

EUTOPIA: THE PROMISE OF BIOTECHNOLOGY AND THE REALIGNMENT OF WESTERN AXIALITY

by *Manussos Marangudakis*

Abstract. This essay discusses the deep perceptual and social changes that the advanced applications of biotechnology could bring in the West. It examines the probable collapse of a fundamental perceptual bipolarity on which the Western mind and social mobilization have been based since its inception in the West: Athens–Jerusalem. This collapse will quite possibly radically reshape Western perceptions of self and nature and will remodel established constellations and modes of social mobilization and social organization. The radical collapse of the preceding established feature of Western modernity is due to take place in the field of biotechnology, since the latter promises to produce a deliverable perfection of flesh and an equally corporeal personal bliss. I call this promise “eutopia,” an actual and tangible utopia—“a laboratory on the hill.”

Keywords: biotechnology; eutopia; GRIN; Athens vs. Jerusalem; axial civilizations; technosecularism; utopia

Grand narratives might have failed to convincingly provide us with the “true history of humanity,” yet we could still use them as analytical tools to enhance our understanding of the present condition and its potentialities. Such a grand narrative is the *Axial Age* and its subsequent developments that divide world history into long periods according to the dominant perception of ultimate truth, of its sources, and of the social action that is animated and inspired by that truth (Jaspers 1953; Bellah 2011). Such a framework of social action and *imaginaire* allows us to situate current biotechnological developments in a broad civilizational context that, notwithstanding the lurking danger of false prophecy, could provide us with intriguing insights of major civilizational shifts and breakthroughs.

Accordingly, axial theory argues that in the course of civilizational evolution humanity has experienced three fundamental cognitive breakthroughs—that is, worldviews structured around distinct cognitive bipolarities that decisively shaped self-awareness, social perception, and social action. According to the logic of axial theory, we could divide world history as follows: (1) the Neolithic bipolarity between culture and

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wilderness, (2) the axial bipolarity between immanent and transcendental domains, and (3) the era of modernity with its various political (liberal, socialist, fascist, and fundamentalist) ideologies. While the particulars of these worldviews are still a matter of contestation, some of their core features allow us to define key social factors that contributed to their rise and subsequent crystallizations.

The Neolithic bipolarity *culture versus wilderness* was the first, preaxial, cognitive breakthrough that occurred as a result of the transition of human life from Paleolithic bands to Neolithic sedentary communities embedded in stable social relations, identities, and cyclical agricultural patterns of production and exchange (Vernant 1962; Renfrew 2009).

The second cognitive breakthrough, and certainly the most decisive of all, the *Axial Age* (*Achsenzeit*) occurred when at around 500 BCE in a series of civilizational centers the cosmos split between two unequal domains, an “immanent” and a “transcendental” one, the prior denoting the actual but imperfect world of experience and the latter the eternal truth to be reached only by those who follow the teachings of a divine or metaphysical source of morality leading to salvation, in the form of the Great Religions (e.g., Judaism, Buddhism, Taoism, Hinduism, Confucianism, and later Christianity and Islam) and Greek metaphysics (Arnason, Eisenstadt, and Wittrock 2005).

The third cognitive breakthrough—that is, modernity, or “the second axial age”—relocated salvation in this world and announced the bridging of the existential chasm through rational political action (Eisenstadt 2006). The new era that rose with the Reformation and established itself through the Great European Revolutions (American, French, and Soviet) and spread around the world through colonization declared the individual, or various collectivities, to be the source of morality and master of our fate, and in a series of intellectual movements asserted the ability of social action to turn utopian visions into tangible reality (Eisenstadt 2002).

Each one of these major cognitive breakthroughs and social transformations created distinct definitions of reality affording humans the ability to act upon the world according to preconceived depictions of truth and purpose. Thus, the Neolithic revolution identified “the proper human condition” with the sedentary community itself (Marangudakis 2004); then, the first axial breakthrough relocated truth outside the community and, indeed, the immanent world altogether, in the domain of Heavens, to be reached by the faithful; and last, modernity brought down from Heavens truth and salvation to be achieved by purposeful and rational immanent sociopolitical action.

Together with this series of relocations of truth and purpose came the relocation of the sources of morality and the substance of the self itself: In the archaic times the “self” was not perceived as something concrete and solid, but as the loose sum of assembled parts that various external forces

manipulated at will (Hallpike 1980). The first axial age, in the West, first introduced the unified self (Plato), and at a second stage the inner, moral, self (Plotinus, Augustine) while other Eastern and Oriental civilizational centers developed various, equally radical ideas of the accountability of the individual and the ways truth could be reached. Last, modernity, solely Western, revolutionized, once again, both the idea of the self and its moral sources: It conceptualized and explored the depths of the *inner* self, while it located the sources of morality *inside* the self (Taylor 1989; Carey 2011).

This long process of the broadening and the deepening of self- and cosmos-awareness through those breakthroughs implies, or suggests, the unfolding of a certain directional pattern that is completed with modernity. This apparent or intentional teleology unfolds in two ways: First, the modern condition has incorporated and accommodated the two earlier conceptual hallmarks—Wilderness and Heavens—in its own civil framework in the form of various environmental and religious movements (Collingwood 1960; Casanova 1994). And second, the concretization of the self and the internalization of its moral sources suggest an end of the long journey of self-reflection and self-awareness. Is this indeed the end of the journey? Will our future worldviews be a series of endless reshuffling of the cards of modernity and its various components, or is there a potential for another, original, axial breakthrough, an original way of perceiving and acting upon the self and the cosmos? And if so, what could lie beyond culture, religion and rationalization? And how could we recognize it?

