moreover, epistemologically, it is difficult for them to see their own life and marriage as a process of struggle for salvation and union with God whom they can hardly know. Finally, psychologically, nonbelievers of Christianity feel it uncomfortable, if not resentful, to be regarded as sinners. They would also find it insensible to put praying as a solution over technologies, despite the uncertain threats imposed by them. Accordingly, taken together, the neat religious ethical account provided by Engelhardt may be intellectually brilliant and practically useful for certain purposes, but it fails to satisfy the second methodological requirement that we have proposed for policy consideration, because the account has not been based on fundamental moral principles that can readily be appreciated and accepted by most members of society.

8.4 A Return to General Human Experience—Confucianism as a Policy Guide

In comparison with the Christian morality, Confucianism can serve as a proper standout in offering policy guidance, for it affords a rich moral account without relying heavily on metaphysical assumptions.[8] Although Confucianism and Christianity both recognize the significance of relational love in human moral experience, they differ dramatically on the root of it. From the Confucian view, whether and how the experience of human love is ultimately founded in a transcendent God may constitute a significant issue for a religious faith and relevant mystical experience, but it is not the first important moral issue. For policy-making purposes, effective moral arguments must be grounded in general moral experience shared by most, if not all, human beings, rather than in a peculiar type of experience possessed only by a particular group of individuals. Indeed, Confucians see that human love is deeply seated in the familial relation that is truly common to all humans. The most important thing in living a moral life is not necessarily praying to God and securing His instructions, but engaging virtue cultivation within human relations so as to practice the love, starting from the most fundamental parent–child relation. For Confucians, this moral experience is general because it is inevitable for any human moral life to exist.

One can sensibly deny the presence of a transcendent God, but one cannot sensibly deny one's interconnection with one's parents.

The Confucian view of virtue (de) is unavoidably relevant to the Confucian metaphysics, but not in a thick way that destroys the authenticity of a general moral experience shared by most people. From the Confucian view, the value of being humans, as often contrasted with other animals, is the potential to develop into moral agents by the perfection of character, appreciated as virtue, through a lifelong process of self-cultivation. Humans are in their nature endowed with unique qualities that not only lay down the foundation of this growing process, but also allow it to function in an instinctive manner. First, it is a Confucian insight that within each human there are seeds (duan) of virtue, which imply that the force for the pursuit of virtue is driven from an internal moral nature rather than external imposition. Such seeds mark the potential of humans to become virtuous persons provided that there is a nurturing environment for the seeds to grow (Mencius, 2003, 2A:2, 2A:6 & 6A:6). Indeed, no seed can grow out of itself without nourishment. To Confucians, this is analogous to the point that no human being achieve moral agency if they are regarded as isolated individuals and deprived of social relations (renlun). Proper social relations are nothing but the external side of the internal nature appreciated as the seeds of virtue, and it is by observing their behaviors in accordance with their roles, situated in different social relations, that humans can cultivate virtue (Mencius, 2003, 3A:4). Therefore, in the Confucian teachings, proper social relations are the essential contexts for one to cultivate virtue, the outcome of which is a perfected character exemplified by one's ability to form harmonious and fruitful relations with others.

Among the virtues and human relations identified by Confucian thinkers, the virtue of ren and the parent–child relation are regarded as the most fundamental and important because they not only mark the beginning but also the achievement of a moral life. This profound Confucian insight can be understood at two slightly different but related levels. At the first level, the virtue of ren can be appreciated as loving other humans (Analects 12:22; Mencius, 2003, 4B:28), an affection that Confucians find seated most naturally between parent and child. In fact, the affection in this relation is so deeply innate that it requires no learning or reflection for every human to have it, as witnessed by the natural love of young children toward their parents (Mencius, 2003, 7A:15). Since every human is born into a parent–child relation, to become a moral agent is essentially to nurture the loving affection first between the members within the family and then extend it to other human relations in the wider social contexts. Thus explained, the parent–child relation is considered to be highly important in human moral life, for it starts out the process of virtue cultivation. Yet, behind this account there is a deeper and more holistic understanding of the Confucian morality: the virtue of ren is also recognized as a unified virtue of all the excellences that are exhibited by the person with perfect character (i.e., the sage). However, to cultivate this unified virtue of ren, there is no alternative but only one way set in one direction: one must begin with the root (ben) of ren,

which is the affection embedded within the familial relation of the parent and the child (Analects 1:2; Doctrine of the Mean 20:5). As soon as one can firmly establish the root, the growing process will naturally spring from it (see *The Great Learning*, Legge, 1971). Hence, in addition to affirming that virtue cultivation commences from the parent–child relation, the Confucian ethics goes further to assert that the affection embedded in the familial relation is the very foundation without which human morality would be impossible. Indeed, this can also serve to explain why the Confucian tradition often emphasizes that love can only be extended with gradation to nonfamilial relations. In short, this Confucian account implies that if the familial relation is sacrificed, human morality would be uprooted (Mencius, 2003, 4A:19 & 4A:28). In fact, to Confucians, the presence of the familial relation constitutes the very fine distinction that lies between man and the brutes (Mencius, 2003, 4B:19).

This Confucian understanding of human love and morality, if properly reconstructed, can readily obtain most people's appreciation, because it is their shared moral experience. Accordingly, for policy concerns, the challenges posed by the modern medical biotechnological advances must be identified at least in light of their potential to threaten the familial relation so that relevant regulations can be imposed before it is too late. Indeed, most people in contemporary societies cherish the moral value of such familial relation, even if they do not hold the exact Confucian moral account of it as summarized above. This gives the ethical arguments based on Confucian moral principles a chance to be more effective than those based on Christianity so as to meet the second methodological requirement for public policy concerns. Confucian ethical arguments would achieve certain similar moral values as Christians without engaging the thick religious message of the Christian arguments.

For instance, like Christians, Confucians would not advocate human cloning as a means of reproduction, even though having consanguineous descendents is often given significant moral weight in the tradition. But an ethical argument developed from Confucian ethical concerns would not be "the evil by permitting reproduction as an asexual act that is absolutely against the will of God." Such Christian reasons cannot be appreciated by most people today. Rather, human cloning is morally problematic because cloned humans would have considerable difficulty fitting into proper familial relations that are still cherished by most people today. The clone would not be born with distinctive parent–child relation since it is rather unclear who should be regarded as the progenitor(s) of the clone. On the one hand, it could be the "original of the clone" (i.e., the nuclear donor). In this case, the clone would be deprived of at least a father or a mother, even if the problem of whether the original should be regarded as a parent at all is left aside. On the other hand, the parents of the original might also be regarded as the progenitors, whereas the original and the clone would then be regarded as siblings that are similar to the case of identical twins except with an unusual age gap. Yet, this scenario would raise no less difficulty. First, it could be possible that the parents so defined might never acknowledge the existence of this cloned child. Second, even if they were aware, it would be

uncertain whether the couple, who had not been involved in the reproduction at all, would still retain the natural affection that is of utmost value in the parent–child relation. Third, it would be likewise uncertain whether a person who bears an intention to employ cloning for reproducing a descendent would be able to relate to the clone as a younger sibling. All these thorny ethical issues and difficulties would lead people to support banning human cloning through public policy.

While Christian ethical arguments have to discourage the employment of assisted reproductive technology, such as in vitro fertilization, because it involves the absence of marital intimacy in the procreation, Confucian arguments would not regard it as problematic for families to employ such technology in order to obtain biological children. This is because, on the Confucian ethical thinking, although sexual intimacy between the husband and the wife is important in sustaining the moral life, it should not be so essential as to nullify the possible way of securing a biological child for the family through technological aid. Instead, if assisted reproductive technology is needed, what lies important in its employment is a shared family decision. However, if it involves a surrogate mother or gametes not from the husband or the wife, then it becomes morally problematic and should not be permitted. This is because, in both the cases, the familial relation is inevitably confused. Evidently, where Confucians and Christians disagree, the Confucian moral considerations can more easily receive support from most people in contemporary societies.

The Confucian morality also holds an open attitude toward the ESC research and therapy, though it has reservation in certain cases depending on the sources of ESCs. First, since in vitro fertilization is morally acceptable, it is inevitable that there are surplus zygotes or early embryos that will never be implanted. In this case, if the donors so decide, it is permissible to harvest ESCs from them: first, there is no real difference between this decision and the decision to discard them—they are going to die anyway in a relatively short time. Second, the potential medical benefits that could result from the research or therapy render the decision and act benevolent. As for the legitimacy of the ESCs therapy that requires either creation of zygotes in vitro or therapeutic cloning, at least two factors must be considered. First, the state can impose effective supervision to ensure that the embryos created in either way are strictly limited to therapeutic rather than reproductive purpose, and hence no proper familial relation would be jeopardized. Second, the donors are in immediate family relation with, or themselves are, the beneficiaries of the treatments. In this circumstance, not only that the technology would not pose direct threat to the proper human relation, its practice could also facilitate virtue cultivation since the virtue of ren would command family members to take actions in caring for each other. However, given that certain adult stem cells and situations as discussed above can already provide stem-cell sources for the research and development of regenerative medicine, it would be difficult to find a solid moral ground for approving creation of zygotes solely for research purpose,

as this would also necessitate more government resources to protect the donated gametes and zygotes from being misused.

Finally, ethical considerations based on Confucian moral concerns regarding using genetic engineering for enhancement would for the most part be cautious. Of course, there are obvious ethical reasons to support using genetic engineering as a medical measure to treat otherwise incurable diseases. But genetic "enhancement" (such as selecting or designing certain traits of a child) is a quite different issue. As the familial relation and the love embedded in it are morally foundationally important, any genetic alternation that would damage the establishment of this relation and the cultivation of this love would be morally wrongheaded. For instance, it would be morally evil to manipulate sexual orientation by genetic engineering, if this becomes technically possible, in order to create homosexual persons. Moreover, for those changes that seemingly do not affect the familial relation and the embedded love, there are additional Confucian reasons for a prudent stand. First, the parent–child relation as well as the natural affection within it is essentially based on a bond tied by "blood." Such blood in the modern sense may well be interpreted as genetic inheritance. It is simply good that in many aspects, one resembles one's parents, or even ancestors, such as in one's image, color, sentiments, and many other traits. Is there adequate reason to change these traits genetically in the name of "enhancement"? Of course, there is nothing morally wrong, for example, for a yellow Chinese to marry a white Caucasian, even if their children may have a skin or hair color different from theirs. But the moral feature of this marital choice differs dramatically from the feature of changing a trait by genetic engineering: while there can be very good reasons to support this choice of marriage (such as their mutual love and the two relevant families' interests, and so forth), what good reason can a couple really have to design their children's color through genetic intervention and make it different from theirs? If they simply feel that a different color makes their children aesthetically superior over themselves and their ancestors, is this not a disregard for themselves and their ancestors, as well as a distraction from the affection between themselves and their children?

What about those changes that would apparently provide advantages for the children themselves: for instance, what if we can through genetic engineering make our children stronger, taller, wiser, or musically more talented? Are these acts permissible if they do not negatively affect the familial relation and love? Since it is rather uncertain how intervention on genes might have an impact on the parent–child relation, and given that the moral consequence of this risk is enormous, Confucians would tend to support a prudent decision to hold it back. Liberals tend to argue that such prudence carries no force but disgrace, for the prudence is merely a disguise of cowardice (see Dworkin, 2000, p. 446). To this attack, Confucianism has additional resources to elucidate the issue at stake. As illustrated, Confucianism sees that the worth of humans lies essentially in their unique potential to engage in the continuing process of moral growth by virtue cultivation. This understanding has two implications. First,

the value of being a human cannot merely be the potential endowed in their nature, because this would render the cultivation of virtue inconsequential. Yet, second, neither can it be the case that only actual virtues count, because that would exclude the young members of the mankind from being valuable. Instead, both of them, together with the crucial process that brings forth the fulfilling moral experience due to the realization of one's nature, must be valued as a whole. Accordingly, letting the door of genetic engineering wide open would inflict the possible threat of uprooting the familial relation and lay the human morality on the line. This is because if we open an era of genetic engineering and allow freely designing the traits of our children, the subjects in "parent–child relation" would no longer primarily be characterized by genetic inheritance, because the same traits genetically inherited from one's parents would no longer be taken as significant. Then what would characterize the parent–child relation in the place of genetic inheritance? Would it be something like "design ownership"? If so, could it serve as a strong ground for parents to love their "designed" child unconditionally as in the case of the present natural relation? These are essentially not empirical questions, because we should not want to risk ourselves by trying them empirically. Nonetheless, these seemingly far-fetched, hypothetical questions tax our moral wisdom to the utmost, simply because they are so vitally important.

The suggestion that unbridled genetic engineering may make the parent–-child relation more "appropriate" to be characterized as designer-designed relation may sound a groundless warning, for seldom would anyone approve such devaluation of human life. For some people, it can be argued that changes of genetic inheritance would not negatively affect the parent–child relation and their mutual love because the employment of genetic enhancement is already a proof of parental love to their possible children: since parents love their children and always want the best for them, genetic enhancement could just be seen as an additional step in the series of parental efforts and actions devoted to their children. In response to this argument, it is important to notice that there is a difference between two kinds of parental love. On the one hand, I love my child simply because the child is mine, regardless of what qualities he or she has. On the other hand, however, I may love a child because he or she has certain designed qualities. The former love is relational, an unconditional, and lifelong love because the emphasis is on the blood-tie that will remain unchanged throughout the lifetime. The child will be the most valuable in the parents' eyes simply by virtue of being their child. However, the emphasis of the latter love shifts from the blood-tie to the "expectation of the best qualities." While this does not mean that the parents would definitely stop seeing their engineered children as their "own" and thereby stop loving them, it is also hard to hold that their primary focus in this new parent–child relation would still be relation-based—it might well be shifted to quality-based. Once this shift is done, the profundity and unconditional nature of the parent–child love would be lost. Most people cherishing the parent–child love should be able to see the real threat of this danger.

