

The New Genetics: Forebodings of the Forbidden Fruit

© Dr. Leonard Ortmann

Senior Associate for Programs

Tuskegee University National Center for Bioethics in Research and Health Care

The role originally relegated to ethicists in the Human Genome Project consisted in examining its ethical, social and legal implications. Ethical review, it was hoped, would allay the public's reservations by mitigating or obviating negative consequences. Risk assessment, public discussion, and government oversight are, to be sure, sensible approaches for avoiding harms that can be defined and measured. Unfortunately, this regulatory endeavor did not fully deliver on what supporters of the new genetics most had hoped for: an ethical imprimatur that would quell public uneasiness about the new genetics and hence preclude any governmental interference with research. That the reservations people have about the new genetics lay beyond pragmatic considerations is a major assumption of this paper. It focuses on the nature of these reservations in the light of mythic, religious and literary traditions of what Roger Shattuck calls *forbidden knowledge*. It also addresses the moral challenge the new genetics poses to humanity and to religious self-understanding. I favor a proactive moral strategy over reactive responses such as *post hoc* regulatory measures let alone futile and misguided rearguard actions against science. In exploring how a proactive strategy can incorporate a religious understanding, Donald Akenson's views in *Surpassing Wonder* will serve as a point of departure. As clues as to how the religious understanding might then appropriate the new genetics, the approaches of a Renaissance and a modern author will be considered. Their interesting but unconventional strategies, I hope, will help us to see the new genetics as the epitome of forbidden fruit and the key to understanding all forbidden knowledge.

According to Roger Shattuck, the West has discovered or invented only two master plots or narratives of high explanatory power. The first, the so-called Great Tradition, synthesizes the Greco-Roman and Judeo-Christian traditions. It aspired to replace the naked rule of power and privilege with justice, moral altruism and universal human dignity under God. This narrative had no real competitor until Darwinism arose, with its grand narrative of life emerging from the primal slime and evolving through a process of natural elimination. This new narrative, while partially dislodging the old story, has not replaced its ideals. Many today have achieved within their own minds an uneasy truce between these competing narratives only by keeping their scientific explanations in one silo, their values in another. However, the increasingly real possibility of genetic reengineering the human species has disrupted this uneasy truce and instigated a momentous struggle between the two narratives. Shattuck has weighed in on this struggle by situating the new genetic knowledge within an ancient tradition concerning the promise and peril of forbidden knowledge.

In his work, *Forbidden Knowledge, from Prometheus to Pornography*, Shattuck begins by asking whether there are things we should *not* know. To answer this question he draws on a host of well-known proverbs, myths, and legends from the Great Tradition as well as some from Orien-

tal thought that highlight the dangers of knowledge. Although an appendix offers six categories of forbidden knowledge, two main characteristics of forbidden knowledge strike me as crucial for Shattuck's serious suggestion that some knowledge should not be brought to light of day. The first has to do with the ambivalent character of forbidden knowledge. It promises discernment, power, and mastery but often brings danger, distress or disaster. The story of Oedipus, who plucks out his eyes when he discovers the truth about his origins, illustrates this point. The second reason is that, despite these perils, those seduced by forbidden knowledge often overstep boundaries that define our place in the scheme of things. The attempt of Adam and Eve to become like God by eating the forbidden fruit suggests itself here as a paradigmatic example.