Examining the social parameters that gave birth to the above cognitive breakthroughs, three points become particularly interesting. First, that they all occurred as syntheses of specific intellectual, social, and technological innovations: the Neolithic revolution combined acculturation of the numinous, domestic communalism, and horticulture; the axial age combined high religion, cosmopolitanism, and the use of iron; and modernity combined secular ideology, classes and nations, and industrialization. Second, the axial “breakthroughs” were not sudden bursts of creativity, but culminations of long accumulative processes that produced sufficient momentum to turn increased quantity into a new civilizational quality—that is, a new civilizational “stage.” Third, modernity was born only in the West as the result of three interlinked social developments: (1) an “acephalous,” plural, political system (Mann 1986); (2) an urban, civil society committed to the rationalization of ordinary life (Crosby 1997); and (3) an unusual theology that was based upon two older, partially incommensurable axial worldviews, Greek naturalism and Judaic revelation—that is, “Athens and Jerusalem” (Huff 1993). It was this revolutionary combination that led the rest of civilizations to modernity, and as it will be argued in the following pages, an intensification of the inner qualities of the three Western features, on a global scale this time, that could produce a new (third) axial age. The technological component of this

new axiomaticity could be biotechnology and the subsequent technoideological vision to merge nature, humanity, and technology. The inspiration and the urge to become “small gods” or “junior partners in evolution” could once again ferment in the West, triggered by the constant tension that characterizes this peculiar cognitive bipolarity of “Athens versus Jerusalem.” I start with the dynamism, the endless Western inspiration and fascination with the two cities.

ATHENS, JERUSALEM, AND THE WESTERN COGNITIVE MODELS

“What has Jerusalem to do with Athens, the Church with the Academy, the Christian with the heretic?” From Tertullian, who stated the aphorism as a dilemma, to Leo Strauss (1967) who saw the tension as the cause of Western restlessness, “Athens versus Jerusalem” stands at the core of Western imagination, as its two symbolic reference points of religious faith and philosophical reason. As the new religion struggled to define itself *vis-à-vis* its competitors, Athens and Jerusalem came to symbolize two incommensurable worldviews, the Hellenic and the Judaic, two cities that were forcefully combined at a second stage by Thomas Aquinas, only to be split, contested and contrasted, once again, in modernity; in science, as “creation vs. nature” and in political thought as “autonomy vs. heteronomy.”

To call the dilemma that haunted generations of Western thinkers for almost two millennia as fruitful would be an understatement. We only have to compare the intellectual production of the West with the rest of the civilizational centers, where unipolar cosmological models prevailed, to realize how important the uneasy coexistence of Moses with Aristotle, of St. Peter with Plato was for the restless development of countless of rival scientific and political ideas, *vis-à-vis* the relative stagnation of the rest—Byzantium and *Eastern* Christianity included (White 1962; Marangudakis 2001).

The underlying reason for this fruitful tension was, and still is, that revelation and reason hardly ever drew a demarcation line between their domains. Plato and Aristotle based their “physics” upon the existence of a Divine Mind, while the Bible starts with a vivid description of the birth of cosmos and ends with the description of the destruction of Earth (at least as we know it). This tension is particularly strong in two fields of Western imagination: science and politics. In science, Greek naturalism—that is, the inquiry into the laws that govern the cosmos and humanity using rational investigation—clashed with the Genesis story and the willful and voluntaristic creation of the cosmos in six days. Western science was developed as the direct result of its effort first to consolidate and then to reflect upon Mosaic Genesis and Aristotelian Metaphysics. Could the created cosmos be governed by eternal rational laws, and if so, could

human reason understand the Creator via His creation? Mary Shelley took this *problématique* to its logical conclusion: Is it possible that man, having found the secrets of Creation, could one day replace God as the creator? Today, science has thoroughly disqualified Creation, but, paradoxically, it does so approaching closer and closer to Shelley's promethean conjecture.

In politics, similarly dynamic intrusions, blends and clashes were developed between natural laws and willful voluntarism. Augustine defined Western politics, setting them apart from non-Western political theories, by legitimizing secular power on the basis of God-given human natural propensities (common to Christians *and* heathens). The Augustinian definition of religious and secular institutionalization gave birth to political struggles shaped around the proper relationship of the City of God with the City of Man. Throughout medieval times the primary ideological-political tension became the one between those who preferred to keep the two Cities separate, thus supporting the established religious and secular institutions, and the various millenarian movements that struggled to merge them, thus bringing the Kingdom of God on Earth. In modernity, this tension did not disappear but instead became a matter of secular contestation between conservatism and the radical Left (Dewiel 2004). In modernity, conservatism embraced naturalism as the former came to believe that understanding our nature means to know our limits, thus becoming able to check our passions with rational moderation. This alliance had deep, premodern roots sound enough to carry political conservatism *cum* Greek naturalism to present times: From Protagoras and Socrates, to Hobbes, Burke, and Hayek, the conservative political thought has retained a solid central thesis, that Nature (applied to natural and social sciences) is eternal, impersonal, and unchanging, controlling both humanity and the cosmos. In contrast, the Left embraced the Judaic idea of the ability of the agent to change at will what hitherto was considered to be eternal and unchanging. This revolutionary conceptualization of freedom springs from the only axial cosmology that placed God above the natural world, the omnipotent Judaic God who created the natural world and its governing laws (thus stands above them), and acts "at will" through direct intervention in the world. It is this notion of freedom that in modernity inspires political voluntarism, as societal forces came to replace God. Rousseau, Marx, Robespierre, and Lenin stand as the exemplary figures of this tradition.