8.5 Concluding Remarks

While liberal ethics has received much limelight for its moral doctrine on the supremacy of autonomous individual choices and for its construction of social structures to promote the diversity that characterizes modern societies, the same light has also revealed the poverty of liberal individualism in providing coherent substantive guidance on moral decision making. Individuals are told to celebrate choices when they are left with no clue on how to choose. And society becomes an institution that promotes conflict under the name of protecting individual liberties and rights, rather than peaceful coexistence based on virtue cultivation.

In comparison with the liberal individualist ethics, Confucian morality distinguishes itself by providing a comprehensive account of the good life, which can serve as crucial moral guidance for making moral decisions that can lead one to live such a life. Confucianism is thus in line with Christianity on the point that ethics should be a way of life sustained by meaningful moral experience. However, their divergent views on the groundwork of meaningful moral experience must set their moral arguments apart. In Confucian morality, the good life can only be attained by virtue cultivation that has its root in the familial affection and is sustained by the fruitful moral experience gained from the subsequent, gradual extension of this affection to other human relations. Indeed, this is a common human experience even in today's fragmented, diverse society: the familial love as a moral value or a starting point of moral considerations constitutes the familiarity or acceptability of the Confucian ethical arguments for most people in contemporary society. As a result, while both liberal ethics and Christian ethics fail, ethical arguments based on Confucian moral principles can meet the two methodological requirements for policy formulation concerns.

Notes

1. We coined the phrase "medical biotechnologies" to denote a series of advance biological technologies meant for medical purposes, such as in vitro fertilization, genetic engineering, human cloning, stem-cell therapy, and so on. The focus of this paper is not solely on "regenerative medicine," which seems to be an equivalent term to stem-cell therapy (see, e.g., National Research Council (2002) and Canadian Institutes of Health Research (2005)), but also on other medical biotechnologies in order to have wide ethical reflections in relation to public policy formulation.
2. This is not to deny that there are still quite a number of religious societies, especially Islamic societies, in contemporary world. However, such societies are not the focus of this chapter.
3. For instance, in most societies of West Europe and North America, most people are no longer Christians in the strict sense, but they still care about some Christian-rooted values such as the sanctity of life. Similarly, in the East Asian societies, most people do not claim themselves to be Confucians, but they nevertheless uphold the Confucian values such as filial piety and family interdependence.

4. Attracted because these liberal views have been indoctrinated into them as the politically reasonable and correct doctrines for modern societies, and confused because they find the conclusions drawn from these views on specific issues, such as the issues of the development and application of biotechnologies, may contradict with certain traditional values that they still cherish.
5. Contemporary liberals hold a neutrality position regarding the role of the state: the state should be neutral to different religions or different understandings of the good life. For John Rawls, this position includes an independent-basis requirement in offering moral arguments: citizens should not base their political debate in the public space, nor their political decisions, on their own particular religious convictions, such as appeals to a divine command, scriptures, or a religious leader; instead, they should base their arguments on public reason consistent with everyone's equal liberty and equality (Rawls, 1993, pp. 217–218). Hence, for Rawlsian liberals, not to offer highly religion-laden arguments becomes an ethical and political requirement of legitimacy. This has been taken to be unfair to religious believers. See, for example, Wolterstorff, 1997. This article does not support this liberal position. It only makes a methodological suggestion for constructing effective ethical arguments to affect public policy formulation.
6. His argument is chosen as a representative of liberal ethics in this regard not only because Dworkin is a leading liberal moral and legal philosopher, but also because his argument on this issue addresses the fundamental liberal ethical principles and engages them in an explicit and nonevasive way; the argument can be clearly reconstructed to bring the intractable difficulty of liberal argument to the fore.
7. This problem of liberal ethics in general and of Dworkin's position in particular can be highlighted by comparing Dworkin's account with that argued by Habermas. Although Habermas shares with Dworkin the same liberal starting point that individuals should be the sole authors of their own life history, he arrives at radically different conclusions on the legitimacy of genetic engineering. For Habermas, genetic intervention should not be morally permissible because it could interrupt the fundamental "relational symmetry" that must be shared by all members of the human moral community where they are free and in equal relation with others. The technology not only creates an irreversible asymmetry of power between the designer and the made, but also causes the biotechnological dedifferentiation of the "habitual distinction" between the "grown" and the "made," and this would disrupt one's moral self-understanding as a member of the species. For details, see Habermas (2003).
8. The basic Confucian moral considerations constructed in this section are based on the views of classical Confucian masters, Confucius and Mencius, without reference to any disagreement between them, because disagreement, if any, is not relevant to the argument in this article. The citations are adapted from D. C. Lau's translations (see Confucius, 2002; Mencius, 2003).

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Chapter 9
Extending Human Life: To What End?

Brent Waters

9.1 Introduction

The burgeoning field of regenerative medicine is poised to transform healthcare. Advances in genetics, stem-cell research, and cloning hint that we may be on the brink of a golden age of medical care, culminating in greatly extended longevity. These advances, however, are accompanied by a number of troubling and divisive religious, moral, and political issues. Although careful analysis and scrutiny are rightfully being devoted to resolving a wide range of discrete problems, the larger concern of toward what end regenerative medicine is taking us has received inadequate attention. How are the rapid and anticipated developments in the technologies of regenerative medicine, and the religious, moral, and political discourse they are prompting, shaping our vision of the future? Particularly in respect to extended longevity, how much longer should future generations expect to live? So long as an acceptable quality is maintained, the answer is presumably that one's life cannot be too long. Yet in the absence of an outside limit, does this not suggest that the advent of regenerative medicine may mark the first skirmish in a war against aging, if not death itself? If so, what would a victory mean, and what would be the cost? And if we are to wage this war with any degree of seriousness, must we not also ask if we are endeavoring to become posthuman? This chapter addresses these questions through the following four-part enquiry: (1) summarizing the most prominent technological developments in regenerative medicine to date and their accompanying ethical issues; (2) analyzing selected implications of treating aging as a disease; (3) examining four responses to the prospect of humans aspiring to become posthuman; and (4) critically assessing these responses in light of their connotations for medicine and bioethics.

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9.2 Revolutionizing Medicine

Genetics is the basic science underlying regenerative medicine. Recombinant DNA technology, for instance, is currently being used to produce human-protein drugs to treat diabetes and promote the formation of red blood cells. New protein drugs are being developed to treat a greater range of diseases. It is also anticipated that genes can be used to stimulate the growth of new tissue, and create antibodies to either suppress or enhance the immune system to treat such diseases as rheumatoid arthritis and various cancers. The principal advantage of this approach is that unlike chemically based drugs, which merely support failing or damaged organs or tissue, regenerative medicine cures disease and repairs the damage while having less toxic side effects.

Cellular biology also plays a major role in regenerative medicine. Human cells are already being used to manufacture artificial skin and grow blood vessels. Stem cells offer even more promising treatments. It is anticipated that adult stem cells can be harvested, cultured, and reinserted in order to heal damaged or worn-out tissue, bones, nerves, and organs, producing highly prized therapies for those suffering brain and spinal injures, and more generally aging populations. Adult stem cells, however, often prove difficult to locate and activate, and may be ineffective in treating a number of diseases and injuries because of their limited flexibility. Alternatively, embryonic stem cells may provide a resource that is easier to obtain, and their plasticity offers potentially greater therapeutic benefit. A major hurdle to be overcome is that inserting adult or embryonic stem cells into a host that is not genetically matched will trigger an immune reaction. One way to overcome this difficulty is to clone embryos that are created from the patient's cell sample.

Prosthetics is another instrument in regenerative medicine's tool chest. Fabricated hip joints, heart valves, blood vessels, and cochleas are now routinely employed. Recent experiments suggest the feasibility of curing blindness with artificial retinas, or overcoming paralysis with neural implants. More speculatively, nanotechnology holds the promise of continuous diagnostic monitoring, augmenting immune systems, and tissue and organ repair without invasive surgery. Neural implants may someday amplify memory and cognitive abilities, as well as providing a direct connection with external computers networks (Hazeltine, 2003).

The benefits of regenerative medicine are obvious. Greater diagnostic precision offers earlier and more effective medical interventions. Exploring the intricacies of the map produced by the Human Genome Project and nearly ubiquitous monitoring will allow medicine to react to the early onset of debilitating and life-threatening diseases. More effective therapies improve the quality of many patients' lives. Diseased or damaged organs, for instance, will be repaired or replaced completely, thereby restoring one's health entirely. Regenerative medicine prevents illness and disability more effectively. Genetically or prosthetically enhanced immune systems will replace cumbersome inoculations, and improved

screening of pre-implanted embryos will help prevent the birth of children with severe debilitations. In addition, physical and cognitive performance can be enhanced. Various therapies can also be employed to augment a variety of normal functions. Drugs, for example, might be used to improve memory or optical implants employed to provide telescopic or night vision. In short, the singular benefit of regenerative medicine is that many individuals will live longer and healthier lives.

This benefit, however, is accompanied by a host of moral controversies. These disputes are well-known and a few examples are noted to plot out the scope of the issues at stake. Will embryonic stem-cell research and "therapeutic" cloning lead to a callous disregard and commodification of human life at its most vulnerable stage? Or to the contrary, are attempts at restricting or prohibiting their rapid development callously condemning countless individuals to needless suffering? Will the benefits of regenerative medicine be evenly distributed, or will they only be available to the wealthy? More broadly, what will be the social, economic, and political ramifications of societies populated by genetically and prosthetically enhanced individuals of varying levels? Does this prospect call for greater or less regulation of the research underlying regenerative medicine? Is regenerative medicine transforming healthcare into an institution that is increasingly divorced from its antecedents in providing care rather than cure? Or are we taking an effective first step in resolving what were once regarded as religious, moral, or social problems by medicalizing them?

These are admittedly sweeping questions that incorporate a number of discrete issues that are vexing and contentious in their own right. For example, what are the contending religious, moral, and ideological convictions that are seeking to shape public discourse on embryonic stem-cell research and "therapeutic" cloning? How does this discourse in turn inform ethical codes of conduct, laws, public policies, and funding of scientific research under-girding regenerative medicine? As noted above, these discrete issues require detailed analysis and scrutiny. Such meticulous inquiries, however, are themselves shaped by larger religious, moral, social, and political convictions. Toward what end are current and anticipated developments in regenerative medicine directing us? And how do we assess whether this end is good or desirable? Consequently, the remainder of this chapter takes a step back to catch some glimmer of the horizon toward which we now may be heading.

9.3 Waging War Against Death

If the principal benefit of regenerative medicine is improved health, then presumably its beneficiaries will also live longer lives. The development of superior diagnostic, therapeutic, preventive, and enhancement techniques are bound to raise the statistical norm for average life expectancy. Yet if three-score-and-ten has become obsolete, what measure should replace it—100, 150, 500 years or

more, perhaps many more? At present science cannot offer any definitive answer what the outside limit might be. If embryonic stem cells, for instance, prove to be as totipotent as hoped, then the possibility of infinite tissue and organ rejuvenation cannot be ruled out. Moreover, if attempts at cellular manipulation encounter stubborn obstacles, ever more sophisticated prosthetics can be used to achieve similar results.

The prospect of living longer does not suggest that regenerative medicine is merely a high-tech version of Ponce de Leon's vain quest for youthful immortality. Yet extended longevity has certainly been a factor in creating public interest and investment in the fledging biotechnology industry. The names of such companies as Geron and Osiris, and discoveries of "immortality" and "fountain of youth" genes, have captured the attention of elderly venture capitalists and aging baby boomers (Hall, 2003). Such hyperbole is bound to skew and disappoint public expectations, but there is nonetheless a growing perception, in both the industrial and medical literature, that aging is akin to a disease that can be treated. In the absence of any known outside limit, however, what constitutes effective treatment? Without a given limit, it would appear that regenerative medicine is the first step in an endless struggle against growing old. But if medical resources become increasingly developed and deployed for this purpose, does this not raise a rather awkward question: is aging a disease that can be cured? This question helps us to get at the heart of the matter because the chief benefit of regenerative medicine is its ability to cure rather than merely treat disease or injury. It is through rejuvenating the functions of tissue and organs that longevity is extended. Consequently, to cure aging is not to contend against the passage of time per se, but the accompanying cellular degeneration and resulting morbidity.

If aging is a disease to be cured, however, does this not suggest that the advent of regenerative medicine also signals a declaration of war against the old enemy of death? Presumably the answer must be "yes," for the end result of degeneration and morbidity is mortality. Yet what would victory against this old foe mean, and what would be the cost? Total victory would be immortality, and if this ambitious goal proves elusive, greatly expanded longevity would represent a partial but nonetheless significant triumph. The cost of winning this war would be the radical transformation of medicine as a practice *and* the patients it in turn transforms. To wage war against death requires that medicine forsake its traditional emphasis on caring in favor of curing (Engelhardt, 1996; Kass, 1985, pp. 157–246; McKenny, 1997; Ramsey, 1970, pp. 113–164). The chief medical practice would no longer be to provide care and comfort to patients suffering the ravages of illness and deteriorating bodies, but to eliminate the organic sources of their suffering. The role of medicine would not be one of assisting patients to come to terms with their mortal state, but to enable them to vanquish mortality or at least keep degeneration and morbidity at bay for an extensive period of time. Moreover, if an effective war against death is to be waged, then medicine must in turn transform its patients. The move from care to cure entails that the line separating therapy and enhancement be blurred if

not erased. This is particularly the case at the cellular level in which a combination of bio- and nanotechnologies is deployed to overcome the Hayflick limit, effectively reengineering the patient. Consequently, the patient is simultaneously the beneficiary and artifact of such transformative medicine. Medicine is no longer dedicated to relieving the human condition but radically changing it.

If regenerative medicine is the first step in curing aging and a declaration of war against death, then a provocative issue is forced upon us, namely, should humans use their technology to become something other than human? It would seem that some such aspiration is at play if the goal is to use technology to overcome or extend the mortal limits that have been programmed into the human biology bequeathed by evolution. Yet if these limits are overcome or greatly extended, then mortality is no longer a definitive feature of human life. Yet in the absence of this definitive feature, what are humans aspiring to become as artifacts of their own engineering? Or to pose the same question more starkly: should we aspire to become posthuman?