To further illustrate these points, let us turn to the story of Daedalus, the resourceful artisan, and his son, Icarus. To escape the labyrinth in which they have been imprisoned, Daedalus fashions artificial wings held together with wax. Ignoring his father's warning, Icarus flies too close to the sun, plummeting into the sea when the wax melts. Although we believe we can emulate Daedalus who serves the gods through technical inventions, we are as likely, in Shattuck view, to mimic the presumptuous Icarus whose intoxication with flying causes him to overreach (Shattuck, 215). Transgressing boundaries likewise plunges Prometheus into jeopardy. Prometheus steals the secret of fire from heaven to uplift man and rescue him from an impending destruction by the will of Zeus. For his presumption, Prometheus suffers divine punishment, being chained to a rock where an eagle daily gnaws at his regenerated liver. Although we tend to view Prometheus as a tragic, heroic figure, Shattuck draws our attention to *the rest of the story*. In Hesiod's original account, Zeus sends the first woman, Pandora, and her infamous jar to earth as an additional retaliation for Prometheus' offense. Idle curiosity tempts her to open the jar, thereby unleashing a host of evils upon the earth. This fuller picture, which clearly underscores the ambivalent character of forbidden knowledge, closely parallels the Biblical account of the forbidden fruit of knowledge, down to woman being the source of the offense. But the *Fall* marks only the first act of a Biblical leitmotif. The *Tower of Babel*, the fatal curiosity of Lot's wife, dire warnings about beholding the face of God, and reminders about the foolishness of human wisdom comprise only highlights of a Biblical refrain on sin, pride and presumptuous knowledge. Needless to say, cultures that drew inspiration from this source echoed and amplified this Biblical refrain.

In the interpretation of the medieval story of Faust by the German playwright, Goethe, Shattuck detects a modern change in attitude regarding forbidden knowledge. Christopher Marlowe's earlier play had more closely followed the medieval story of a charlatan whose pact with the devil enables him to do serious mischief, but who then duly gets packed off to hell. In Goethe's version, Faust, an elder scholar who strives to comprehend all experience, promises his immortal soul to the tempting spirit, Mephistopheles, in exchange for knowledge. A choir of angels, however, rescues Goethe's Faust from damnation, proclaiming that he who constantly strives can be saved. Shattuck sees this proclamation as a license that the modern spirit has issued itself to validate its restless and limitless scientific curiosity. To this feverish quest, Mary Shelley's *Frankenstein* administers a necessary corrective, a modern cautionary tale that questions the Faustian scientific man's vainglorious pursuit of knowledge and presumptuous meddling in the creation of life.

Modern scientists unwilling to acknowledge any limits on research clearly make Shattuck uneasy. Ironically, then, as he recognizes, his position owes a debt to modern science's first lobbyist,

Francis Bacon, specifically to his interpretation of the ancient fable of the Sphinx. Bacon viewed this fable as an allegory alluding to science. The Sphinx, that monster uniting a virgin's voice and head, a bird's wings, and a griffin's claws symbolized, respectively, the beauty and facility of scientific discourse, the rapid spread of scientific discovery, and scientific argument's hold on the mind. From the Muses, the Sphinx had learned riddles that she propounded to wayfarers who, upon failing to solve, were torn to pieces. By solving the riddle--whose answer is, "what is man?"--Oedipus deposed the Sphinx and went on to become hero and ruler of Thebes. Shattuck extracts two key lessons from Bacon's interpretation. The first is that so long as knowledge remains with the Muses, that is, purely theoretical, it remains benign. However, when it passes from the Muses to the Sphinx, that is, from contemplation to practical application, its monstrous aspect becomes apparent, wracking the mind with worry. This self-lacerating aspect of knowledge unlocks the allegorical meaning behind the Sphinx's tearing apart of anyone who failed to answer her question. Shattuck exploits this insight to take issue with the Faustian claim that mere striving for theoretical knowledge absolves the scientist of any responsibility for the dangerous consequences of pure research. In this regard, he recounts the cautionary tale of Robert Oppenheimer, head of the Manhattan Project and co-developer of the atom bomb. The second lesson emerges from a further allegorical detail, namely, that Oedipus, though possessing mental powers sufficiently discerning to solve the Sphinx's riddle, was from birth lame and slow of foot. That detail suggests to Bacon that anyone in too big a hurry cannot solve the Sphinx's riddles. Shattuck draws from this point the lesson of "taking our time in approaching ultimate questions like the secrets of life and of mind" (Shattuck, 324). In the end, Shattuck, enjoins us to exercise caution:

Let us beware of crash programs and reductionist solutions. If the Sphinx represents science in its most dangerously alluring form, then we must find the courage to resist her riddling challenges, to tame her, rather than to be devoured by her. (Shattuck, 324)