In the era of modernity, this paradigmatic antagonism and cross-fertilization of Athens and Jerusalem has inspired and has given birth to a plethora of pragmatic and utopian scientific projects and political visions. Yet, Athens and Jerusalem did so without losing their analytic and substantial distinction: Human behavior and social psychology have indeed proven, so far, to be eternal, ecumenical, and unchanging, and it is the deep scientific knowledge of them that allows us their manipulation. The very idea of marketing and of propaganda depends upon such an

understanding of the human nature (e.g., Bernays 1947). Yet, whenever authoritarian regimes tried to move from manipulation to alteration of human nature, they have failed miserably (Geyer and Fitzpatrick 2009).

It is this factual distinction that today is challenged by “biotechnology”—to be used in this essay as a short description of the wider complex of Genetics, Robotics, Artificial Intelligence, and Nanotechnology (GRIN) as they are analyzed below—both substantially and analytically: substantially, through the development of technologies capable of merging human and nonhuman nature; and analytically, through the redefinition of the purpose of the scientist and the potential of human life. Today, in the framework of late Western modernity, biotechnology, deliberately challenges the analytic and the substantial distinction of natural laws and political voluntarism proclaiming an original social and political program: the voluntaristic creation of technonatures that will merge naturalism and self-will, Athens and Jerusalem.

In a nutshell, I suggest that biotechnology has the potential of becoming the technological component of a new axiality; that in the framework of globalization and combined with intensified individuation, biotechnology could inspire and contribute to a radical alteration of modernity, as in the past secularism, pluralism, and industrialization combined to turn religious-agrarian civilizations into modernity. It could do so by reshaping the premises of social and political action in its own *imaginaire* (Castoriadis 1987) based upon the factual technology *and* the technologists’ vision of the literal merging of the technological with the somatic. For the West, it would mean something more: It would mean the radical alteration of the bimillennial tension of the two pillars of Western worldview, naturalism and voluntarism, and the formation of new institutions, and new patterns of political action and social identity.

If this development takes place, a new fundamental cognitive bipolarity will arise, similar to past axial bipolarities. To put it in an axial perspective, the Neolithic revolution defined “culture” as the opposite of wilderness (or the reverse). The subsequent axial thinking introduced the idea of salvation, even though the two axial ages located salvation in different domains and defined it in different ways. The first axial age focused on the soul, located salvation in the domain of heavens, and defined it as an escape from ignorance, suffering, and sin. Modernity, the second axial age, focused on society, located salvation in this world, and proclaimed immanent Utopias and Reason as the ways to combat oppression and eradicate arbitrary power. The prospective, “third,” axiality focuses on the corporeal body, locates salvation on technological intervention and alteration of the somatic, and defines it as the way to combat natural inefficiencies, limitations, and, eventually, death. As with the previous axial cases, its success or failure will not depend solely on its ability to *prove*

its claims (Heavens and social harmony have neither been “proven”), but on its ability to reshape social imagination, political arrangements, and the institutional premises of modernity.

To name it, as its vision is individualist, corporeal, and utilitarian, and to distinguish it from premodern eschatological visions and modern eutopian visions, I suggest the term “eutopia”—that is, the “place of an immanently good life.” The vision of biotechnology is immanent because it promises to deliver bliss in the most material, tangible, corporeal, and measurable way. But to be successful, the eutopian *vision* has to do more than be successful in the laboratory: It should be able to redefine all the previous axial ages and their features in its own terms: culture versus wilderness as modified versus unmodified nature; salvation as immanent bioalteration of the somatic; and equalization of social condition as radical individuation. In other words, it should make us think and act in its own framework.

The promise, the *imaginaire*, the institutions, and the cognitive bipolarity of a third axial age to be examined in this essay should be taken by the reader neither as promulgation nor as a prophetic insight into the future. Rather, I suggest that as the above domains (the social, the technological, and the intellectual) have been the main fields of application of axial breakthroughs in the past, we should expect that they will continue to be so in the future. To detect a new axial breakthrough means to detect radical changes in those domains. This essay should be seen as an inquiry into such an analysis.

THE VISION AND THE PROMISE OF BIOTECHNOLOGY

Enter biotechnology and the scientific developments that promise to alter the human genome at will. Emerging reproductive technologies, such as preimplantation genetic diagnosis (PGD), germ-line genetic intervention, and stem cell research offer increasing possibilities of choosing the kind of persons that will be brought to existence. PGD is used to detect a wide range of monogenetic disorders and certain chromosomal abnormalities in embryos obtained by in vitro fertilization. The technology allows for selection of an embryo free from a specifically targeted condition for implantation in the womb of the prospective mother. Likewise, germ-line gene therapy, when commercially available, would allow parents to avoid passing on genetic diseases to their offspring by replacing the defective genes of the embryo. And stem cell research implies the using of embryos with the prospect of someday being able to breed and to implant transplantable tissues, primarily to the donor, thus overcoming the immune system response to alien cells.