9.4 Should We Become Posthuman?

The purpose for posing this question is neither to implicate regenerative medicine in some far-fetched conspiracy to create an even more grotesque brave new world than that imagined by Huxley, nor to associate it with fanciful attempts of elevating the so-called cyborg to iconic status (Haraway, 1991, pp. 149–181; Hefner, 2003, pp. 73–88; c.f. Graham, 2002, pp. 200–220). Rather, the intent is to promote reflection on the possible future direction we may be heading in taking the initial step of regenerative medicine, and that such periodical imaginative reflection might in turn inform moral and political deliberation on current research applications. In short, to ponder the prospect of a posthuman future is to reflect on how best to ensure that our well-intended efforts to improve the functions of the human body do not inadvertently create beings we would prefer not to become. To ask the question of the future is to place a mirror before the present. In order to catch some of the reflected images, four possible answers to the question posed above are examined below:

1. An unqualified *yes* (transhumanists)
2. An ambiguous yes (N. Katherine Hayles)
3. A muted no (Francis Fukuyama)
4. A resounding *no* (Leon Kass)

9.4.1 An Unqualified Yes (The Transhumanists)

Transhumanists respond with an unqualified "yes" to this question. This loosely knit and ill-defined movement is dedicated to transforming individuals,

if not the human species, into posthumans. This goal will be achieved initially by extending longevity through improved diets and healthcare employing regenerative medical techniques. More expansively, humans will gradually merge with their technology through the application of sophisticated prosthetics, employing anticipated developments in nanotechnology, artificial intelligence, and robotics. This process of technological transformation will culminate in uploading one's personality into a computer and downloading it into various media, thereby enabling virtual immortality (Kurzweil, 2000, pp. 118–129; Moravec, 1988, pp. 100–124).

There are two principal reasons why transhumanists aspire to become posthuman. First, pursuing this goal will improve the quality of life for many individuals. For transhumanists, personal identity is defined almost exclusively in terms of subjective experience and cognitive abilities. Admittedly the human body serves as the means of constructing one's identity through its various senses, but it also imposes severe limitations on individuals given their limited sensual scope and short lifespans. Consequently, transhumanists welcome regenerative medicine as an important tool in enhancing the quality of human life because it will lead to the "radical extension of human health-span, eradication of disease, elimination of unnecessary suffering, and augmentation of intellectual, physical, and emotional capacities" (Bostrom, 2005). It is not surprising that transhumanists are among the most vocal proponents of embryonic stem-cell research and "therapeutic" cloning.

Second, humans must use their reason and rationality to direct the future course of evolution if they are to flourish as a species. To date, biological evolution has conspired against humans in realizing their potential, particularly in respect to mortality. In response to this cruel fate, various technologies should be developed as quickly as possible to fulfill this potential. As Nick Bostrom has written: "Transhumanists view human nature as a work-in-progress, a half-baked beginning that we can learn to remold in desirable ways. Current humanity need not be the endpoint of evolution" (Bostrom, 2005). The problem is that evolution does not allow sufficient baking time for humans to maximize their latent potential. It is only through the development and use of sophisticated prosthetics in tandem with regenerative medical techniques that humans will be able to transform themselves into the superior posthuman creatures they have the potential to become (More, 1993). Contemporary regenerative medicine is a cautious first-step in the transformation of *Homo sapiens* into technosapiens.

It is unfair to imply that scientific, medical, and industrial leaders in the field of regenerative medicine are driven by a transhumanist agenda, yet transhumanists nonetheless welcome and champion their work as the means of achieving their more ambitious goals. This is the case because of their urgency to pursue a posthuman future, for if we fail to do so, humans are consigned to at best greatly diminished lives, and at worse extinction as a species (Moravec, 1999, pp. 191–211).

9.4.2 An Ambiguous "Yes" (N. Katherine Hayles)

N. Katherine Hayles offers an ambiguous reply to the question of whether or not humans should aspire to become posthuman. She agrees that the future is inevitably a posthuman one, for human destiny is inexorably linked with science and technology (Hayles, 1999, pp. 279–282). Unlike the transhumanists, however, Hayles does not assume a utopian destiny. Rather, she fears that a combination of humanistic anthropology and technoscience will prove deadly (Hayles, 1999, pp. 286–287). A late liberal understanding of individual autonomy is simply incompatible with the underlying premises of the envisioned technologies, because the former assumes that personhood is delineated in terms of embodied boundaries that should not be violated while the latter is dedicated to erasing those very borders. The end result is that persons are reduced to little more than expressive wills expressed through various biological- and silicon-based prosthetics. Consequently, any attempt to reify individual or corporate identities in terms of virtual immortality is a recipe for unmitigated disaster because humans disappear within their technology rather than using it to transform themselves.

Alternatively, Hayles wants to create a posthuman which "celebrates finitude as a condition of human being," and this condition is in turn a prerequisite for "our continued survival" (Hayles, 1999, p. 5). Significantly, Hayles shares with her transhumanist interlocutors the assumption that the overriding issue at stake is survival, and that individual and corporate identities are socially constructed rather than imposed by nature, but she disagrees on the best strategy to be undertaken in light of this assumption. The objective should not be to obtain the virtual immortality of a disembodied will, but to construct embodied, and therefore finite, persons. The principle of finitude presumably places limits on the extent to which humans should employ technology in transforming themselves. It is important to note, however, that Hayles does not specify what these limits should entail because she is unwilling to make any normative claims about the human body per se. In many respects, she celebrates the ability to transgress the borders dividing the so-called natural from artifice, because this border has historically been used to oppress and dominate. But she wants to render these boundaries more pliable and tenuous in order to liberate oppressed groups and individuals, instead of erasing them altogether resulting in an equally oppressive condition. The posthuman world should be populated by persons who have constructed their own embodied identities as opposed to disembodied wills that continue a quest to dominate finitude itself. Despite Hayles's unease with the liberal, humanistic, and thereby destructive anthropology reflected in many posthuman visions of the future, she is cautiously optimistic that one can be constructed "that will be conducive to the long-range survival of humans" (Hayles, 1999, p. 291).

Although Hayles does not mention regenerative medicine directly, there is nothing in her account of how we are becoming posthuman that would either

endorse or condemn *carte blanche* its various therapies and enhancements. The issue at stake for her is not the transformative power of revolutionary medical technologies, but how these tools are used in constructing an inevitable posthuman future. Yet in refusing to make any normative claims about the limits of finitude, we are given few clues about how these tools should be used for constructive rather than destructive purposes.

9.4.3 A Muted "No" (Francis Fukuyama)

For Francis Fukuyama, the task at hand is not to construct the future but to preserve human dignity in whatever future lies ahead. Contrary to Hayles, the challenge is not to avoid the toxic joining of liberal humanism with technoscience, but to prevent biotechnology from undermining the foundation of human nature upon which liberal democracy rests. Most importantly, democracy is the only reliable option available for resisting the kind of tyranny Hayles fears (Fukuyama, 2002, p. 14). Fukuyama worries that regenerative medicine represents the first step in engineering humans toward an inhumane future. Augmenting the performance of the human body means that human nature is also being transformed, and he believes that a strong philosophical argument can be offered against this transformation. The gist of his argument is captured by summarizing two substantive claims. First, any meaningful discourse on human rights must be grounded in human nature, which is defined as "the sum of the behavior and characteristics that are typical of the human species, arising from genetic rather than environmental factors" (Fukuyama, 2002, p. 130). Individuals, societies, and political structures are not created *ex nihilo*, but are derived from innate behavioral characteristics. The instinct for parental care and affection, for example, helps to account for the institutions of marriage and family that pervades nearly all cultures. Moreover, a natural moral sense has evolved over time as demonstrated in a range of emotive responses that is "species-typical" (Fukuyama, 2002, pp. 140–143).

The second substantive claim is that dignity is not an abstract concept or free-floating category, but a natural quality derived from a genetic endowment that is uniquely human. It is an endowment promoting emergent rather than reductive forms of behavior among individuals and groups, and any attempt to separate the parts from the whole would result in disfiguring the distinctly *human* nature, which has been bequeathed by natural selection. Altering genes, albeit for genuinely therapeutic reasons, is nonetheless also altering human nature. Tinkering with this uniquely human genetic endowment could very well negate the civil and political rights of liberal democracy, which seek to instantiate the dignity that is being unwittingly assaulted. Consequently, any prospect of a posthuman future should be resisted because "we want to protect the full range of our complex, evolved natures against attempts at

self-modification. We do not want to disrupt either the unity or the continuity of human nature, and thereby the human rights that are based on it" (Fukuyama, 2002, p . 173).

Fukuyama's "no" to a posthuman future, and derivatively to regenerative medicine, is, however, subdued. He admits that if biotechnology were only a menace to the bedrock principle of human dignity, then it should be prohibited. Yet he cannot bring himself to make such a recommendation because he also acknowledges that potentially beneficial therapies can be developed despite the threat. What we are confronting in biotechnology is a "devil's bargain" in which "obvious benefits" are mixed "with subtle harms in one seamless package" (Fukuyama, 2002, pp. 7–8). Can the benefits be separated from the harms? Fukuyama believes they can by using "*the power of the state to regulate*" biotechnology (Fukuyama, 2002, p. 10, emphasis original). He proposes a series of policies that would assess proposed research in light of the philosophical standard of human dignity summarized above (Fukuyama, 2002, pp. 181–218). Since the standard of assessment is also the moral norm to be protected, such research should proceed slowly and cautiously. As a member of the President's Council on Bioethics, Fukuyama's voting record on embryonic stem-cell research and cloning demonstrates that the pace should indeed be very deliberate.

9.4.4 A Resounding "No" (Leon Kass)

For Leon Kass, chairman of the President's Council on Bioethics, the very idea that we would willingly aspire to become posthuman should prompt a response of repugnance: "No friend of humanity cheers for a posthuman future" (Kass, 2002, p. 6). This is the case because a quest for immortality or greatly extended lifespans necessarily imperils the mortality and finitude from which meaning and virtue are derived (Kass, 1985, pp. 299–317). It is in coming to terms with their finite limits, and the inherent pain and suffering entailed in those limits, that humans embody a nobility of spirit that is supremely expressed in procreation, for the future is properly shaped through progeny rather than extending the lives of the progenitors. "Nothing humanly fine, let alone great, will come out of a society that is willing to sacrifice all other goods to keep the present generation alive and intact. Nothing humanly fine, let alone great, will come from the desire to pursue bodily immortality for ourselves" (Kass, 2002, p. 20). In short, being and remaining human requires an *absolute* dependence on finitude (Kass, 2002, pp. 17–19).

Kass agrees with Fukuyama that the principal issue at stake is preserving human dignity. The former, however, is not merely amplifying the volume of the latter's rhetoric. Kass is far more suspicious and critical of the science and philosophy underlying our present contemplation of a posthuman future. Following Hans Jonas, Kass insists that modern science is driven by

a relentless desire for mastery and manipulation, exerting maximum control over nature and human nature. Presumably this control will result in greater human freedom, but ironically humans become increasingly enslaved to the tasks required in such mastery, exchanging a capricious nature for fickle engineering (Kass, 1985, pp. 25–40). There are few moral brakes to be applied in slowing this momentum, for late moderns have been largely convinced that there are no normative concepts that define what it means to be human, and therefore no normative ends to be pursued that would preserve their dignity. This moral and spiritual blindness is exemplified in the sorry state of contemporary bioethics, which has much to say about freedom and autonomy but nothing about dignity, and whose leading practitioners have created a cottage industry blessing the steady flow of new products tossed into the market by the growing biotechnology industry (Kass, 2002, pp. 8–12). For Kass, unlike Hayles and Fukuyama, the great fear of the future "is not tyranny but voluntary dehumanization" (Kass, 1985, p. 71).

Kass is also less sanguine than Fukuyama that we can sort out the devil's bargain. It may very well prove futile to resist a posthuman future because of the extent that we are coming to depend upon and enjoy the blessings of a technologically driven medicine. We may, therefore, lack the moral courage and spiritual fortitude to pursue the hard work of discerning the difference between a hubristic quest for immortality and genuinely compassionate healthcare. Consequently, the advent of regenerative medicine may come to mark both a fateful and fatal step toward a posthuman destination that we would be wise to avoid.

9.5 But What Question Did These Answers Answer?

The preceding section summarized four replies to the question of whether or not humans should aspire to become posthuman. A spectrum was apparently disclosed, ranging from enthusiastic endorsement to equally robust opposition. Presumably, then, these replies could be used as heuristic markers to plot a range of perspectives that might shed light on various moral responses to current and anticipated developments in regenerative medicine. For example, a correlation might be drawn between the emphasis placed on dignity and any corresponding claims regarding the normative status of the human embryo, which, in turn, informs various levels of opposition or support for embryonic stem-cell research. In this respect, the extent to which an imagined future promotes or denigrates a notion of dignity is expressed in various policy positions, and the fears or concerns reflected in those positions could be dealt with more directly within the ensuing public debate over proposed policies.

It would be a mistake, however, to undertake such an endeavor, for it is not clear what kind of question the preceding replies tried to answer. Although each used the term "posthuman," it is clear that they are not all referring to the same

thing. It could not be otherwise, for how can one describe what this imagined creature, who has capabilities beyond anything currently available to us, would be like? Consequently, the transhumanists are at pain to describe a virtually immortal being, while Hayles is at a loss to speculate on what the constructed posthuman body might be like; it remains a mystery what exactly Fukuyama wants to avoid through regulation, and what Kass wishes to prevent through prohibition.

Why do these interpretations span the gamut from utopian dream to apocalyptic nightmare? It is in addressing this question that the value of such speculation about the future is disclosed, for the expressed hopes and fears reveal what is preoccupying those who are speculating. The remainder of this essay attempts to enucleate this preoccupation by discerning how each answer comes to terms with the more immediate relationship between *necessity* and *goodness*. This perennially vexing topic has been selected because what is purportedly at stake in becoming posthuman is the extent to which human biology generally, and the human body in particular, is an evil to be overcome or a good to be preserved, and how the resulting efforts to either overcome or consent to the perceived constraints of natural necessity should be assessed. In short, the question of finitude is no more pressing than when pondering the merits and limits of embodiment. By revisiting the various answers within this framework, we can perhaps gain some new moral insight on regenerative medicine that we might otherwise miss.