That Shattuck has framed the new genetic within a tradition of what he takes are largely cautionary tales about forbidden knowledge tips us off as to his position. This new genetic science, to recall his perspective, has instigated a momentous struggle between the so-called Great Tradition and the contending--perhaps we should say presumptuous--Darwinian narrative. In this struggle, Shattuck appears to have staked out a largely conservative position. Nevertheless, he sees himself not as a conservative but as moderate urging a middle position between the sometimes irrational exuberance of scientific promise and a sober pragmatism that recognizes that circumstances often compel us to take *measured* risks. The risks in unregulated genetic science, however, he deems currently far too high, given our crucial lack of knowledge about how genes function. Those risks, coupled with his wariness of an unbridled Faustian curiosity, tilt him in favor of the ancient cautionary wisdom regarding forbidden knowledge.

Yet Shattuck's caution seems to extend beyond pragmatic concern about hastily skipping over crucial gaps in knowledge about genes. Genetic science threatens not only to transgress knowledge boundaries, but also human boundaries that define us. The very idea of self-consciously recreating humanity, I suspect, fills him with a foreboding of a kind that the Greeks personified as Nemesis. The Greeks had a statue of her sculpted from marble the Persians had brought to Marathon as trophy material for their victory, which they had presumptuously counted on in ad-

vance. The Greek gods are jealous and set Nemesis on all violators of the natural order: not only transgressors of the moral law, but also those who deliberately rival the gods or unwittingly display any excess placing them beyond their station.

Something akin to this foreboding of being pursued by Nemesis affects many people today when they reflect on genetic reengineering. They feel profoundly uneasy with the thought that we humans presume to tamper with the divine order or author our own being. To be sure, given the inherent dangers of the new genetics, some public discussion, pragmatic risk assessment, and regulatory oversight seem both necessary and reasonable. But such measures will not suffice, in my view, to quell the deeper forebodings people have about the new genetics. They go to the heart of human self-identity and how people situate themselves in the grand scheme of things. Being out of joint with the cosmos, out of step with the jungle's rhythms, or not right with God elicits our most primordial sense of fear—and with justification—for it indicates we have lost our way and danger surrounds us. If, indeed, Nemesis pursues us like a bad conscience on account of the new genetics, then an appropriate effort must be made to mythically ground, religiously sanction, or morally envision a future humanity in the light of the new genetics.

Public discussions of risks and of regulatory policy can allay people's concerns about potential harms of genetic research but will not convince a significant number of people that it should be given the green light to proceed. I discuss mythic grounding, religious sanction and moral envisioning below in order specifically to address the challenge the new genetics poses in the guise of Nemesis to religious understanding and humanity. By mythic grounding, I simply mean that all cultural life plays out against the backdrop of an imaginative grand narrative of origins, continuity of tradition, and connectedness with others, the cosmos and the divine. Whenever new cultural practices disrupt this continuity, new rituals are inaugurated. These rituals religiously sanction the new practice, that is, confer divine approval often in exchange for a sacrifice which restores the tradition's continuity and reconnects the community to the cosmos and the divine. By moral envisioning, I mean something analogous to the invention of ritual, but transposed to the realm of ethical principles and operating within a more modern set of cultural presuppositions. These terms, as presented, suggest a temporal progression in culture's response to Nemesis, yet I do not wish to imply that later stages completely antique previous ones. I add this point, because although something analogous has to take place in response to the new genetics, it is not altogether clear what shapes or forms would be appropriate for it to assume today given the variety of viewpoints comprised under the term, "religious understanding." This paper is one such form, but it may not speak to or be a suitable form to address the issue for many people.