These magnificent scientific advancements promise to deliver humanity from a series of physical defects and genetically transmitted diseases

that at the moment are incurable. However, the “benefits” of the new biotechnological sciences are not limited to disease prevention but, more important, to the enhancement of our biological makeup. Sex selection by PGD for nonmedical reasons is already taking place and has indeed provoked a heated debate; some people with hearing impairments are willing to use genetic technologies to give birth to deaf children; and recent findings of genetic components in a wide range of complex human traits have encouraged suggestions that such traits may one day become possible to enhance germ-line genetic intervention. Disease resistance, emotional stability, and even intelligence have been proposed as targeted traits (Stock and Campbell 2000). In all, PGD includes a wide range of possible interventions that include both the cure of undesirable hereditary factors from the optimization of desirable ones—that is, both negative and positive intervention that comes to nothing else but *liberal eugenics* that is the voluntaristic altering of the genetic makeup. The path to full manipulation of DNA seems to be open, and eugenicists envision escaping natural evolution and its eternal laws. One of the most pronounced geneticists today in the United States, Silver, stated: “The optimistic conclusion is that our species will become absolutely unique in its relation to natural selection, even if it didn’t start that way. We could very well turn around and call a halt to Darwinian treachery” (Silver 2006, 323).

And yet, the possibility of manipulating the human genome with the above-mentioned biotechnologies constitutes only the tip of the iceberg called GRIN, technologies that promise to fuse the physical body with artificial devices to enhance the former’s capacities and performance.

Genetics has already established and soon will be able (if allowed) to “improve” the human genotype, allowing thus the creation of a number of human, but also nonhuman, subspecies with special abilities. For the moment there are two kinds of genetic engineering: “somatic gene therapy” and “germ-line intervention.” The prior intends to fix deficient genes in specific organs and in most cases is not controversial. As for germ-line intervention, it changes the genetic makeup of the embryo at the very start, altering the child’s every cell and thus the genetic makeup of its descendants. Genetics go even further, envisaging the genetic alteration, “improvement,” or even creation of nothing less than whole species and ecosystems. Silver (2006, 313–14) claims:

If we follow the only sustainable path that is really left open, then surely . . . human nature will remake Mother Nature in the image of the idealized world that exists within our minds, and humankind will be the better for it. We will establish stable ecosystems with animals that are friendly and roam free, and perhaps one day, a real-life version of Jurassic Park will come into existence alongside a forest of mythological creatures. And the creatures will be no more or less soulful than animals currently residing in the San Diego Zoo. Of course, human beings are an integral part of the world that will be remade. Will they alone remain

unchanged, or will they reconceive and reconstruct the human race—consciously or unconsciously—like everything else in the “natural” world?

In *Robotics* the efforts focus on the creation of robots that have properties of living systems such as metabolism, self-management, and autonomy resembling life organisms. In *Informatics* advances in machine intelligence and understanding of the functioning of the human brain are becoming the basis for building up systems that incorporate humans and machines, creating information and data networks that vastly supersede human capabilities. They could be attached, linked, or incorporated into a living organism, providing it with enhanced abilities and linking it to a wider network of similar organisms to detect abnormalities, dysfunctions, and its general state of existence. Last, *Nanotechnology* has allowed the reduction of materials to sizes so little that their behavior changes dramatically, while at the moment it endeavors to do the opposite: to take individual atoms and stack them into any large object, producing superstructures of unimaginative capabilities. To its proponents, nanotechnology promises godlike powers, immortality, and wealth.

Advanced biotechnology *cum* GRIN technologies depart from the vision of modernity—that is, the manipulation of materiality—and proposes a new vision, the merging of humans and matter at will. The visionaries of the GRIN project are fully aware of the potential that lurks into it, and as prophets or ideologues, they promulgate the “good news” through two scenarios, the “Curve” and the “Singularity.” As Garreau (2005, 78) reasons:

Information technology continues to explode at a rate comparable to that from 1959 through the early 21st century. These unprecedented rapid doublings of information power and dramatically reduced costs continue to spawn new transformative technologies, such as genetics, robotics, and nanotechnology. Those in turn also proceed to grow at an unprecedented rate, merging and intertwining to produce novel opportunities and challenges. Within the current human generation, these events could transform society and ultimately test the meaning of human nature itself.

According to the Curve scenario, at around the mid-twenty-first century, technology would reach the levels of human intelligence. This is supposed to produce an inflection point in history called “Singularity,” comparable to that in which humans rose from the lower animals; it will radically change in an instance the way we think and process information. The impact of everyday life would be profound, with major consequences in social, cultural, and value aspects of our life.

Though the Curve-Singularity scenario sounds more like fiction rather than possibility, the key positions that its visionaries and exponents hold in the world of technological research and innovation, their status as technological pioneers of their generation, and the generous funding their

programs receive from primarily American sources do not allow us to ignore it. And while we should remain skeptical (after all, impressing potential funding sources is as important as delivering finished products), it is worth paying attention to their vision: the transcending of human nature to an immortal and vastly more powerful being, in a world that artificiality and biological organisms would be blended into one biomachine. This is a powerful image, and people do pay attention to their vision and actions. The publicity the gurus of the movement enjoy demands our attention. This is to say that we do not need to accept the eventuality of their dream, or nightmare, *in toto*, to start thinking of its consequences on Western civilization. Even as it stands today, biotechnology produces enough issues and concerns to turn germ-line intervention and stem cells into ethical worries and political issues, making Habermas (2003, 21) note:

If we consider that medical mavericks are already busy working on the reproductive cloning of human organisms, we cannot help but feel that the human species might soon be able to take its biological evolution into its own hands. “Partner in evolution” or even “playing God” are the metaphors for an auto-transformation of the species, which it seems will soon be within reach.