For the purpose of this chapter, necessity may be defined as the use, acquisition, or consumption of things that are needed to sustain the life of an organism over time. In regard to humans, these things include air, water, food, exercise, rest, shelter, and the like, and in order to perpetuate the species, reproduction should be added to the list. None of these things are inherently good or evil, and each of these things is assigned a relative value by those using, acquiring, or consuming them. We do not normally ponder breathing as a moral dilemma, and I may value eating over resting while you prefer to exercise.

Necessity, however, poses two problems, at least for creatures such as humans, who have the ability to contemplate their fate. First, necessary things sustain the lives of creatures, but these creatures cannot be sustained indefinitely and necessarily so. Humans are born, grow old, and die. Moreover, it appears that this fatal pattern for individual human beings is necessary to promote the survival of the species over time. Natural selection has pieced together a human organism that is efficient at breeding but not much else. Consequently, they need to produce and raise their offspring, and then get out of the way to allow the next wave of breeding to run its fateful and fatal course. Once individuals have passed their reproductive potential, evolution has absolutely no interest in how longer they survive.

Second, there is the problem of how necessary things are used, acquired, or consumed. Necessary things seemingly are scare rather then plentiful and, therefore, tend to be used, acquired, or consumed in a competitive manner. This competition is both inter- and intra-species. *H. sapiens*, for instance,

apparently acquired the prerequisite skills to eliminate their Neanderthal competitors. And among humans, some individuals are better equipped than others in competing for scarce resources, resulting in a stronger species over time by culling weaker genes from the gene pool.

The preceding summary of these two problems posed by natural necessity is admittedly a sketchy generalization, but it nevertheless serves to demonstrate why the necessary and the good are not synonymous or even complementary concepts. Survival itself necessarily entails the pain, suffering, and morbidity associated with mortality. Although the death of an individual benefits one's offspring directly, and the species more generally, it is nonetheless perverse to designate this fate as being good. Even Christians who ardently long for the new life in Christ over the old life of sin nonetheless correctly identify death as the final enemy. Moreover, competitive violence and carnage has been amplified to nearly unspeakable levels with the growth of late modern societies and political regimes. Although poverty or war may prove to benefit some at the expense of others, it would again be perverse to claim that they are good. More expansively, who can say whether it is good that humans flourish as opposed to and at the expense of other species? In short, we cannot simply assert that because something is necessary it is therefore good, much less that something is good because it is necessary. A gentle rain falls, after all, indifferently on both the righteous and the wicked.

Many philosophers and theologians have tried to relieve this stark tension between the necessary and the good. The Hegelian and Marxist solution, for example, is that history settles the issue. Hegelians try to transform the necessity into goodness; the good is self-realized through freedom that overcomes the necessary. This freedom is achieved through progressive historical acts that culminate in the absolute state, reflecting a human mastery of nature and human nature. Consequently, there are no constraints on human acts, which strive to realize this perfected state of freedom. Marxists take a similar path, but the goal is to achieve a classless society as the epitome of perfect freedom. The objective at stake is a social rather than political one. But in either case, the pain and suffering inflicted in achieving the goal is justified because it is necessary for obtaining the greater good of the absolute state or classless society.

The weakness of this approach is that it exchanges natural necessity with historical necessity, thereby amplifying the scope of suffering and misery entailed in perfecting human freedom. The move virtually justifies force as a redemptive tool in which goodness and necessity become the fabric of attenuated notions of progress and providence. This move, however, results in a cavalier attitude toward evil, as acts of cruelty and violence are justified by historical necessity. But it is a denuded justice that is invoked, for it is the good of the powerful achieved at the expense of the weak. As George Grant has written: "The screams of the tortured child can be justified by the achievements of history. How pleasant for the achievers, but how meaningless for the child" (Grant, 2000, p. 100). The hope that human action can achieve the good by replacing natural necessity with historical necessity is delusional. Grant goes on

to assert that any invocation of historical progress "is blasphemy if it rests on any easy identification of necessity and good" (Grant, 2000, p. 100).

In opposition to this blasphemy, Grant proposes an alternative Platonic–Christian understanding of the relation between goodness and necessity. Following Simone Weil, Grant contends that the creator withdraws from creation in order to give its creatures genuine freedom as an act of absolute love. The creation and its creatures become something truly other than God and, therefore, a proper object of God's love. This withdrawal, however, subjects the creatures to the constraints of necessity that negates their freedom. Necessity distributes misery, violence, and disease "in accordance with its own proper mechanism" (Springsted, 1998, p. 73). An infinite chasm separates the necessary from the good, which cannot be bridged by any human action. Humans cannot erase or redeem their tragic history on their own terms. In Weil's beguiling words: "God's absence is the most marvelous testimony of perfect love, and that's why pure necessity, the necessity which is manifestly so different from good, is so beautiful" (Springsted, 1998, p. 73). How do we come to terms with a necessity whose beauty is devoid of goodness? According to Grant, we must learn to love our fate and consent to the limits it imposes. This love does not result in sullen resignation, but opens us to the very love that makes necessity beautiful. Although the necessary and the good can never be joined, the chasm separating them has been bridged by the suffering of Christ as the incarnate mediator (Davis, 2002, pp. 483–489). We consent to necessity in obedience to God, and the resulting love of fate enables a love of neighbor expressed in the recognition of a fundamental equality and indifferent compassion. This is the best that can be achieved on this beautiful side of the chasm, for the good can only embrace us on the other, eternal side. In the meantime, this eschatological hope is best expressed, following Martin Luther, in affirming a theology of the cross that consents to necessity instead of a theology of glory that tries vainly to transform it into goodness.

Kass seemingly favors Grant's Platonic–Christian account over the Hegelian–Marxist option—up to a point, and it is a significant point of departure. If regenerative medicine is driven by a quest for extending longevity or virtual immortality, then it represents little more than another vain attempt to transform necessity into goodness. Indeed, exchanging natural necessity with technological necessity can have no good effect because it corrupts medicine as an art, which should help individuals to struggle with rather than eliminate natural and finite limits. If medicine dedicates itself to waging war against death, then it must also come to hate the very human body it allegedly serves because its finitude prevents any final victory. Medicine, then, should properly limit its practices to assisting patients to come to terms with lineage, parenthood, and embodiment, as finite endeavors entailing suffering and eventual death (Kass, 2002, pp. 96–102). In this respect, medicine is properly an intergenerational institution preserving human dignity by assisting a morally integral process of biological and social reproduction (Kass, 2002, pp. 69–72). Any attempt to become posthuman is thereby a hubristic effort to remove the necessary limits, which provide the natural foundations of human dignity.

Although we may say, in Grant's and Weil's terms, that Kass acknowledges the beauty of necessity, his consequential consent is only partial. Necessity's beauty does not confer to nature any absolute sovereignty over the structure of human life. Kass readily admits there are no pretechnological good old days to recover, and there is nothing wrong with medicine helping people live long lives surrounded by loving children and grandchildren. The biblical three-score and ten is a flexible rule of thumb, rather than a rigid limit, gently reminding us of our mortality, and hence the pressing need for natality. Yet this flexibility presents a dilemma: at what point does medicine cross the line, becoming a hubristic attempt to transform necessity into goodness, forsaking the art of helping us come to terms with finite limits? Kass is hard pressed to draw this line at any particular location, for he also argues that there is nothing wrong in developing more effective therapies and preventive techniques. Yet if the research underlying regenerative medicine is prohibited, then is not the resulting suffering that could have been prevented justified by the necessity of willful restraint? Seemingly, the pain and suffering of the few is justified in order to preserve the dignity of many. In addition, his objection to regenerative medicine is not with its therapeutic and preventive goals per se, but to the production and cloning of embryos to harvest their stem cells. But if the same results could be achieved through extracting adult stem cells, then he would be hard pressed to object because greater longevity would be a secondary effect of better therapeutic and preventive measures. So long as the willful destruction of embryos is avoided, cannot humans have much longer and healthier lives with their dignity intact?

Moreover, the object of Kass's hope for the future is offspring, both in terms of perpetuating the species and protecting human dignity. Yet this means that the chasm separating necessity and goodness can neither be reconciled nor even bridged. Procreation and children are instead asserted as goods in their own right, albeit in a diminished form, because such a strategy can only fail in embracing an eternal good that lies beyond a chasm that has never been and can never be traversed. Through lineage, humans may achieve a sense of immortality but will never encounter eternity. Although any grand scheme of transforming the necessary into the good should be rejected, lesser, temporary niches of goodness can be carved out through the bonds of lineage, kinship, and descent. This is perhaps the best Kass can offer because, as Gerald McKenny has observed, he lacks a clear understanding of medicine's moral authority and, therefore, can only offer a narrow and prudent vision of the good it purports to be pursuing (McKenny, 1997, pp. 143–146).

Of the authors surveyed, it is surprisingly Hayles who shares the greatest affinity with Kass. This claim is admittedly counterintuitive, as it would seem that her ambiguous "yes" and his resounding "no" to the prospect of becoming posthuman would place them in opposing camps. Yet when the question is posed in terms of necessity and goodness, Hayles shares with Kass an unflinching opposition to any program that attempts to negate human embodiment and finitude. Although in her celebration of embodied finitude, Hayles is unwilling

to invoke or protect any normative values such as dignity, she is nonetheless prepared to resist any effort that threatens the survival of embodied persons. Presumably, at some point, then, she is also prepared to draw a line specifying the extent to which the technological transformation of humans may proceed but must not pass, even though she is unwilling to specify in advance where that line might be drawn. Where Hayles differs with Kass is that the great enemy to be resisted is neither Hegel nor Marx and their respective myths of the absolute state and classless society, but a more pernicious liberal humanism and its myth of autonomy as exemplified by the transhumanists. Thus the small niches of goodness that are to be carved out within a realm of necessity involve the construction of posthumans who have preserved the value of finite embodiment, rather than preserving a so-called dignity derived from lineage and kinship. Consequently, for Hayles the pressing task at hand is not biological and social reproduction, but constructing a social and political order that genuinely enables the survival of its inhabitants.

Since the issue for Hayles is not whether a posthuman future will emerge, but rather what kind of posthumans should be constructed to populate that future, she is ambivalent about the prospect of regenerative medicine. Given the constructive task at hand, the development of embryonic stem-cell research, cloning, and prosthetic enhancements is neither inherently moral nor immoral. The concern at stake is one of application: regenerative medicine may produce tools that either assist or impede the construction of finite and embodied posthumans, with the resulting challenge to discern the difference between the two. It is this presumption of instrumental neutrality, however, which imperils Hayles's program. Since she is unwilling to specify in advance any normative values that are derived from embodied finitude, early forays into regenerative medicine may generate an unwanted momentum that cannot be effectively resisted, much less stopped, down the road. As Grant argues, technology is not a neutral set of instruments from which we may pick and choose. Rather, it is a way of life that enfolds its users in its own destiny, thereby transforming or disfiguring what the very meaning of goodness comes to mean. To partake of technology generally, and medical technologies particularly, necessarily entails a package deal in which any so-called freedom that picking and choosing purportedly enables is little more than a cruel illusion (Grant, 1986a, 1986b, pp. 11–34). It is technology that will shape us in its image, and not vice versa. In partaking of regenerative medicine's early fruits to construct her posthuman future, Hayles may be starting down a road whose inevitable destination is the very transhumanist vision she wishes to resist.

Transhumanists are dedicated to transforming humans into posthumans because they can discern no aesthetic qualities in the necessary. There is nothing beautiful at all about mortality. This is not a fate to be loved, but one to be resisted and conquered at all costs. To do otherwise is to succumb to a death wish—to consent to extinction. Correspondingly, transhumanists also have no interest in natality, for the birth of a child serves as a reminder of necessity's death and decay. The task at hand is neither Kass's biological and social

reproduction, nor Hayles's social and political construction, but a frenetic and continuous transformation and projection of the self as far as possible, or better, endlessly into the future. Since evolution has not equipped humans successfully to complete this chore, they must take its future course into their own hands. Consequently, a relentless war against death can and should be waged. Therefore, the advent of regenerative medicine is to be welcomed and encouraged as the initial salvo against this mortal foe. The current and anticipated fruits of merging biotechnology and nanotechnology, for instance, should be neither forbidden nor eaten selectively, but consumed voraciously in order to strengthen ourselves for the battles that lie ahead. Those seeking to prohibit or restrict the requisite research and experimentation should be regarded as the true enemies of humanity, for in trying to preserve a so-called dignity, or celebrate the values of finitude, they are conspiring with the enemy. In this respect, transhumanists have raised the ante on Hegel and Marx: the genuine good of freedom cannot be attained in either the absolute state or classless society, but only in the virtually immortal posthuman. It is only when mortality has been vanquished that we can be truly free. Thus, whatever scientific and political means are required to wage an effective war against death are justified by the historical necessity of achieving this perfect freedom.

In appealing to immortality, however, transhumanists tip their hand. Despite their rhetoric, they cannot really claim a humanistic pedigree. No humanist would willfully consent to transforming humanity to the extent that it ceases to be human, for this would destroy both the measure and the goal of the very moral enterprise undertaken, namely, to be fully and, therefore, *only* human. Transhumanists also harbor a death wish of transforming *H. sapiens* into extinction in order that the posthuman can emerge. But it is far from clear whether creatures dedicated to the suicide of their species can think any more rationally about the moral, social, and political implications of regenerative medicine than those who consent to eventual extinction through natural selection. More tellingly, the immortality they seek will not grant the kind of mastery they desire. Even within Greek mythology, the immortals are not eternal and, therefore, remain subject to a fate they cannot control. Rather than bridging the chasm separating necessity and goodness, transhumanists are endeavoring to dig it deeper and wider. Consequently, they have not raised the ante on Hegel and Marx, but swept them aside in favor of Nietzsche. His hope of the *Übermensch* is now possible with the advent of sophisticated technologies. Their adulation, however, is limited, as unlike Nietzsche the prerequisite for the emergence of this new being is not a love of fate, but rather, the outcome of engineering designed to negate fate. The transhumanists, therefore, have bet everything on technological development. But how will these high-tech nihilists respond if our initial steps through regenerative medicine propel us toward a destination that can only disappoint? Specifically, what happens if death proves to be an unconquerable enemy, and we are left only with a necessity that remains a fate that cannot be loved? In Grant's words, they "will be resolute in their will to mastery, but they cannot know what that mastery is for"

(Grant, 1995, pp. 45–46). Given the technological power that will presumably be at their disposal, one shudders to think what might occur if these nihilists conclude that it is better to will nothing when there is nothing good to will.