In *Surpassing Wonder: The Invention of the Bible and Talmud*, historian Donald Akenson argues that Biblical authors co-opted history to invent and reinvent the Judeo-Christian religious traditions. They conceived an eternal Yahweh outside time who only works in time, in history (Akenson, 92). The scriptures have to be read as if they were history, because that is how they tell us to read them (Akenson, 8). Nevertheless, this history is invented, not in the sense of being fabricated out of whole cloth, but in the sense of "worldmaking." Worldmaking differs from creation out of whole cloth or from originality. Worldmaking starts from a world at hand and a tradition known by a community. The authors cannot address this community with canonical authority, nor would the community approach their writing as sacred text, because neither yet exists. Rather, they hear it as a mixture of the literal and the less literal spin the author puts on it (Akenson,

60-61). Creativity or originality would discredit the author because his readers know the religious and oral tradition sufficiently well to constrain the author's historical narrative (Akenson, 51). Akenson seems to conceive Biblical authorship as a re-visioning of the past that tries to cover its tracks even as it lays them down. As he says, "one of the crucial techniques in introducing innovations is to act as if they have always been there" (Akenson, 69). Yet I would not style this mode of innovation a *technique* so much as a spiritual note the author must hit in his composition. The religious author does not merely invent a plausible narrative that revisions the past in the light of present with an eye to the future. In addition, the religious author, acting on the basis of a profound imperative, must attain a religious key that inspires him to intuit the hand of God running through all events. His readership does not judge his effort only or primarily from a critically rational perspective. If scripture at its conception does not straight away breathe and exhale the divine spirit of the tradition animating the community to which it is delivered, then it dies stillborn to be buried without the rites of consecration that could vouchsafe future canonical status.

Akenson's description of the seamless grafting of innovation onto the tree of tradition can be viewed as a remarkable transposition of the timeless quality of myth to the writing of scripture as historical narrative. Though the eternal abides, mankind's relation to it evinces a history. Scripture must retain myth's timeless aura while casting an historical spell of divine continuity in the present moment, thus binding the past tradition with what will become the future vision of the past. It acts from a profound cultural imperative, on authority, so to speak, so that the tradition retains its authority and continuity through the march of history and the introduction of innovations. Without such a process, the cultural psyche begins losing its way and experiencing collectively forebodings of Nemesis, a.k.a. the wrath of God.

Akenson believes that the tracing of bloodline was central to the definition of Chosen People, and that western society is primarily a descendant of the children of Israel regarding its understanding of history as narrative (Akenson, 100, 106). I would agree with these points, but add that the issue of bloodline is inextricably intertwined with the issue of culture. Likewise, I would add that regarding the synthesis of Greco-Roman and Judeo-Christian cultures, the Great Tradition more truly consists in incorporating the former into the latter, rather than vice versa. Judeo-Christian culture constitutes the maternal line, so to speak, into which Greco-Roman culture married. Regarding theology, the incorporation of Greek rationalism took place in three waves: with Hellenistic philosophy, with Neo-Platonic philosophy (Augustine) and with the medieval Aristotle revival (Thomas Aquinas). Religious strife and warfare during and after the Reformation majorly disrupted that process. In the meantime, natural philosophers, i.e., early modern scientists, began rejecting Classical Greek philosophy and reviving ancient materialist views, but with a twist. The new materialism and atomism rested on a mathematical foundation that reflected a modern search for a mathematical method universally applicable. This universal method was designed with an eye to removing disputes about political matters and ultimate questions from the battlefield of mutually-assured, destructive, religious self-righteousness, to put it bluntly. The separation of Church and secular State, that uneasy truce of modernity, has been the result (Toulmin, ©1992). My intention here is not to bewail this separation but to indicate that one of its consequences has been to thrust the Church into the position of fighting a rearguard action against scientific progress. Although more and more talk of a science-and-religion rapprochement takes place, advances in scientific explanation and their technological implementations still

regularly affront religious self-understanding. Yet as a culture, there is no consensus about how to achieve this rapprochement, let alone a consensus on the part of those in academia that the problem demands a robust response. In this impasse, I can only hope to offer a few clues and models as to how to proceed.

Without further ado, let me simply quote a crucial passage from the *Oration on the Dignity of Man* by the Renaissance scholar, Pico della Mirandola. There he offers an innovative view of human nature in the context of a reading of the *Genesis* account of mankind's creation.