“Able to take its biological evolution into its own hands,” in the context of our argument, means to erase the demarcating lines between Athens and Jerusalem, and bring into life nothing less but a new axial age in which all political, scientific, and social certainties dissolve into their basic components to become the building blocks on a new, unbounded, promethean civilization: a civilization without any Zeus to check and punish Prometheus’ excess. Or, in more Judaeo-Christian terms, it may be a civilization that combines the two trees of life and of knowledge into a single tree of life *and* knowledge—a “chimera” in biological terms.

INDIVIDUATION IN LATE MODERNITY

How deeply could the vision of eutopian biotechnologists affect social imagination and social action? Or, to reverse the question, if a new, eutopian axiality were to appear, what should it look like, and how could we detect it? The first axial civilizations, centered on imperial states, appeared more or less independently (the monotheistic offshoots of Judaism—that is, Christianity and Islam—being an exception) and were characterized by a wide variety of definitions of mundane and transmundane orders. In contrast, the second axial age was triggered only in the West and then spread around the globe via imperialism to infiltrate the rest of the civilizational centers with existential doubts and democratic challenges. Considering the intensification of communication and population movement in today’s global world, a third axial age should be even more homogenous, triggered by an even more distinct process. Biotechnology appears to be a serious

candidate for such a role: the ability to “improve” our genetic makeup and the genetic composition of crops and domesticated animals is equally important to all societies and states, and too powerful to remain at the margins of social life and of geopolitical rivalries. An aging and wealthy population will certainly be particularly interested in extending its life span; a young scientific community will find intriguing and challenging research and career prospects; capitalist corporations profitable products and new markets; intellectuals new concepts to be developed and new debates to be contested; and states in the West and elsewhere new tools of economic and military domination (Kaushik 2006). And while biotechnology finds fertile ground in liberal regimes, it does not stop at the borders of totalitarian or authoritarian states, since life technologies increase geopolitical and geoeconomic power. Either as a consumer’s product in advanced liberal democracies or as an instrument of state power in both liberal and authoritarian states, biotechnology does constitute the supply side of a global market; but is there a demand side as well?

True as it is that biotechnology advocates certain benefits, environmental threats and moral inhibitions counterbalance the celebratory vision of this brave new world. How ready are we to receive, accept, and be shaped by such a technology? In civilizational terms, the *problématique* could be approached by examining the inner dynamism and transformational capacities of past breakthroughs. The preaxial Neolithic revolution turned wondering groups of hunters and gatherers into residential communities; the first axial age turned these communities into “societies” cemented around high religions and ecumenical salvationist visions; the second axial age modernized those agrarian visions by democratizing, secularizing, and politicizing the notion of salvation. Modern (liberal, fascist, socialist, and fundamentalist) ideologies became the providers of new social identities more intense and more dynamic than of the first axiality, demanding the active participation of the individual in shaping society. Indeed, the political programs of these ideologies were proven to be irresolvable, imperfect at best, but in the process of promulgating and implementing their principles, they delivered greater autonomy to the axial individual than he or she ever enjoyed before. In the first axial age, the communal individual became a member of an ecumenical religion, and in the second, a member of an ecumenical ideology and a political actor. Teleologically speaking, the two axial ages became vehicles for deeper self-reflection, awareness, social action, and autonomy. Is there anything that they have left out of their grasp? The answer to this question is suggested in the logic of modernity as it is defined by Eisenstadt (2006, 4):

Central to this cultural program was an emphasis on the autonomy of man: his or her emancipation from the fetters of traditional political and cultural authority. In the continuous expansion of the realm of the personal and institutional freedom and activity, such autonomy implied, first, reflexivity and exploration; second,

active construction and mastery of nature, including *human nature*. This project of modernity entailed a very strong emphasis on the autonomous participation of members of society in the constitution of the social and political order, on the autonomous access of all members of the society to these orders and to their centers (emphasis added).

If “autonomy and active mastery of nature, including human nature” is part of modernity, then biotechnology should analytically belong to the second axial age rather than constitute a new stage of social and cognitive life. Why should absolute mastery of nature and of human nature constitute a new stage of human development? Reflecting on past axial occurrences, we could observe that breakthroughs took place by a process of intensification of hitherto marginal activities and practices; for example, medieval manufacturing and rationalization of production when intensified and widely applied became industrialization, capitalism, and bureaucratization. Actually, the reflexivity and autonomy that characterizes the second axial age is to be found in the first axial age as well. What differentiates the autonomy of the first axiality from the autonomy of the second axiality is its extent. Eisenstadt (op. cit.) realizes this when he writes, just a paragraph earlier:

The degree of reflexivity characteristic of modernity went beyond what was crystallized in the axial civilizations. The reflexivity that developed in the modern program not only focused on the possibility of different interpretations of core transcendental visions and basic ontological conceptions prevalent in a particular society or civilization, it came to question the very givenness of such visions and the institutional patterns related to them. It gave rise to an awareness of the possibility of multiple visions that could, in fact be contested.

What could be contested? The answer is traditional legitimation of the political order and the construction of new orders via rebellion, protest, and intellectual antinomianism. The purpose of the health sciences of modernity was not the willful manipulation of the human body, but the proper state of bodily functioning; only racial eugenics came close to resemble a “struggle of artificially” bettering the human race, but this was part of a wider ideological battle and not an independent scientific program—as it is today. In other words, the reflexivity that started in the first axial age as the quest of the autonomous individual to voluntarily alter its identity and its behavior through transcendental visions and ecumenical social movements, and at a second stage descended on earth and took the form of an in-worldly social inspection and questioning of those visions, in an eutopian context would draw even closer to the self—stripped of any “above and beyond” pretensions—focusing on the absolute mundane. Indeed, in the vision of eutopia, the immanent and the transcendental collapses onto the corporeal self. Beyond the religious, laid the social, and beyond the social, today, awaits the somatic.