It is such an apocalyptic specter that Fukuyama wants to avoid by regulating the research underlying regenerative medicine. His rationale for justifying such regulation is straightforward: natural selection has produced a species called human that is capable of developing and sustaining liberal democratic societies. This is no small blessing since such societies go a long way in softening the sharp edges of natural necessity. In this respect, some aspects of beauty within the necessary can be perceived, yet these perceptions should prompt us to neither love nor overcome fate. Fukuyama makes no attempt to bridge the chasm separating necessity and goodness, but we catch glimpses of universal goods through natural law, which in turn should order our moral, social, and political lives. Our understanding and institutional ordering of these goods have emerged from our natural evolution as a species, so we should be wary of unwittingly unraveling an evolutionary process, which to date has served us well, and should not be casually disregarded. The therapies and enhancements envisioned by proponents of regenerative medicine will alter the human species over time. Consequently, we should only employ such interventions in a highly judicious manner so that the natural foundations of liberal democracy are not inadvertently undermined. Such caution may very well consign some individuals to pain and suffering, but their fate is justified by the necessity of preserving the greater good of civil society. In short, necessity dictates prudence in order to preserve the temporal goods that we have already obtained.

At first glance, it appears that Fukuyama has all but slammed the door shut on any posthuman future. Yet in opting for regulating instead of prohibiting research, he has left open a crack, and in examining that small space we discover an unexpected affinity with the transhumanists. Fukuyama favors regulation over prohibition because he recognizes that some aspects of regenerative medicine may very well prove to be genuinely beneficial. In facing the devil's bargain, he leaves open the possibility that we may be able to outfox this crafty adversary, hence the slow and cautious approach. But if the devil can be outfoxed, then what separates Fukuyama from the transhumanists is not any normative claims about humans, but the pace of their transformation into posthumans. This is where his confidence in natural selection betrays his normative rhetoric. The goods, which natural law purportedly discloses, are not given but emerge from the evolutionary process itself. Thus, these goods are self-referential rather than revelatory of any transcendent or eternal source. The evolution of *H. sapiens* is also open-ended. We cannot simply indicate to a particular point of evolutionary development and proclaim this far but no farther, for change or mutation is precisely what enables a species to flourish and avoid extinction. Yet if humans evolve over time, then so too do the emergent goods disclosed in natural law because they are themselves derived from the underlying evolutionary process. Consequently, a posthuman future cannot be foreclosed in advance on Fukuyama's own evolutionary terms. As judicious interventions are introduced through carefully regulated therapies

and enhancements, they will still have a cumulative effect over time, thereby effectively transforming humans. If these interventions should prove to offer no substantive threat to the so-called natural foundations of liberal democracy, then he would be hard pressed to argue for the superiority of natural selection over willfully directed evolution. The goods revealed by his emergent natural law may in fact evolve to a point where they dictate the necessity of humans exerting greater control over their evolutionary fate. Fukuyama must be open to this prospect, for unlike Kass, such things as procreation, lineage, and embodiment are not the foundations of human dignity, but the *currently* necessary means of perpetuating liberal democratic societies, which in turn bestow dignity to its citizens. If initial forays into the technological transformation of humans should prove unthreatening to the social and political sources of this dignity, then Fukuyama cannot entirely foreclose the possibility and desirability of a posthuman future, especially if it is populated by more proficient democrats. In short, the necessity of evolution dictates that *H. sapiens* will become something other than human, and presumably this change can occur through unhurried natural selection or hasty technological transformation. Fukuyama prefers the former, but is also hedging that preference by not foreclosing the latter.

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Chapter 10
The Ethics of Regenerative Medicine: Beyond Humanism and Posthumanism

Gerald P. Mckenny

10.1 Introduction

Every decade or so proponents of a new technology promise that it will radically alter the practice of medicine. Thirty years ago, it was organ transplantation. Fifteen years ago, it was gene therapy. Today it is regenerative medicine. Regenerative medicine refers to procedures designed to restore degenerated tissue or cellular functioning. It includes, but not necessarily limited to, transplantation of cells to form new tissue (e.g., bone, muscle, liver, and neural tissue); implantation of bioartificial tissues constructed ex vivo using a biodegradable scaffold (e.g., bladders); drugs composed of genes, proteins, or antibodies (e.g., on the model of insulin); and stimulation of cells in vivo (e.g., by gene insertion). Research in regenerative medicine has followed increasing knowledge of the biomolecular capacities of cells to regenerate. We have long known about the body's capacities to heal wounds and replace skin. More recently, but still many decades ago, we learned about the capacity of livers to regenerate themselves and even adjust their size and shape to particular bodies. It is only recently, however, that we have begun to learn about genetic and cellular mechanisms that govern these capacities. Regenerative medicine has prompted public controversy in large part because of the positive role many researchers believe human embryonic stem (hES) cells may play in tissue regeneration. These researchers seek to discover how to direct the multipotent and pluripotent capacities of embryonic stem cells toward the formation of particular tissue. The controversy, of course, arises from the necessity of destroying the embryo in the process of extracting its stem cells.[1] Whether it will be feasible in the future to conduct stem-cell research without destroying embryos is, of course, uncertain at present; while various alternatives have been proposed, no one knows whether they will be effective absolutely or relative to methods in which embryos are

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destroyed. It appears likely, then, that the controversy over embryos will remain for the foreseeable future.

Other contributions to this volume treat this question of the embryo and its status in relation to regenerative medicine. The aim of this essay is to consider regenerative medicine in another ethical context, one that it shares with other technologies that are widely thought to have the capacity to bring about radical transformations of human life. This context has to do with potential uses of regenerative medicine to redesign our bodies or to increase the life expectancy of individuals or the human lifespan itself. The potential of regenerative medicine to accomplish such aims brings it under the more general heading of enhancement technologies. As the US President's Council on Bioethics has emphasized, enhancement technologies are inseparable from deeply rooted human longings and aspirations (The US President's Council on Bioethics, 2003, pp. 17–22). These longings and aspirations, whose cultural expressions range from the highest flights of the utopian imagination to the most banal marketing practices of biotech companies, do not simply follow upon the therapeutic uses of these technologies; rather, the technologies themselves, combined with the complex societal, cultural, and institutional networks within which they are developed and disseminated, give concrete form and immediacy to previously inchoate longings and aspirations. It is necessary, in evaluating these technologies, to address this broader context of human longing and aspiration.

This context, however, is seldom the focus of ethical evaluation of enhancement technologies. The first language of bioethics is the language of rights, harms and benefits, and justice. Enhancement technologies also tap into a second language, one which reflects the widespread assumption that human nature itself is somehow at stake in these technologies. For one set of observers, this is a good thing; they hope that these technologies will permit humanity to pass beyond itself into something that is vaguely characterized as "transhuman" or "posthuman." For another set of observers, this is a profoundly bad thing; they worry that we are on the verge of the irrecoverable loss of something of incomparable worth. I will describe the debate between these two camps in order to make two points. The first point is that both the posthumanist and the humanist projects are subject to major problems and limitations. The second point is that the debate is a subset of a larger debate in the late modern West. The issue in this debate is whether our social, political, and cultural life is based on the conviction that humanity is still to be realized or on the conviction that humanity as it is must be valued and protected. The late philosopher Hans Jonas understood better than anyone the place of biological technology in this context of conflicting versions of the metanarrative of the post-Christian West. Yet the assumption that the human as such is what is at stake in these technologies deflects our attention from the various contexts of human desire and practice, which these technologies transform in more and less obvious ways.

10.2 Regenerative Medicine for Enhancement

In what sense should we think of regenerative medicine in relation to enhancement technologies? Regenerative medicine potentially has many important therapeutic applications. In the future, it may be used to accelerate the healing of skin wounds, to repair damaged muscle tissue, or to restore neural functioning. In all of these cases, regenerative medicine restores a somatic condition to a state of health. But of course, once it is developed, the same technology may be used for other purposes. Roughly the same techniques that accelerate the healing of a skin wound may also eliminate the wrinkles in the skin of an octogenarian, giving her the appearance of a person in her mid-thirties. Techniques that repair a muscle tear may be redirected to halt or even reverse the standard muscle degeneration that afflicts all of us as we pass into middle age and beyond. Proponents of these uses of regenerative medicine could argue that they too are simply restoring somatic conditions and, therefore, treating a disease rather than enhancing a normal trait. Which of the two they are doing depends on one's theory of health and disease. This brings us to an extraordinarily complex issue that cannot be fully treated here.[2] Put simply, "naturalist" theories of disease tend to treat age (Christopher Boorse) or the natural life cycle (Leon Kass) as a relevant category for determining whether a decline in a biological function should count as a disease or not, while "normativist" theories of disease either deny that meaningful distinctions between diseases and other disvalued somatic conditions can be drawn outside of particular substantive views of the good (Engelhardt) or argue that while disease (or "malady") is not a community-dependent notion, loss of function connected with aging is not a disease (K. Danner Clouser, Charles Culver, and Bernard Gert). The upshot is that naturalist theories regard restoration of tissues or organs in older persons to the appearance or level of function characteristic of younger persons as enhancement, while normativists either consider it therapy or deny the public relevance of the distinction. The most plausible position in this debate holds that naturalists are roughly correct in distinguishing between therapy and enhancement but fail to show why the distinction should be normatively binding on medical practice since on almost any naturalist account, there are some conditions that do not count as diseases yet, which are proper objects of medical treatment (McKenny, 2000).

Of course, the most exhilarating prospect of regenerative medicine has to do with its potential for prolongation of life. Here we may distinguish the incidental effects of regenerative medicine from the intentional use of it to extend life. No one seems to mind if, for example, one person lives longer due to the successful treatment of Parkinson's disease through tissue restoration or another person lives longer because of the cumulative effects of restoration or replacement of her bladder, liver, and bones. Modern biomedicine already extends the lives of individuals through analogous procedures such as organ transplantation. Unlike some research programs, there is no

reason to suppose that regenerative medicine is inextricably linked to efforts to prolong life indefinitely. We may also distinguish between the extension of the life span of individuals and the extension of the human life span itself. It is one thing for individuals to approximate the current limit to human longevity (about 120 years). It is another thing for that limit to increase significantly. Regenerative medicine as currently envisioned is mostly directed to the former. However, there is ongoing research into telomeres, parts of cells that apparently control their degeneration. Assuming that cell degeneration and not some more general factor(s) is solely or primarily responsible for the degeneration of the human organism, this research appears to have some potential to extend the human life span. The more immediate results of regenerative medicine, however, concern the life span of individuals.

Like the advances in treatment of cancer, heart disease, and other conditions in recent decades, the focus of regenerative medicine on single tissues and organs is a piecemeal approach that is unlikely to have a major effect on life expectancy. The extraordinary increases of life expectancy during the 20th century were due far more to measures that fall under the heading of public health than to advances in the treatment of individual diseases, however stunning these advances have been. Nevertheless, it is reasonable to expect that advances in regenerative medicine, like the advances in the treatment of diseases generally, will add some years to the lives of numerous individuals. Is there any reason to resist this outcome? One question, raised by Francis Fukuyama, has to do with the quality of life under the plausible scenario that success in the restoration or replacement of organs and other body parts outpaces success in the treatment of conditions such as Alzheimer's disease. Individuals may live longer, thanks to a new bladder or a delay in neural degeneration, but may be unable to forestall degeneration in other functions. The result would be a diminished quality of life (Fukuyama, 2002, p. 68f). However, while this would no doubt be unpleasant for these individuals, it is no different in principle from choices people currently make to avail themselves of procedures whose success may mean, say, suffering from severe memory loss when one would otherwise have died of kidney failure or cardiac arrest. To the extent that regenerative medicine is successful, it may, of course, mean a difference in degree. In other words, to the extent that regenerative medicine becomes a more effective means of accomplishing what we now try to accomplish with organ transplantation and pharmaceuticals, the current problem of linking quality of life to longevity is likely to increase. But the problem also increases whenever our current methods of extending life proceed at a faster pace than our methods of treating the degenerative conditions that undermine the quality of life. We do not currently recommend that researches on the treatment of cardiovascular or kidney disease slow down until research on the treatment of Alzheimer's disease catches up, so it is difficult to argue that we should do so in the case of regenerative medicine.

Although its likelihood is uncertain, let us nevertheless consider the more ambitious hopes of some proponents of regenerative medicine. William Hazeltine predicts that scientists will eventually be able to draw on cloning technology to remove cells from adult persons and return them to stem cell status for any number of tissues and organs, "in effect enabling our bodies to rebuild themselves in a younger form." Hazeltine refers to this as "resetting the genetic clock" (Hazeltine, 2000). Others conducting telomere research hope to achieve similar results. If successful, these efforts would significantly slow or postpone cell degeneration. Again, it is not clear that success would be evenly shared among every cell type; the result may simply be an exaggerated version of the scenario, mentioned above, in which some parts or functions of the body remain strong while the degeneration of other parts and functions proceeds as it always did. But assume that it did work more or less consistently among cell types so that the life span was substantially increased. Should we desire such a state and pursue the research designed to make it possible? There seems to be widespread agreement among bioethicists that the social and political costs of significant and widespread prolongation of the human life span could be substantial. Both Fukuyama and the US President's Council enumerate these costs, most of which have been noted by other observers as well: lack of economic and political opportunities for the young, persons and systems entrenched in positions of power for decades, lack of innovation and change, tilting of economic resources and political priorities to the older generations, and so forth (Fukuyama, 2002; President's Council, 2003). But what should we make of the claim that in the prolongation of life, it is not only these consequences but our very humanity that is at stake? To evaluate this claim, we need to consider it in the context of the debate, referred to above, regarding humanism and posthumanism.