Finally, the Great Artisan mandated that this creature who would receive nothing proper to himself shall have joint possession of whatever nature had been given to any other creature. He made man a creature of indeterminate and indifferent nature, and, placing him in the middle of the world, said to him "Adam, we give you no fixed place to live, no form that is peculiar to you, nor any function that is yours alone. According to your desires and judgement, you will have and possess whatever place to live, whatever form, and whatever functions you yourself choose. All other things have a limited and fixed nature prescribed and bounded by Our laws. You, with no limit or no bound, may choose for yourself the limits and bounds of your nature. We have placed you at the world's center so that you may survey everything else in the world. We have made you neither of heavenly nor of earthly stuff, neither mortal nor immortal, so that with free choice and dignity, you may fashion yourself into whatever form you choose. To you is granted the power of degrading yourself into the lower forms of life, the beasts, and to you is granted the power, contained in your intellect and judgement, to be reborn into the higher forms, the divine.

(Mirandola, §3)

In one fell swoop, Mirandola intuits human self-authoring as divinely authored, as the implicit meaning all along of *Genesis* and the mystery of human freedom concealed in its story of forbidden fruit. This fell swoop initially jars us, perhaps because our tradition for so long projected presuppositions of Greek theoretical rationalism into its theological interpretations. Divine omniscience has been interpreted, problematically in my view, as a super x-ray vision, as it were, through time. But what if God resembles the creative ground beyond the visible realm out of which things emerge, and what if divine omniscience more closely resembles knowing in the proverbial Biblical sense of being intimately familiar with? Man after all is *the* creature made in the image and likeness of God, the *Creator*, not God, the philosopher. From that perspective, one that can lay claim to a substantial amount of Biblical purchase, Mirandola's reading gains a foothold.

My intention here is not to debate the merits of Mirandola's view, but to suggest there are ways of reading the tradition that offers a proactive moral outlook on the future that addresses our present forebodings and concerns while binding them to the tradition in a way that authorizes us to go forward. In the same spirit, that is, with fear and trembling, I offer the model of the follow-

ing thinker for your self examination, namely, Nietzsche, best known for proclaiming that “God is dead.” Let me assure you that it is not for that reason, but despite that reason, that I have chosen him as a model. I have done so, because he is a modern thinker who has created one of the more serious moral visions designed to bind, harness and guide the juggernaut of scientific curiosity. In the absence of such a vision, its reins will be seized, as they have been seized already, by the dictates of the market economy whose invisible hand may well turn out to be attached to Nemesis’ arm.

Nietzsche’s attitude toward science initially was inspired by a contemporary philosopher of science, F.A. Lange, whose theory of scientific progress anticipated by a century Kuhn’s theory of the structure of scientific revolutions. For Lange, science keeps as close as possible to facts in formulating its explanatory models. Science views suspiciously speculations that go beyond the facts and partly for that reason, among others, has eschewed discussions of values. Nevertheless, as Lange notes, explanatory models cannot synthesize facts into a coherent picture without involving some power of the imagination. As new facts emerge that are inconsistent with the old model, ruthless scientific self criticism vets the older model and exposes the speculative element of imagination at its root. A new model that more closely clings to the trunk of empirical knowledge eventually displaces the old model. Followers of Lange regarded scientific models as progressive heuristic fictions that guide and regulate research.

Lange also realized that scientific explanations, by undermining Biblical accounts of creation, had also undermined the mythic foundation of traditional ethics. Though he denied that this foundation as such could be restored, he did believe it possible and necessary to create a modern myth to replace it. But he equally denied that science could replace it. Science’s cold, clinical detachment and the rampant individualism that had arisen in its wake were infertile ground on which to sow seeds of a modern myth. But he did believe that any modern myth had to square with scientific explanation.

Against the Enlightenment’s blind faith in scientific progress, Lange cautioned that reason alone could not inspire a modern mythology to replace the old faith. That task demanded artistic inspiration which “unites with the noblest vigor of thought the highest elevation of reality” and “lends to the ideal an overpowering force” (Lange, III 343). The following passage best illustrates the edifying tone of his standpoint of the ideal.