In such a scheme, axiality appears to come closer and closer to home. In a perspective that includes preaxiality, it appears as a completion of a full circle. Only what returns back to the beginning, to the preaxial homogenous worldview, is a fully reflective self, and in eutopian terms, a transcended, yet handmade, self.

Considering the positioning of the individual *vis-à-vis* modern collectivities, social research strongly indicates that today social constraints of the past are on the retreat. Today, the individual is freer than ever before to choose between numerous options of developing and managing itself than ever before, as revered collectivities of the past, such as religion and politics, has been heavily hammered by both the weakening of the redistributing nation state and the rise of postmaterialism. And while the possibility of a new epoch of individuation is debatable, globalization, affluence, and the retreat of totalitarianism have strengthened individualism, personalized identities, and lifestyles. To the extent that traditional social and state structures can no longer guarantee the provision of collective goods that defined class and national identities in the past, many individuals search for and taste new effective identifications. Today's citizens are to a large extent consumers that have satisfied their basic needs and now shift their attention to products that reflect their individual personalities as a means of expressing their uniqueness. In a sense, the shopping list of a modern person represents a map for the quest of a personal identity. Lewis and Bridger argue that "... today consumerism has replaced religion as a means of looking for psychological relief and balance" (Lewis and Bridger 2000, 35). Highly specialized products create new imagined communities that erode cultural identities that only a while ago characterized nations and their class and political cohesion. This is particularly true of cultural, economic, and political elites who, in the pursuit of uniqueness, form new cosmopolitan "tribes" with no particular attachment to national sentiments. The individualized, "egoistic" identities that seek personal fulfillment and "growth," that have access to transnational resources, material and immaterial, and possess resources that allow them to satisfy their postmaterial, excessive "needs," constitute a ready market for anything that enhances their somatic potential such as biotechnology and the GRIN complex.

A similar process also characterizes religious identity, as the social base of established religions is increasingly characterized by autonomy, individualization of personal faith, syncretism eclecticism, and fragmentation. While religiosity is only partially in decline (more in Europe than in other parts of the world), there is a general tendency toward increasing worldliness, dehierarchization of the human and the divine, self-spirituality, pluralism, "parascientificity," and mobility (Lambert 2004). Other analysts stress traits such as demonopolization, privatization, laicization, and a general decline of religious authority linked to the more general

processes of rationalization and functional differentiation (Dobbelaere 1981).

A strong tendency of Western religiosity, as a consequence of science, human rights, emergence of the masses, and capitalism, is to delegitimize the religions of salvation and to reorient them toward more earthly aims—that is, to stress their this-worldliness dimension (Lambert 1999). Self-spirituality—that is, to seek the divine in the inner self and raise personal experience to supreme authority on matters of morality, external beliefs, and authorities—is also on the rise (Tschannen 1992). Dehierarchization, dedualization, and monism that impart human with the divine, the mundane, and the transmundane orders have also been identified as emerging tendencies (Heelas and Woodhead 2004). The result is the rise of either nonbelief, a more loving or understanding God, or even a divine Friend. Mainline Protestantism, Pentecostalism, and post-Vatican II Catholicism have decisively moved toward this direction. Science, tolerance, political correctness, and functional differentiation encourage pluralism and relativism, while demythologization rejects the basic historical facts of faith and replaces them with symbolist faith. A variety, then, of analyses points to the same effect: Established religions are losing both their social grasp and their ability to defend the dualism between high and low orders; pluralism, in-worldliness, and monism are on the rise (Martin 2005).

Such an environment offers a fertile ground to any biotechnological promise of bliss in this world (Amarasingam 2008), and the rise of spirituality that replaces traditional religion, as Heelas and Woodhead suggest, fits quite well the eutopian spirituality heralded by Kurtzweil (2006). In fact, the eutopian vision is perceived by its proponents as advanced spirituality (Amarasingam, *op. cit.*).

MERGING AND FRAGMENTING PHYSIS AND WILL: “DEDIFFERENTIATION” AND “SPECIES FRAGMENTATION”

A global market does not necessarily entail a similar cross-cultural or civilizational attitude toward the eutopian vision. Indeed, there are significant differences in the degree of accepting it (Goolem 2001; Pardo, Midden, and Miller 2002). Civilizations that are fully other-worldly (Hinduism, Buddhism, and Taoism) or fully this-worldly (Confucianism) are less apprehensive of biotechnological advancements than the monotheistic civilizations that depend upon a Creator (Wong 2007). This is to say the eutopian vision could not threaten civilizational worldviews that consider life to be an illusion, a recycling process, or focus on proper social contact, but it does shake the foundations of the West, where nature enjoys an ontological significance much stronger and deeper than in any other civilization.

In fact, in the West the objectification and manipulation of nature have always raised moral fears and social objections, since Western philosophies, religious and secular alike, are built upon the explication of *Physis*, of the ontologically meaningful *essence* of things. Until the rise of romanticism, reaction to objectification was religious; the advent of romanticism made the reaction “ecological”—first aristocratic, then civil. First, concerns were raised about the dangers technology and science were imposing on the significance and freedom of an omnipotent God. Later, at the peak of industrialization, reaction focused on the destruction of nature by the “satanic mills” and the loss of nature’s mystical qualities. Today the ecological movement addresses a series of concerns dealing with the fragility of the ecosystem, yet, as did its ancestors, it raises anew the moral issue of the integrity of *physis* as the latter faces two formidable threats, “dedifferentiation” and “species fragmentation.”