10.3 Posthumanism of the Good

We begin with the place of enhancement technologies generally in the posthumanist imagination. Marvin Minsky, a central figure in artificial intelligence, anticipates a future of "virtual" minds capable of thinking and feeling as humans do, followed by a transformation of our "real" human minds into artifices that operate in the same way and possess the same (superior) capabilities as the "virtual" minds (Minsky, 1997). Minsky gives us a variation on a theme, which has also been articulated by Hans Moravec and Ray Kurzweil and has two significant features shared to various degrees by many artificial intelligence and artificial life researchers (Moravec, 1988; Kurzweil, 1999). First, it exhibits the recursive feature of technology, also highlighted by Jonas, according to which technological man, having reduced external things to objects of human making, now makes himself the object of technological remaking (Jonas, 1984, p. 18). In Minsky's vision, capacities developed and

perfected through computer technologies become the template for remaking human beings in the very same form. Second, proposals along these lines tend to involve a fairly explicit notion of a good to which posthumanism tends (or at least, of an inferior state it leaves behind) and on the basis of which the future posthuman state can be considered superior to the current human state. In putting forth their visions, these posthumanists attempt to evoke dissatisfaction with our current state while putting before us the attractions of a posthuman state. For Minsky, "virtual" is to "real" somewhat as "idea" is to "copy" in Platonic philosophy. And like Plato, Minsky must reverse what he thinks is a mistaken valuation. We disparage the virtual, computer-generated world as unreal, but in fact, Minsky assures us, it is more real: ideally, at least, its objects do not break, wear out, or fail us. But what is most striking about Minsky's proposal is the cheerful contempt for embodied humanity it expresses. Nor is Minsky alone in this respect: reporting on her conversations with leading researchers on artificial intelligence and artificial life, Ellen Ullman, a former software engineer, finds this contempt for embodiment widespread in these fields (Ullman, 2002).[3]

Historians of Western religions will find in these proposals a recurrence of the Gnostic myth of redemption from the body. But not all posthumanisms of the good hope for release from the body: those which aim at the prolongation of human life hope for indefinite longevity in this embodied life. Currently, the most prominent form of this technology looks to stem-cell research to enable the body to regenerate itself one tissue and organ at a time. However, we have seen that this research is not aimed at life prolongation per se, nor is it certain whether it will ever achieve this end. While these applications of regenerative medicine may help individuals to live longer, its piecemeal approach of treating one disease at a time does not target the major causes of physical and mental decline associated with aging. Those who seek a dramatic expansion of the human lifespan itself, therefore, tend to look elsewhere, pointing to the telomere research mentioned above and to two promising avenues of research. First, caloric restriction in monkeys has been found to decrease certain age-related symptoms. Second, single-gene alterations in a variety of species including mice have significantly increased lifespan. While both of these avenues of research are a long way from human application, they are probably the most promising indication that significant life prolongation may be possible. Of course, it is true that to increase the human lifespan, and even to do so dramatically, is not to make human beings immortal, so it may be questionable to refer to this ambition as posthuman. Still, it is difficult to dissociate an aim at the indefinite prolongation of life from a desire for a condition in which mortality is no longer a constitutive feature of human existence. And even if it is not the duration of life but agelessness that is desired, this position still deserves to be called posthuman; the ageless body at which it aims is no less posthuman than the virtual body at which Minsky aims. In both the cases, what is envisioned is the deliverance of human beings from limitations that are now constitutive of human life as embodied.

10.4 Posthumanism of Power and Choice

Lee Silver's *Remaking Eden* and Gregory Stock's *Redesigning Humans* both celebrate the combination of germ-line genetic engineering and reproductive technology—what Silver calls "reprogenetics"—which, they think, will eventually enable human beings to choose what their descendents will be like (Silver, 1997; Stock, 2002). Silver and Stock share several significant things in common. First, both think that the most promising path to the posthuman lies in genetic self-alteration rather than in the cyborg transformation of humans hailed by Minsky, Moravec, Kurzweil, and their fellow travelers. Stock challenges one of the fundamental assumptions of what we might call silicon posthumanism, arguing that humans will remain organic, biological beings because, he insists, we have no desire to abandon the flesh (Stock, 2002, pp. 19–34). It is precisely this wish to remain in our present biological form, he thinks, that will make genetic engineering so attractive. If he is right, this would also seem to apply to most forms of regenerative medicine. In any case, the future envisioned by Silver and Stock presupposes both the availability of safe and effective genetic engineering of the human germ-line (a scenario that currently seems futuristic though not impossible) and the readiness of those with financial means to make use of it (perhaps more plausible but still not a certain assumption). Second, both Silver and Stock also stress that the technologies that will make enhancement possible will initially be developed for quite uncontroversial purposes related to the treatment of disease and infertility. The path to the posthuman runs along the cutting edge of currently acceptable medical research and intervention. Third, and most significantly, both Silver and Stock welcome the posthuman future but neither gives reasons why we *should* welcome it. No vision of the good lures Silver into the realm of genetic enhancement unless it is the banal vision that parents will do whatever they can to improve the chances of success of their children. He and Stock simply note that these technologies will prove irresistible to those who can afford them, argue that no governmental entity will succeed in stopping them altogether, and conclude that there are no convincing reasons for wanting them stopped anyway—even though their use does present certain ethical problems that, they concede, will have to be addressed. This posthumanism is not about the good. It is simply about bringing our own evolution under our power to choose. As Silver famously asks, "Why not seize this power? Why not control what has been left to chance in the past? (Silver, 1997, p. 236)."

10.5 An Interlude

It is difficult to know how to evaluate these posthumanist visions. It is not just that they are highly speculative—no one knows whether the enormous technical difficulties of digital–organic interfaces, of gene expression, or of telomere

manipulation will be overcome—but that they are manifestos, positing a future to which we are asked to give our allegiance, or at least our resignation. But on what grounds would we offer our allegiance? The posthumanists do not successfully argue for the attractiveness of their vision. They either propose a good that presupposes contempt for our lives as they are, or they leave us with a self-justifying prerogative to improve our competitive advantage and that of our children.[4] It is perhaps for this reason that so many posthumanists, including Silver and Stock, ultimately fall back on the inevitability of their version of the posthuman. It is pointless to argue over whether a future state is good or bad if it is inevitable—or rather, if it is inevitable, its proponents may exempt themselves from having to argue for it as worthy of pursuit while making anyone who raises such questions appear hopelessly antiquated. Nevertheless, there is a difference between posthumanisms of the good and posthumanisms of power and choice, and for Jonas, this difference replicates a process that for him begins with what he (perhaps questionably, following Löwith) sees as the modern secularization of Christian eschatology, especially in Marxism. In Marxism, Jonas sees a dual commitment: to the true human who is yet to come, and to the technology that is to bring it about (Jonas, 1984, pp. 154–57, 198–201). But for Jonas, Marxism was not the culmination of modernity. Like posthumanism of the good, Marxism still offered a vision of the good, which, however vaguely, defined the human who is yet to come. It is precisely this that Jonas finds absent in late modern technology, which in his description resembles the posthumanism of power and choice. For Jonas, late modernity marks the point where the dynamics of technology—its irreversibility, cumulative character, and inevitability—overtake the human effort to realize or even to formulate an objective good (Jonas, 1984, pp. 127–128). Neither Silver nor Stock ascribes these quasi-metaphysical properties to technology itself; for them, it is not the internal dynamics of technology but the dynamics of human desire and choice in democratic, consumer societies that will propel the genetic remaking of human nature. But Jonas would argue that in either case, the result is that late modern technological society is at once utopian and nihilistic: utopian insofar as it clings to the notion that humanity is yet to be realized, and nihilistic insofar as it lacks any substantive good to which technology directs us. And by tracing this transition from Marxism to late modernity, Jonas makes it possible to understand these two kinds of posthumanism as installments in a standard modern metanarrative, in which the conviction that humanity is yet to be realized underwrites a technological utopianism aimed at a more or less articulated good followed by a technological utopianism that takes a nihilistic form.

Against these successive utopianisms, Jonas urged the humanist conviction that humanity is not still to be realized. While the startling new developments in cloning and stem-cell technology in 1997 and 1998 seemed to give momentum to the posthumanists, a humanist counterattack, carried out partly along the lines laid out by Jonas, has now followed, led by prominent members of the US President's Council on Bioethics. To that counterattack we now turn.

10.6 Humanism of Essential Characteristics

Francis Fukuyama articulates precisely the humanist fear about enhancement technologies, arguing that it is not simply a worry about unintended consequences and unforeseen costs of these technologies, but

> . . . rather a fear that, in the end, biotechnology will cause us in some way to lose our humanity—that is, some essential quality that has always underpinned our sense of who we are and where we are going, despite all of the evident changes that have taken place in the human condition through the course of our history. Worse yet, we might make this change without recognizing that we had lost something of great value (Fukuyama, 2002, p. 101)."

But what is this humanity of ours, which we are in danger of losing? The most common way for humanists to set moral limits on biotechnology is to identify some trait considered to be essential to humanity as such, and to argue that any intervention that significantly alters or seriously threatens this trait is morally unacceptable. Fukuyama discusses this widespread effort to identify a "Factor X," as he calls it, which characterizes all who possess it as human and all those who lack it as nonhuman. The problem is that none of the candidates for a Factor X succeed: we can find humans who lack reason, primates who have something like a moral sense, and so on. Fukuyama, therefore, settles on a looser and broader statistical notion of human nature as the sum of behavior and characteristics typical of the human species. The answer to his question of what we must protect in the face of biotechnology is, therefore, clear: "we want to protect the full range of our complex, evolved natures against attempts at self-modification" (Fukuyama, 2002, p. 172). We become posthuman when we reduce the complexity of our characteristic features.

Which interventions threaten to do this? Fukuyama thinks that the greatest threat biotechnology poses is to our emotions. He worries that efforts to make people less aggressive and depressed or more compliant or sociable will reduce the range of human emotional responses. More generally, he worries that progressive elimination of pain, suffering, and death would leave us without sympathy, compassion, courage, and so forth. There are several problems with this position. One problem is that the fear regarding the loss of sympathy, etc. due to fewer occasions for their expression is baseless. For one thing, suffering and evil would still occur even in a biotech utopia, where there will still be deaths due to accidents and to violence. And, even if there would be fewer occasions for the expression of these emotions in a biotech utopia, that does not mean that they would disappear. Thanks to public health measures, antibiotics, and many other developments, there are now far fewer infant deaths in the developed world than there were a century ago. Has that made us less compassionate? If anything, we are more troubled by the death of an infant today than we were then. There is another problem with Fukuyama's worry. He concedes that the most likely effect on these emotions will come not from genetic engineering, which he doubts will be technically feasible in the foreseeable

future, but from neuropharmacology. However, psychotropic drugs do not alter the very capacity for an emotion; rather, they affect the expression of the latter. In their present form, they typically block certain neural events for a limited duration of time. When the effect of the drug wears off, the emotion will be expressed again, given the proper conditions. In this way, a characteristic range of human experiences may be muted, but it is not yet the case that this involves an assault on human nature itself.

Even if we eventually succeed in altering neural or genetic sites such that the capacity to experience various emotions is eliminated, it would still be questionable whether we will have entered a posthuman future, as the title of Fukuyama's book would suggest. This would be questionable precisely because of Fukuyama's concept of human nature as a species-typical set of characteristics. First, to alter the emotional responses of any individual human is not to change human nature itself. We can make individuals less depressed without altering the species-typical range of mood expression itself. Unless overall affluence increases dramatically, it is unlikely that neurological alteration or genetic engineering will be available in sufficient quantity to narrow the species-typical mood range itself. Second, even if these alterations were to become sufficiently widespread to affect the species-typical range, it is at least possible that they would actually expand the range of emotional responses rather than contract it. The history of the use of mind-altering drugs suggests a widespread human tendency to seek, for various reasons, to experience a broader range of emotional states than unaided human nature allows. This suggests that people may seek to use neurological or genetic technologies to endow their children with emotional capacities that stretch the range we currently experience.[5] Third, even if genetic engineering is widely practiced and used to narrow the range of emotional responses, it is not clear why we should value complexity across the species so highly. Would it impoverish human nature if we were to lose the capacity to become seriously depressed? Surely we would still be the same species; it is just that our mood range would have concentrated away from this end of the spectrum. Assuming that the alteration is irreversible, the species as a whole will have lost a certain kind of emotional expression, but those who currently have no capacity to experience that expression surely do not consider themselves less human for that reason. Why, then, should we consider the species less human for lacking it?

Most critically for our inquiry, while Fukuyama's case against many uses of genetic and pharmacological technology rests on a theory of human nature as a complex whole, that theory lacks any direct implications for life prolongation since it is not clear how the latter would reduce the complex whole that for Fukuyama constitutes human nature. And, while we pointed out above that the *desire* for immortality and the aim to pursue it may be posthuman, the impossibility of attaining it—there will always be deaths from accidents and violence as well as the option of suicide—means that however effective regenerative medicine becomes at the manipulation of cells, it will not violate human nature insofar as mortality is an essential characteristic of the latter.

The most attractive feature of Fukuyama's position is his advance on the single-trait, "Factor X" versions of humanism. But despite this advance, his humanism is subject to the same limitations that characterize single-trait humanisms. Every effort to identify a human trait or set of traits that is constitutive of humanity as such suffers from two limitations even if we assume that such a trait or traits can be successfully identified. First, it is not clear that any technologies that are both feasible and desirable will threaten the trait or traits that are said to constitute our humanity. Of course, it is always possible that future developments will do so. But this brings us to a second limitation: by focusing on essential traits, these approaches engage biotechnology only at the points where such traits are threatened. But no technology affects our lives only at these extreme points. The humanism of essential characteristics leaves everything but these essential characteristics open for whatever technology happens to bring in its wake.