... if the New is to come into existence and the Old is to disappear, two great things must combine—a world kindling ethical idea and a social influence which is powerful enough to lift the depressed masses a great step forward. Sober reason, artificial systems cannot do this. The victory over disintegrating egotism and the deadly chilliness of the heart will only be won by a great ideal, which appears amidst the wandering peoples as a “stranger from another world,” and by demanding the impossible unhinges the reality. (HM III, p. 355)

Lange calls for an edifying metaphysical poetry that will elevate egotistic modern man far beyond everyday consciousness to consciousness of an ideal world that represents our deeper unity with nature and our fellow man. That source of deeper unity with nature and our fellow man for Lange also constituted the same ultimate source of artistic inspiration and of all higher

values. The analogies with religious inspiration, I think, are obvious and therefore need detain us no further.

In his own philosophy, Nietzsche eventually dropped all talk of this underlying metaphysical world. This decision reflected his dictum to remain true to the earth, to this world, and seems to anticipate Wittgenstein's later advice to pass over in silence what we cannot talk about. But Nietzsche's project to create values for the future retained two conditions that regulate Lange's standpoint of the ideal (Salaquarda, 157). First, since it is a free product of the imagination, it cannot lay claim to scientific certainty. This restriction actually frees it from scientific stricture, since the claim being made concerns value, not fact. Conversely, any value or ideal that flatly contradicted what we scientifically know would not only be literally incredible, it would also lose any advantage over religious accounts whose factual basis scientific explanation had demolished. Second, the results and presuppositions of science must mediate its construction. This second, positive condition represents an attempt to bring "the world of existence into connexion with the world of values" (Lange, III 340)—that is, to weave fact and value. The precondition for the possibility of this connection lies, for Lange, in the active, synthesizing power of imagination that establishes a composition's unity and wholeness whether in inspired poetry or in a scientific model. "All comprehension follows aesthetic principles, and every step towards the whole is a step towards the Ideal" (Lange, III 341).

Despite such suggestive remarks, it remains unclear how science mediates Lange's construction of the ideal let alone Nietzsche's creation of values. Nietzschean creation of values, I suggest, operates somewhat in the manner of Akenson's worldmaking. That is, we are not talking about a creation *ex nihilo* but about a reinvention of man from an existing basis, analogous to an already existing tradition at hand. The case at hand for Nietzsche consists in man's biological inheritance and our scientific understanding of it. These bases organically constrain our imagination as to the values we can create. Nietzsche says somewhere that nearly all of what constitutes our biological inheritance was established long ago in prehistoric times. What culture accomplishes is not to create a new nature for ourselves, but rather a higher nature acquired through habit and enculturation. This higher nature becomes 'second nature' to us when it acquires the same instinctive force and certainty of our original natures. So far, this view represents little more than a nice restatement of Aristotle's idea of acquiring virtues through habit. Nietzsche began to develop his thinking about culture and values along these lines further in relation to his confrontation with Darwinism. Despite accepting without qualm the fact of evolution, he found the application to culture of Darwinist and Social Darwinist accounts of the evolutionary process to be blindly and stupidly mechanical to the point of being ridiculous.

Nietzsche's reaction no doubt reflected his reading of Lange, who introduced him both to Darwinism and to a view of science which saw reductionist materialism for what it is: not an ultimate description of reality but an explanatory model. The problem involves the validity of translating the results obtained through an explanatory model created by a human mind to the very

processes of how that mind operates. In other words, the results obtained through the lenses of a practical fiction created by the mind then are taken as a reality that purportedly explains the workings of that mind. We cannot here resolve the question of whether man is a free being imagining himself to be a machine or merely a machine imagining itself to be free. But there are many people who find their sensibility if not their dignity affronted by the naïve application of mechanical determinism and reductionist methodologies to human beings. There are grave questions here of the legitimacy of the application, not in the sense of it being possible, but in the sense of interpreting the meaning of the results that we can only allude to here but not entertain.