Dedifferentiation refers to the reduction of the four Aristotelian categories into one via the process of combining scientific experimentation with the desire to control nature (Habermas 2003). Dedifferentiation produces a new aggressive science able to reduce nature to an ontologically inferior and malleable quantity. Yet, in spite the reduction nature has suffered, until today the “architecture” of the means of action toward nature remains intact as the interference of man cannot ignore the natural processes, the autoregulated nature. Even if only in practical and vernacular ways, an Aristotelian distinction of approaching nature is retained, as nature is still to be approached in theoretical, moral, and technical ways with the latter being distinguished into cultivating, nurturing, and therapeutic. Disenchanted as this world might be, humans still have to consider, accept, and incorporate into their techniques the natural way of producing a desirable result.

Yet, in the brave new world of eutopia, technological practices do not have to adapt or take into consideration the inherent natural processes. Instead of “controlling” natural propensities and mechanisms, the emerging technological practices can usurp them. Usurpation dedifferentiates and unifies lifeless matter with the naturally cultivated living matter. Biotechnological inference overtakes the hitherto necessary cooperation of subject and object and turns the result of the cooperation into a mere construction. In all, biotechnology constitutes the last stage of simplification and reduction of nature into a usable object, a toy in the hands of small gods. This constitutes the crucial and distinctive difference from the naturalism of the first and second axial age. GRIN biotechnologies envision nature to be stripped of anything above its immanent qualities and immediate uses. “The more ruthless the intrusion into the makeup of the human genome becomes, the more inextricably the clinical mode of treatment is assimilated to the biotechnological mode of intervention, blurring the intuitive distinction between the grown and the made, the

subjective and the objective—with repercussions reaching as far as the self-reference of the person to her bodily existence” (ibid. 47). It will undermine our humanity, our autonomous conduct of life and moral self-understanding as it will turn our body from “grown” to “made” by parents and scientists. Also, it would initiate an unprecedented type of relationship between the person deciding and the person receiving the genetic modification that would alter the latter’s behavioral and cognitive makeup—a relationship that by definition would be irreversibly unequal, a relationship between the creator and the created.

Moral concerns associated with the dedifferentiation of nature extend to the issues of “post-human” and “post-natural” worlds where the corporeal and ontological boundaries between human and nonhuman nature have been eroded. Novel biotechnologies, such as xenotransplantation and cross-species gene transfer, shake our belief in the autonomy of the human subject as they breach the boundaries between human, animal, and plant life forms and draw attention to their similarities (Kaushik 2006). Posthumanist theorists such as Donna Haraway (1991) claim that the breaching will increase our awareness and appreciation of nonhuman life, while humanists, such as Francis Fukuyama (1992), detect a clear threat to the unity of our species, and thus the irreversible fragmentation of civil society into subhumanities each one with its particular genetic-political makeup. Fukuyama (1992, 7) argues:

Human nature exists, is a meaningful concept, and has provided a stable continuity of our experience as a species. It is, conjointly with religion, what defines our most basic values. Human nature shapes and constrains the possible kinds of political regimes, so a technology powerful enough to reshape what we are will have possible malign consequences for liberal democracy and the nature of politics itself.

The “science of the brain,” “neuro-pharmacology,” the “science of aging,” and “genetic engineering,” the four scientific topics Fukuyama investigates, all point to the fact that biotechnological applications are cumulative, and while individually harmless to the unity of the species, their sum effects are due to alter and fragment the human species to the point that no “politics” as we recognize them today, will be applicable any more. He fears of a brave new world of genetically bred humans with special abilities that will threaten the unity of the human nature. At the point where not just individuals but groups are bred to be different, the premise on which equal respect and equal rights rests disappears.

Next to fragmentation of the species lies the fear of extinction of human emotions: “It is the distinctive gamut of emotions that produces human purposes, goals, objectives, wants, needs, desires, fears, aversions, and the like and hence the source of human values” (ibid. 169). At the source of human rights lie human nature and the motivations that define our objectives, and thus the institutionalization of the legitimate ways to

actualize them. By changing human nature, even for the better, we alter the emotional response and thus the foundations of human action. Fukuyama does not claim that any emotion provides a determinate moral guide. Instead, it is the balance among competing interests that explains the evolution of institutions. In fact, we have arrived at the “end of history” because “there is logic to human history that is ultimately driven by the priorities that exist among natural human desires, propensities, and behaviors” (ibid. 126). In all, his antibiotechnological argument follows closely his liberal political predisposition. Civil trust and prosperity rest on the creation of institutions designed to encourage untrustworthy beings to interact with each other in peaceful and mutually beneficial ways. Alter human nature, and the institutional protection of liberty will collapse.

His argument clearly defines the limits and the incompatibility of the two sides of the debate. “Humanity” is not understood in a clearly defined way with scientific boundaries; instead it is understood instinctually, as the “Factor-X” (ibid. 150) that distinguishes us from other species. Fukuyama refrains from defining humanity because by doing so he would be forced to accept the biological framework of analysis: that the human species has specific coordinates, variability, and abilities. Such a definition would logically (even if unintentionally) lead to framing the somatic in purely functional terms (which is exactly how eutopian geneticists wish to see us) validating issues of improving “lower” abilities, enhancing variability, and so on. In effect, by defining humanity he would be forced to accept not only the legitimacy of the dedifferentiation debate, but the legitimacy of the argument concerning the definition of the human genome, which is tautological, and void of moral connotations. On the contrary, Fukuyama’s Factor-X, as it stands unspecified, refers exactly to the ontological meaning of nature that is so central to humanists and so void of meaning to the posthumanist thinkers.