10.7 Humanism of the Given

These limitations of a humanism that focuses only on the extremes may be a reason for the enduring appeal of criticisms of biotechnology that take the opposite approach, focusing not on points of extremity but on an attitude or stance toward the world that is held to be endemic to modern technology itself. This form of humanism does not address enhancement technologies only where they impinge on essential human characteristics, but at a much more fundamental level, where the determination to alter human life as it is given is first expressed.

In 1958, Hannah Arendt published a book titled *The Human Condition*. The Introduction discussed a recent event: the 1957 Sputnik flight that began the human adventure in space. What struck Arendt was the reaction to this event spontaneously expressed by a reporter who heralded the Sputnik voyage as a "step towards escape from man's imprisonment to the earth" (Arendt, 1958, pp. 1, 2f). For Arendt, this statement paradigmatically expressed the process by which modern science and technology have progressively freed human beings from their bonds to the earth—a process that, for Arendt, would culminate in something she could only dimly foresee in 1958, namely technological control over birth and indefinite expansion of the lifespan—birth and death being the heaviest of the chains that imprison us to the earth. Arendt speaks of human beings in "rebellion against human existence as it has been given, a free gift from nowhere . . . which he wishes to exchange, as it were, for something he has made himself" instead of cultivating gratitude for the incomparable gift of human life as it is. In a recent article, Harvard philosopher Michael Sandel speaks in a voice Arendt would recognize. For Sandel, enhancement technologies involve what he calls "hyperagency—a Promethean aspiration to remake nature, including human nature, to serve our purposes and satisfy our desires . . .. And what the

drive to mastery misses and may even destroy is an appreciation of the gifted character of human powers and achievements" (Sandel, 2004). Arendt and Sandel both try to articulate an inchoate notion that some things have a kind of worth at least in part because they simply are what they are apart from human fashioning. A world in which we confront only what is the product of human will is a world of diminished worth; it no longer calls forth our gratitude, humility, or awe.

There are two problems with this position. One is Arendt's modern conviction that human existence is a free gift from nowhere. How can one be grateful for a gift that comes from nowhere? Why should one even regard it as a gift? Arendt's gratitude seems to be a residue from religious conceptions of existence as the gift of a divine creator—conceptions she is neither able to embrace nor to relinquish entirely. It is significant that Sandel speaks less of gifts than of what is simply given, and that in the face of the given he counsels humility, not gratitude. To characterize his stance toward the given, he borrows the phrase "openness to the unbidden" from William F. May. But on what grounds should our attitude toward the given go beyond what evolutionary science tells us, namely, that the given is simply what natural selection has served up? If so, rebellion against it seems to be just as appropriate as humility before it or openness to it. To command our humility, the given must have more going for it than the mere fact that it is unbidden. Perhaps this is why Sandel ends up focusing on the effects of enhancement technologies on our moral landscape, tracing the ethical and social consequences that follow from treating our characteristics and talents as our own achievements rather than as given. It is these consequences for our moral lives that trouble him rather than any moral significance of the given itself. This brings us to the second problem. When have human beings ever simply left the conditions of human existence as they are? Whether we try to cure diseases or enhance traits, and whether in enhancing traits we try to improve ourselves by exercising rigorous control over environmental factors or by using technology, we persistently reject the given. Arendt and Sandel fall into a long line of thinking that is suspicious of technology itself—not so much the gadgets it brings into our lives but the way it treats everything as material to be mastered and shaped by the human will. However, unless it rejects technology altogether—perhaps an impossible and in any case an undesirable goal—such thinking runs into problems when it tries to talk more specifically about technology. Surely, there is a line to be drawn between developing our bodies and capacities as they are given to us to be developed, on the one hand, and rejecting our bodies and capacities in order to become someone or something else, on the other hand. But it is difficult to know where to draw this line, and those who try to draw it usually end up pointing to some place where the natural gets replaced by the artificial or (as with Sandel) to the distinction between therapy and enhancement—and these distinctions are notoriously hard to make.

Despite these limitations, the humanism of the given may remain relevant to the ethical evaluation of enhancement technologies. The ambition to

remake nature, including human nature, in accordance with our desires may be problematic not because, as Arendt and Sandel suppose, it refuses to accept the given as it is but rather because it is exercised at the dictates of a will to mastery rather than out of a grasp of the good. The problem is that the will to mastery itself determines our stance toward the given, and that this will to mastery destroys the very attitudes and practices that would orient us to the given in a way that would lead us to wise and just alterations.

10.8 Conclusion

What these reflections indicate is that the question of whether humanity itself is at stake is not the most pressing question to ask about regenerative medicine. At the same time, it is also clear that the pursuit of life prolongation raises questions that go beyond the consequences pointed out by Fukuyama and the US President's Council. What is at stake may become clear if we consider the nature of enhancement itself. Today, technological control over the body is increasingly sought not only to cure disease but to make our bodies serve our desires, to realize ideals of beauty, vigor, and normality, and to carry out our various projects. The body, as it is understood through the prospect of enhancement technologies, is less the needy and vulnerable body of disease and death than the body of desire: the body as the perfect expression of one's aims, ideals, and projects. It is not need but desire that propels the expansion of technology into the enhancement of appearance, personality, and performance, even if technology was first developed to meet a need and even if what is now the object of desire will eventually be thought of as a need. Enhancement technologies are technologies of excess. As such, we can ask two kinds of questions about them. First, how do these technologies form our desires for certain ends and shape the meaning of certain activities? This is a critical question: it requires us to explore how technology constructs the goods we pursue. Second, in which ways does technology promote or detract from the proper pursuit of ends and the proper meaning of activities? This is a normative question: it requires us to articulate the spiritual and moral significance of our aims and activities in such a way that we can determine what role, if any, biomedical technology may legitimately play in their pursuit. These questions have only begun to be asked about regenerative medicine. The US President's Council poses some of these questions when it asks us to consider the reasons why we might wish to live longer. Unlike the humanist–posthumanist debate, this kind of inquiry into our desires or aspirations does not have to wait for regenerative medicine to take extreme forms. It is, therefore, able to address the peculiar characteristics of the production of desire in technological societies, in which technologies form desires and shape the meaning of activities before they are even on the market and even among those who do not use them. The question for the ethical evaluation of these technologies is whether they will determine our desires and the meanings

of our activities, or whether we will find a way to subordinate them to desires and meanings that are cultivated on other grounds, that is, in the religious and ethical traditions in which it is determined which desires and aspirations are legitimate and illegitimate. This question is more pressing than the question of whether regenerative medicine puts human nature itself at stake. These examples also indicate that the most important questions about regenerative medicine do not assume that we either accept or reject it wholesale. They inaugurate a kind of questioning that does not presuppose that the latter is either a boon or a threat, a presupposition that always requires one to take a position on technology as such. Rather, this kind of questioning interrogates regenerative medicine from within desires and practices whose worth is established on other grounds.[6]

Notes

1. Research using hES cells increasingly falls under regulatory oversight, and if the regulations thus far proposed by public bodies reflect informed opinion, we may conclude that for most people the moral problems posed by the status of embryos at the blastocyst stage are either nonexistent or easily outweighed by the potential benefits of hES research. Resistance to this emerging consensus comes largely though not exclusively from religious participants in the debate, and even here the objection to the destruction of early-stage embryos is disproportionately Christian. For most of its history, Christian tradition has consistently opposed the killing of embryonic or prenatal life. From my perspective, the major difficulty in determining the stance of the Christian tradition toward current embryo research is whether the general and mostly consistent opposition of the Christian tradition to the killing of embryos is made on grounds that require or justify a commitment to legal prohibition of such research.
2. For a more adequate treatment, see McKenny (2000).
3. This contempt for embodied life may also be present in the glib acceptance of a future in which, reproductive technologies such as IVF will become the normal and preferred form of reproduction among proponents of genetic engineering, including Lee Silver and Gregory Stock, discussed below. A more extreme case would be a posthuman future in which sexual reproduction is altogether absent. In *The Elementary Particles*, French novelist Michel Houllebecq portrays a fictional molecular biologist whose work in the early 21st century makes possible a posthuman species no longer dependent on sexual reproduction. Houllebecq brilliantly portrays his work in the context of a late 20th century cultural background in which sexual activity itself has become utterly devoid of meaning.
4. Whether by their contempt for embodied life or by their bourgeois ethic, these posthuman visions seem superficial in comparison with Nietzsche, whose perfectionism was able both to affirm a kind of self-transcendence without contempt for embodied existence and to deny a determinate good without reducing life to a struggle for competitive advantage.
5. We might think of people, now in their twenties, who want their children to experience some of the euphoria they experienced as teenagers with the drug Ecstasy, yet without the negative effects of the latter. This is perhaps unlikely, since the technology that made it possible would most likely result in safer versions of Ecstasy that could, unlike a permanent neurological alteration, be experienced when desired.
6. While neither the appeal to human nature as such nor the appeal to the given can resolve questions about the most exhilarating possibilities of regenerative medicine, it does not follow that such conceptions have no use in bioethics. It is possible to hold that there is

such a thing as human nature and that some biomedical interventions may violate it (e.g., an intervention that really did confer immortality, if one could be imagined) while also holding that human nature is indeterminate enough to be susceptible of a wide variety of specifications, and that all of the conditions of human being currently envisioned by regenerative medicine would all count as specifications of human nature so understood. This means that at least at present, debates over which potential aims of regenerative medicine are appropriate to pursue are all debates about which specifications of human nature are most worthy. Similarly, it is possible to hold that a necessary condition of inquiry is respect for the given rather than from a desire for mastery over the given while also holding that what constitutes genuine respect for the given must be determined through an inquiry into which aims are worthy.

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Chapter 11
Virtue In Vitro: Virtue Ethics as an Alternative to Questions of Moral Status

Justin Ho and Garret Merriam

11.1 Introduction

If we step back and examine this volume as a whole, we see that all of the authors have attempted to provide an overview of some of the different world-views, which have given rise to the immense controversy surrounding the use of human embryonic stem cells in research. In addition, some have also tried to offer or defend a framework that they hope will give us more substantive guidance regarding these issues (namely, Fan and Yu, McKenny, and Song). However, only Brenda Almond, in "Using and Misusing Embryos, the Ethical Debates," has tried to answer the question of whether it is permissible to use embryos for stem-cell research by appealing to what she seems to think are moral intuitions that all informed, rational beings are likely to share, while trying to avoid many of the problems that other theories of moral status encounter. She uses these intuitions to create an account of moral status, which gives rise to the following two theses:

T1—Research on 'pre-embryos' (i.e., blastocysts prior to the fourteenth day of their maturation) is significantly more ethically justifiable than research on embryos (i.e., blastocysts after their fourteenth day of maturation).

T2—Research on embryos created for the express purpose of research is significantly more ethically justifiable than research on surplus embryos left over from IVF.

While many philosophers share Almond's belief that the primary question with respect to the moral issues at hand is the question of the moral status of the fetus, in this paper we will argue that in trying to give a sound theory of moral status, Almond is forced to incorporate certain value judgments and metaphysical assumptions into her framework, which upon closer inspection are difficult to justify or which lead to implausible conclusions. Drawing on this critical reflection, we then argue that a secular, virtue-based analysis of the use of embryos in stem-cell research can serve as a basis for guiding public policy

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while avoiding these pitfalls. Finally, we conclude with some general reflections on the deep moral and metaphysical disputes that mark the discussion regarding regenerative medicine and divide the contributors to this volume.

11.2 Almond's Arguments

The precise arguments that Almond provides for her theses are somewhat unclear. As far as we can tell, there are at least two distinct arguments for T1 and one argument for T2.

T1a:

(1) If X is a person in some respect, then it deserves respect for the rights that this status conveys.
(2) X is a person in some respect if it has at least some minimal neural development.
(3) Pre-embryos (i.e., blastocysts prior to the fourteenth day of their maturation) have no neural development.
(4) After the fourteenth day of their maturation, blastocysts begin to experience the first stage of neural development, in the form of rudimentary neural structures.
(5) Ergo, pre-embryos are not a person in this regard, while embryos are.
(6) There are no other regards in which a pre-embryo is a person that do not also apply to the embryo.[1]
(7) Hence, T1—Research on 'pre-embryos' (i.e., blastocysts prior to the fourteenth day of their maturation) is significantly more ethically justifiable than research on embryos (i.e., blastocysts after their fourteenth day of maturation).

T1b:

(1) If X is a person in some respect, then it deserves respect for the rights that this status conveys.
(2) X is a person in one respect if it is an individual.
(3) Prior to the fourteenth day of their maturation, it is still possible for the pre-embryo to split and become twins.
(4) After the fourteenth day of maturation, twinning is no longer possible.
(5) Because of the potential for twinning, pre-embryos are not individuals.
(6) Embryos, by contrast, are individuals.
(7) There are no other regards in which a pre-embryo is a person that do not also apply to the embryo.
(8) Hence, T1—Research on 'pre-embryos' (i.e., blastocysts prior to the fourteenth day of their maturation) is significantly more ethically

justifiable than research on embryos (i.e., blastocysts after their fourteenth day of maturation).

T2a:

(1) If X is a person in some regard, then it deserves respect for the rights that this status conveys.
(2) X is a person in one respect if "it can have a future—'a personal narrative'—just like our own."
(3) Surplus IVF embryos "have a graspable alternative future" to being destroyed for research (i.e., they, like their 'sibling embryo,' could have become a mature human).
(4) "The laboratory-created embryo, on the other hand, never had such a potential destiny."
(5) There are no other regards in which a pre-embryo is a person that do not also apply to the embryo.
(6) Therefore, T2—Research on embryos created for the express purpose of research is significantly more ethically justifiable than research on surplus embryos left over from IVF.

It should be noted that it is not obvious whether Almond intends for each of these two theses to describe necessary or sufficient conditions for research to be justified. Alternatively, she may intend for these conditions to be neither necessary nor sufficient, but rather simply two considerations that add weight to the justification of a research program. It is for this reason that we use the vague phrase 'more ethically justifiable' in reconstructing her theses.