Nietzsche, then, is an interesting case because he has a sophisticated understanding of the nature of scientific explanation, embraced the fact of evolution forthwith if not without enthusiasm, and, while clearly interested in Darwinism, equally clearly had serious concerns about its implications for human values. It is also clear that, while he thinks that evolution is real, he recognizes that most of what is evolutionarily significant for the species occurred in human pre-history. Human evolution in history, he also recognizes, has been a cultural attempt to create a higher, more refined, or second nature on top of the biological nature largely already given in pre-history. That is why different cultures are variation on the same, common human themes and why we can understand Plato and Confucius or the Amazon rain forest dweller. To repeat, this recognition does not decisively distinguish him from Aristotle. Genetically considered, the difference between pre-historical humans and modern humans is tiny. Yet the recognition that there is even this tiny difference forces us to revolutionize our understanding of man. It forces a revolution in the same way that a few facts that Newtonian physics could not explain eventually ushered in relativity theory and then quantum mechanics. This small evolutionary difference forces us to view man not as created all at once, but created eternally as a work in progress. History, then, is the witness of human attempts to realize the inherent possibilities contained in that biologically given nature.

These considerations are precisely what Nietzsche's notion of the overman is about and what emerged in his thinking as a result of his confrontation with Darwinism. Man, as Nietzsche's literary persona, Zarathustra, proclaims, is a bridge, not an end, a rope tied over an abyss between beast and overman. Man is also a tightrope walker who makes his vocation the danger of crossing over, looking backward or stopping on the rope of time stretched over the abyss (Nietzsche, *Zarathustra's Prologue*, 4, p. 126). The human endeavor, as symbolized by the overman, is a process of continual self-overcoming where man must leap frog over himself without losing his balance and falling. Nietzsche also conceives the creation of values in this light, namely, as the announcement of an impending leap of culture's spiritual pioneers.

Neither Mirandola nor Nietzsche had to confront the dangerous possibility the new genetics provides of radically transforming the biological basis of human nature. This possibility adds a decisive twist that limits the usefulness of their models to our current predicament. However, I do think they cast the tradition of forbidden knowledge into a new light. So, before addressing that predicament, I want to reappraise that tradition.

I am appreciative of Shattuck's framing of the debate regarding the new genetics within the rich cultural tradition of forbidden knowledge. But the points I subsequently will make depend on an alternative reading of that tradition. I want to suggest that these cautionary tales may not be primarily cautionary at all. Our proneness to presumptuous or heedlessness of warnings does not fully explain why we have such a rich trove of cautionary tales. Their historical recurrence in ever new forms might reflect not our vicious presumptions but our intrepid encounters with danger. Their rich inventiveness bears witness to their authors' efforts to express a profound truth constitutive of the human condition. Namely, it is our fate to be risk takers on a tightrope stretching from a familiar past to an uncertain future. Seen in this light, these cautionary tales do not so much warn us to halt on this path—how could we?—but rather alert us as to what we should expect to encounter when we pursue forbidden knowledge. Forbidden knowledge represents both the face of that uncertain future and the quintessentially human means of surmounting it.

So, we, too, must add a *rest of the story* to the tale not only of Prometheus, but of the forbidden knowledge tradition. In Aeschylus' tragic trilogy about Prometheus (the very name means foreknowledge), Prometheus originally not only had helped Zeus to overthrow the Titans and establish the Olympian gods but also had possessed secret knowledge of his downfall. In the second part, Hercules frees Prometheus, who only reconciles with Zeus in the final play after he reveals to Zeus the secret of his potential downfall. The lesson here is about knowledge's radically transformative power, a power able to effect a change and accommodation in the divine order. This story falls into a class of similar stories about wars of the gods in various mythic cycles to which some would add Satan's rebellion. Would it be presumptuous to maintain that an omniscient God knew what he was doing when he created Satan or when he placed Adam and Eve and the serpent in the Garden? In other words, are the stories of the Rebellion and the Fall more than cautionary tales; are they also meant to indicate the grim truth that suffering and travail are the price of admission to freedom and knowledge? And can tenaciously holding to one's forbidden knowledge issue in a transformation of the divine order? Perhaps we have been too awestruck to recognize it, when we hear Job rumbled back into his place by the thunderous, "where were you when I created the universe?" Yet, when we step back, we see that the story of Job's presumptuous insistence before God on being right about his righteousness does mark a radical transformation in religious self-understanding. The old understanding had insisted on divine punishment for sin and divine blessing for righteousness. That neat equation changes in the new divine order, that is, new religious self-understanding, where a more mature, self-conscious religious understanding recognizes that righteousness no longer guarantees blessings in this world. Where some traditions speak of the death of the gods or of different divine orders, other traditions must incorporate radical transformations of religious self-understanding within the seamless web of tradition.