If Jurgen Habermas and Francis Fukuyama represent in any significant way the leftist and the liberal-neoconservative facets of Western late modernity, then their common views and troubles with biotechnology indicate a future realignment of Western thinking about the prospect of eutopian autotransformation. Their concerns are based upon the assumption that “nature” is not just the material habitat of life in its myriad forms, but a domain maintaining a comfortable distance from us, with its own rules, its own wisdom, and its own inner life. Nature needs to be protected by science and technology as if they were an infectious disease, and this is the assumption that most green movements adopt (Taverne 2005).

For the posthumanists nature comes with a small “n,” as it is considered to be the sum of all genetic material and ecosystems spatially and temporally arranged by physical, and in no small extent, chaotic forces; nature, in this framework, is dynamic, volatile, varying, a depository of genetic

information that could be altered, nonetheless carefully, to fit human wishes and preferences. For the humanist advocates of natural order, Nature comes with a capital “N” as it constitutes the depository of natural wisdom, a vast treasure of natural evolution or God’s will, a whole entity apart from personal and social wishes, fragile, eternal, balanced, and in cosmic terms harmonious. These are deeply rooted beliefs that cannot be reconciled in a scientific way or, for that matter, in any other way.

REFLECTIONS RATHER THAN CONCLUSIONS

John Caiazza (2005, 2006) in two suggestive articles has underlined the potential of new technologies to challenge religion and science as *the* vision of the future; he calls this novel cognitive model “technosecularism.” Its main features match those of the eutopian axiality remarkably well: they both are instrumental, utilitarian, and eudemonic (Caiazza 2005, 19). However, in addition to these three features, Caiazza’s technosecularism is short sighted, psychologically immature, and fearful of death—features that bear reverse signs in the eutopian vision. Yet, I suspect that in fact we are describing two time frames of the same phenomenon. Today, technosecularism (current biotechnology included) is indeed characterized by Caiazza’s features. Nevertheless, in the long run, if biotechnology moves to its full potential, technosecularism will become the technological component of a new social reality. This social reality could only be completed by the incorporation of a new vision of human purpose and destiny, a new meaning that will integrate within its framework modern science and religion, as modernity has already done with their medieval versions. In this context, technosecularism could be described as the “primordial soup” out of which the new eutopian axiality will emerge.

The eutopian cognitive bipolarity is already here, though certainly it is far from being the dominant framework. Yet, it is interesting to observe how the biotechnology debate turns old enemies into brothers in arms (e.g., Kass 1985). American neoconservatives and fundamentalists “ally” with European leftist intellectuals against the voluntaristic use of biotechnology, as they argue that the split of the human species into various subspecies will destroy the unity of humankind and the possibility of civil society, or salvation.

On the other side of the hill, the champions of the eutopian camp are equally strangers among themselves: in this camp we meet “post-humanist” libertarian philosophers, cornucopian sociologists, and visionary technologists who praise biotechnology and its potential to overcome sickness, hunger, and various physical stereotypes, and allows us to reach new heights of liberty, self-actualization, even immortality. Posthumanism does not reject religion as such; on the contrary, it infuses it with a new meaning in a eutopian framework where immanence

and transcendentalism merge into new actualities. This is a peculiar yet intriguing morality, a blend of cold materialism and fervent spirituality: The more *physis* becomes immanent through the applications of science into technological practices, the more the natural environment and the human body is moralized and adopts transcendental, even sacred, qualities.

The fact that both these opposing alliances are not intended and that they are built despite the vast gaps that divide their building blocks, only stands as manifestation of the impact that the eutopian bipolarity will eventually have on the traditional ideological camps of the West. The dilemma will not be “Athens or Jerusalem” anymore, but either to keep these cities separate or to combine them into a strange, frightening, hopeful Eutopia.

For the moment, though, while many societal and political prerequisites seem to be in place and ready to accommodate biotechnological advancements in a new axial framework, we are still far from seeing the GRIN sciences delivering their salvationist promises; they might as well never do so. If they fail, biotechnology will remain a “preventional” technology, condemning this essay to remain an exercise of stochastic scholasticism. Yet, if the GRIN technologies do start delivering eutopian goods, then the new bipolarity will be intensified, absorbing wide societal forces and social audiences. States (power seekers), third age groups (life seekers), and capitalist corporations (profit seekers) will side with the eutopian camp, while strict humanists, under the banner of environmentalism, traditional religion, and human dignity, will form the opposing side. As for the scientific community itself, experience and common sense suggest that probably it will be divided between the two camps as its members will seek audiences, funds, personal gratification, even leadership.

In either scenario, biotechnology is bound to become a key feature of social tensions in the twenty-first century due to its abilities to upset social, economic, political, and geopolitical power arrangements. Biotechnology captures and intensifies a social process already present, a shift of attention from the social and the communal to the individual and the somatic. If it does manage to move firmly from prevention to enhancement, it will focus upon the qualities and features of the mundane materiality, enriching them with transcendental qualities; it will be an era of immanent transcendentalism. Judging from past endeavors, even in the best-case scenario, no harmony will be reached. Instead, it will be a new era of personal freedom and social inequalities, an era of new anxieties and of new hopes.

NOTE

A preliminary version of this essay was presented in Erfurt, Germany, on July 4, 2008, at the conference “The Axial Age and Its Consequences for Subsequent History and the Present.”

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