	Pre-Embryo	Embryo
Lab-created	Little/no moral problem	Some moral problem
Spare IVF	Some moral problem	Considerable moral problem

11.3 Assessing Almond's Arguments

Let us begin analyzing Almond's argument for T1a. Premises (1), (3), and (4) seem largely uncontroversial; the first is an assertion of the basic 'rights of personhood' position, while the later two are generally accepted facts of human embryology. Premise (5) follows deductively from the prior premises, while premise (6) seems reasonable enough to stipulate. The most problematic premise appears to be (2).

Premise (2) states *X is a person in some respect if it has at least some minimal neural development*. The justification for this premise seems to be the claim that without at least some minimal neural development, a being cannot have thoughts, memories, feelings, projects, experiences, self-awareness, or any other variety of conscience phenomenon that collectively makes up 'the person.' Without neural development, there is no person, and hence no personal narrative and

no future. While this justification is sensible, at best, premise (2) identifies one necessary condition for being 'a person in at least some respect,' namely, having at least some neural development. In order to establish T1, however, the premise needs to identify a *sufficient* condition for being a person, which it does not do. What we need is a reason to think that transitioning from a condition of no neural development to a condition of a bare minimum of neural development entails that the embryo is now a person.

Perhaps one way of reading argument T1b is as an attempt to give us such a reason. In this argument, premises (1), (2), (3), (4), and (7) seem uncontroversial; premises (5) and (6) are where the problems arise. Premise (5) states *because of the potential for twinning, pre-embryos are not individuals*, and premise (6) states *embryos, by contrast, are individuals*. The possibility of twinning, then, is what is supposed to make the difference between when a thing is or is not an individual, as anything that has the potential to twin cannot be regarded as a single identifiable thing. The possibility of twinning seems tied up with the specialization of stem cells; so long as the blastocyst is composed entirely of undifferentiated cells, it can split into twins, but once those cells begin to form specific tissues (such as neurons) such division ceases to be possible.

However, in her well-cited paper, *Divisibility and the Moral Status of Embryos*, Christie Munthie has shown that there is good reason to doubt whether the ability to twin is relevant to moral status and whether the property of being an individual is essential to being a person. She begins by considering Derek Parfit's thought experiment in which we are asked to imagine a situation in which the cerebral hemispheres of a patient are surgically severed, removed from his skull and transplanted to two other patients. Munthie argues that if this kind of split-brain transplant is possible, then adult humans are divisible, but the mere possibility of division does not affect their moral status as most of us are likely to hold that the preoperative patient and the two patients who receive the transplant all have the full moral status that we assign to persons. However, if divisibility is inconsequential to whether adult humans possess the full moral status that we assign to persons, then it also does not appear as though being an individual is essential to personhood, as it is believed that a being that possesses full moral status possesses all of the properties essential to being a person. Munthie also provides a second more fanciful thought experiment to illustrate the same point:

> In a few hundred years humanity starts to colonize outer space and eventually colonizers on different planets gradually evolve biologically in quite different directions. On one of those planets natural selection leads to humans that procreate by division, similar to amoebas. They have our type of consciousness and physical features, and may be able to procreate with us. Are we allowed to torture, kill and eat them just because they procreate by division? (Munthie, 2001, pp. 287–288)

If Munthie's thought experiments are convincing, then it cannot be argued that research on 'pre-embryos' is significantly more ethically justifiable than research on embryos. At the very least, one must try to explain why the

intuitions that they raise do not count against the notion that divisibility is relevant to moral status and personhood.

A different attempt to distinguish between beings who are individuals and beings that are not is presented in T2a. Rather than tying a blastocyst's capacity for a future/personal narrative to the facts of its biology, T2a attempts to tie the capacity to (what Aristotle would have called) its 'final cause,' the reason for which it was brought into existence. According to premise (3), *surplus IVF embryos "have a graspable alternative future" to being destroyed for research*. This alternate future is graphically illustrated by the fact that, in Almond's words, "it could have been the sibling of another which actually exists and has a full human life, and the existing child provides an ongoing measure of what might have been." This distinguishes surplus embryos from embryos created explicitly for the purposes of research, since, as premise (4) states, *the laboratory-created embryo, on the other hand, never had such a potential destiny and has no relatives in the world.* Almond is aware that this leads to a counterintuitive conclusion, and that "contrary to what appears to have emerged as a consensus, particularly in Europe, [she] would see the creation of embryos for research as more ethically justifiable than using embryos resulting from IVF."

Once made explicit, the problems inherent in premises (3) and (4) become clear. Starting with premise (3), why should the fact that a spare IVF embryo "could have been the sibling of another which actually exists" have any bearing at all on that embryo's status? Almond seems to assume that the embryo's potential relation to a 'sibling' grounds its moral status. However, the dominant view among philosophers is that only a thing's intrinsic properties are relevant to its moral status. Moreover, this suggestion appeals to the embryo's potential qualities as opposed to its actual qualities in attempting to establish its moral status. In doing so, she inherits all of the problems associated with potentiality accounts of moral status. But even if we are going to countenance such potentiality arguments, Almond's particular variety seems especially problematic. What seems to matter, on Almond's account, is not whether the embryo has a potential future, but whether or not that future is "graspable," in the sense illustrated by her appeal to the "sibling" of the spare IVF embryo. However, Almond has given us no reason to think that whether an embryo's future is "graspable" is a morally relevant consideration, i.e., it should make a moral difference. Many of us are likely to hold that if potentiality arguments carry any weight at all, what matters is the *reality* of an embryo's future, not our personal cognitive relationship to it.

Premise (4) seems equally troubling. Why should the fact that an embryo is created in a lab entail that it does not have the same 'potential destiny' that the surplus IVF embryo has? Exactly what is supposed to make the difference here? It cannot possibly be some physical fact about the embryos themselves, since both are physically capable of growing into a human child if they are implanted into a womb. Perhaps then the relevant difference is the intention in the mind of the beings that created the embryo. But how can the intention of its creator alone dictate a human being's moral status? Moreover, it is hard to see how the

intention of its creator can have any bearing at all on a being's moral status. Consider a couple who creates and rears a child with only the intention of using it for labor and believe that the child's value is directly contingent on how well it is able to contribute to this end. Does this intention have any relevance to the moral status of the child? It does not seem, to us at least, like it could. If we are correct in this, then why should the same conclusion not follow when asking about the moral status of the embryo that will become the child? One might object that there is a point in the maturation process when the being would 'shuffle off' this intention-dictated status and gain a new one. Such an objection, however, would be an *ad hoc* way to salvage an extreme view. Why should the intentions of the creators matter at 3 weeks, but not 3 years? What could reasonably account for such a shift?

In sum, there are no reasonable interpretations of the phrases 'graspable alternative future' and 'potential destiny' that apply to surplus IVF embryos but do not apply to lab-created embryos. Ergo, both premises (3) and (4) lack justification. Therefore, it can be argued that Almond does not give us any good reason to hold that research on embryos created for the express purpose of research is significantly more ethically justifiable than research on surplus embryos left over from IVF.

One final note regarding Almond's arguments should be made before moving on. While Almond admits that her position runs contrary to the standard thinking, she does not seriously consider the obvious argument in favor of the standard thinking. Spare IVF embryos, if they are not used for research, are destined to be thrown out and destroyed. Whatever their moral status, the common reasoning goes, surely it is better for their destruction to serve some purpose, to further some legitimate moral good, rather than just being scattered to the winds. Lab-created embryos, by contrast, do not need to be brought into existence at all, presuming we have an adequate supply of surplus IVF embryos. Since there is at least some reason to think that such embryos have some moral status, why not use an already available (and already doomed) supply, rather than create more, and hence compound the moral offenses? There are problems with this argument, to be sure, but Almond's unwillingness even to engage with it is yet another determent to her overall position.

11.4 A More Promising Account

We believe that there is a deeper problem, which underlies not only Almond's secular account of moral status, but much of the literature in this area. Almond, like many others, (1) constructs an account of moral status that accords with what she takes to be certain commonsense intuitions, namely, that the entities being considered deserve more respect the more they resemble persons, while (2) simultaneously trying to avoid certain troubling conclusions and problems faced by other theories of moral status. However, in trying to create an account

that meets these goals, she is forced to incorporate certain value judgments and metaphysical assumptions into framework, which upon closer inspection are difficult to justify or lead to implausible conclusions—to put it more simply, by trying to avoid certain problems faced by other accounts, new problems arise.

Given the problems with secular moral status accounts, one is faced with a dilemma: should one abandon such accounts in favor of secular theories of morality with the hopes that such theories avoid these pitfalls while positing acceptable limits of human research? Or should one turn one's back to secular morality? Perhaps all secular theories will prove to be similarly problematic. In that case, one should simply adhere to nonsecular theories for guidance if they best accord with one's own moral intuitions.

While this latter position carries with it some obvious appeal, we are cautiously optimistic about the possibility of constructing a secular moral theory that can gain widespread acceptance. In particular, we believe that using a virtue-based secular moral approach to distinguish acceptable from unacceptable uses of embryos in research may escape the problems associated with moral status theories while bringing with it certain advantages. That is, instead of focusing on the rights or obligations owed to embryos because of certain properties that they possess, we should instead try to center our attention on answering such questions as 'What kind of people are we if we use leftover IVF embryos for stem cell experiments?' Or, 'What of people are we if we clone embryos for the sole purpose of research?' If the answer to these questions is that we are morally defective persons, then we should not attempt to use embryos in this way; on the other hand, if we are still good people then such research is permissible. Such an approach escapes most if not all of the metaphysical problems plagued by secular moral status theories as it avoids the discussion of what constitutes a 'person'. In addition, a virtue-based approach takes into account the context surrounding the issues at hand in determining what constitutes the appropriate course of action. This is important because one of the chief problems with most if not all secular moral status theories is that, in certain cases, they provide us answers that we regard as counter-intuitive. It strikes us that these 'problem cases' arise largely because such theories lack the resources to consider the particular circumstances surrounding these cases.

Of course, some might object that such an approach suffers from other sorts of problems, namely the sorts of problems that are often associated with virtue-based theories. For example, many critics of virtue-based theories often point out that there is considerable disagreement about what constitutes a good or bad person. Therefore, different persons are likely to come to different conclusions on the question of stem-cell research. Such a point may appear particularly salient, having read the articles in this volume. Nevertheless, it can be argued that most if not all moral theories, secular and nonsecular, suffer from this same problem. For instance, among Confucians or Kantians there is considerable disagreement about how to define 'humanity', a concept from which all other moral precepts are derived from in these theories. Furthermore,

consequentialists disagree about how to define 'utility' and Christians disagree about interpretations of the Bible. Virtue ethicists can offer similar responses toward many of the other criticisms directed against virtue theories, namely, that both secular and nonsecular suffer from these problems.

However, returning back to the cultural divergence problem, it is not clear that we cannot engage in meaningful discussion about what constitutes a virtuous individual and come to agree on whether such an individual would engage in certain practices involving research on human embryos. Certainly, such a discussion will lack the abstractness that often surrounds discussions concerning the essential properties of personhood or the value that should be attached to entities, which possess some but not all of these properties. Moreover, it is not implausible to hold that globalization has and continues to have a unifying effect on the human experience. Bearing these two points in mind, it is not unreasonable to hold that despite our different cultural histories, we can eventually come to agree on some common notion of what we hold to be human excellence.

While this suggestion is far from a fully developed alternative to moral status accounts, it suffices to hint at where to begin carving out such a substitute. In this short space, it is not possible to articulate the many nuances that a virtue-based account would need to grapple with. Nonetheless, we hope this brief sketch is sufficient to tantalize the imagination for the time being.

11.5 Some Concluding Remarks

As the possibility of remaking human nature becomes more of a reality, the need to formulate appropriate boundaries and goals becomes more urgent. Efforts must be taken to not only place limits on the extent that human nature should be modified but on the very techniques themselves. However, when one reads this volume, it becomes that there is considerable disagreement on where the lines ought to be drawn.

For instance, what one defines as appropriate is often influenced by what one takes to be the origins of human nature. As noted by Engelhardt, Lo, and Song, if one holds that human nature owes its origins to the divine, then human nature appears to be normative and any forms of genetic manipulation, which deviate from such an ideal, should be regarded as impermissible. On the other hand, if human nature owes its origins to a chance happening of events, then it can be argued that its value is simply whatever we ascribe to it. If one takes this view, then nature is not exemplary but rather something that is in need of being corrected. This entails that because the standards that ground these prescriptions may differ in content, they may offer different prescriptions for action. For example, as McKenney and Waters observed, the notion that human nature is not divine in origin has provided the basis for transhumanism, which claims that becoming posthuman or extending life infinitely is both

morally permissible and beneficial, a position that is rejected by many persons who subscribe to a normative view of human nature.

This is not to say that only secular ethics places limits on the usage and development of regenerative medicine. For instance, in this volume, Chan, McGee, Fan and Yu, McKenney, and Almond all tried to show how secular accounts of moral status could be used to distinguish appropriate from inappropriate uses of stem-cell research. Nor should it be necessarily assumed that the prescriptions offered by secular theories will always deviate considerably from nonsecular theories. As McKenny noted in his article and as we hinted at, there is some hope that a careful reflection of the broader context of human goods, meanings, and practices will result in a consensus concerning the limits of regenerative medicine.

Nevertheless, it cannot be denied that different worldviews and standards are what give rise to the numerous debates and controversies surrounding regenerative medicine. Furthermore, as was illustrated in Nie's article, such debates are not limited to any particular region but rather extend to any region where there exists a divergence in religious, historical, and cultural attitudes. Having said all this, it can be reasoned that it is only by identifying the different normative considerations, which ground these debates and assessing their respective strengths and weaknesses that we can adequately respond to the puzzles brought about by regenerative medicine.

Notes

1. While Almond never explicitly states anything along these lines, this premise is necessary in all three arguments to ensure validity. If there were some other morally significant factor that applied to the pre-embryo and not the embryo (or the research embryo and not the surplus embryo, in the case of T2a), then this X factor might balance out, or even outweigh the factors Almond rallies on behalf of the embryo (or research embryo, again in the case of T2a).

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