Shattuck also draws attention to a further detail of Bacon's reading of the Sphinx story that needs to be addressed. Namely, the Sphinx asked two kinds of riddles; some concerned the nature of man; some concerned the nature of things. This dualism parallels a dichotomy in Bacon's thought between "pure" scientific knowledge of nature and knowledge of man, which in some contexts Bacon equates with "proud" knowledge, i.e., knowledge of good and evil. While proud knowledge is disputatious and tries to rival God, pure knowledge of nature glorifies God's work. Like Galileo, Bacon argued that the book of nature is the true scripture of its author, God. Shattuck clearly recognizes that in thus making the case for science as the ultimate homage to

God, Bacon broke the spell against forbidden knowledge as the work of the devil with the result that scientific progress continued unabated for the next four centuries (Shattuck, 32-33). The lack of resistance to scientific progress, we should add, involved its own devil's pact. It came at the price of an artificial separation of knowledge of facts and knowledge of values, which in the modern era developed along parallel tracks.

Bacon, too, however, seems to have forgotten the *rest of the story* concerning Oedipus. In his allegory of the Sphinx, Bacon says that the two kinds of knowledge answering to the two kinds of questions the Sphinx poses give one command, respectively, over nature or over man. Here, he puts a more favorable spin on human knowledge, insight into which qualifies one for fortune and empire. Thus, he considers it significant that Augustus Caesar used a Sphinx for his seal. By answering a question concerning man, then, Oedipus attains dominion over Thebes (Shattuck, 345). Oedipus' good fortune, however, unravels—perhaps, I should say gets raveled up. Upon discovering that unbeknownst to him he has slain his father and married his mother, he plucks out those hateful, insightful eyes. Revealingly, a convoluted ancestry dooms this man of penetrating human insight: his 'human' parents turn out not to be his biological ones. The riddle of existence propounded here is that the convoluted issue of our ancestry coils down and around to the very core of our being to the place where nature and the human merge. The riddle lies in that almost oxymoronic expression of convolution: *human nature*. 'Human' knowledge cannot be restricted to knowledge of history, culture and politics; the question of our ancestry, of our genes, implicates who we are. The biological question of what man is intertwines with the ethical question of who man is and the political question who we are. The devil's bargain Bacon struck—to free science from ethical censure by sending ethical value inquires down different tracks—has come full circle as we see these two parallel tracks are actually one and that they are set on course for a head-on collision.

Framing the new genetics within the forbidden knowledge tradition helps to illuminate why the new genetics represents the end game in the match between Darwinism and the Great Tradition. All forbidden knowledge has involved radical transformations that throw human life out of alignment with its history, its present, and its relation to the divine. In some cases, that transformation results from technological innovation, in other cases from knowledge of human affairs. It was not so much that we were rivaling the gods as that we were going to face the danger of abandoning our spiritual home, our heritage and our ancestry. The new genetics not only is the most recent mask of forbidden knowledge, it is the one that unmask the secret of the entire series. It is the idea of transforming our biological nature genetically through forbidden scientific knowledge. Here knowledge comes full circle back on its biological origins, but in a way that cuts us loose from those origins and the thread of our ancestry that binds us to our core, our family and our culture. With genetic reengineering, forbidden knowledge both bites its own tail and simultaneously releases us from that circle—what better image to describe than a serpent?

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