
Symposium VI

The Science of Politics and the Conquest of Nature

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For the ancients, man was bound by but not wholly defined as part of nature. The studies of natural phenomena and human affairs had to be distinct disciplines, for all of the reasons that nature and man are distinct in kind. On this view, “political science” was a distinct form of study from that of natural phenomena, requiring very different assumptions and approaches. The inauguration of the modern period was marked, among many other things, by the belief that human beings *could* be wholly understood through the same methods as natural things; thus, a new “science of politics” based upon the ideals of predictability and even control and manipulation of human beings was seen not only as possible but greatly desirable. The modern period also saw the reason for scientific inquiry shift from merely understanding how nature was governed to understanding how human beings could master it. Nature became not subject but object; and human inquiry was set not only in service of understanding politics, but manipulating nature for political ends.

It ought to come as no surprise, then, that these ideas might be carried further, so that human beings, as merely part of nature, could also be regarded as natural objects for manipulation. Man, too, could become no longer just subject but object. Many of the great horrors of the last century—from economic failures of all sorts to eugenics and worse—arose from this understanding. But a new movement today, calling itself transhumanism, carries these notions to their logical conclusion: human beings are not only manipulable *objects*, but raw, manipulable *material*; man himself, his very form, might be tinkered with, enhanced, and “reengineered,” like a species of crop or livestock. What becomes of the political animal when politics seeks not to meet his ends but to unravel them—not to serve him but to remake him?

Classical Political Science

Science, by the dictionary’s reckoning, has several meanings. One of those is very familiar: “the observation, identification, description, experimental

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investigation, and theoretical explanation of phenomena.” This is the kind of science we associate with men and women in lab coats, wearing thick glasses and surrounded by test tubes. Another definition reads that *science* means “knowledge, especially that gained through experience.” This latter definition does not preclude the first, but it seems to be more comprehensive, including experience that we might gain in settings outside the laboratory, and settings that are less than entirely controlled. In both these meanings—which are similar but distinct in crucial ways, as we will see—the stress is upon *knowledge*. This emphasis reflects the etymological root of our word *science* in the Latin word *scientia* and its forebear, the Greek word *episteme*, both of which mean *knowledge*. The meanings of both words embrace a *comprehensiveness* of human knowing: human inquiry of every kind is said to aim at *scientia* or *episteme*. Thus, broadly speaking, for the ancients, philosophy, theology, history—even the study of politics—were all forms of *scientia*.

In this ancient, more comprehensive meaning, *science* thus included not only “the investigation of natural phenomena,” but the investigation of human phenomena. This investigation included the effort to understand the material nature of the human body, particularly through the science of medicine. But it also included the effort to gain knowledge of the human condition more broadly, including an understanding of the ethical and political dimensions that seemed essential to human life and human flourishing. All of these, again, were considered to be a part of *scientia*.

Aristotle divided this comprehensive activity of science into two parts: “theoretical” and “practical.” The “theoretical” sciences involved the kinds of investigations that issue in exact answers, including, among others, mathematics and the most mathematical of the natural sciences. In contemporary terms, the theoretical sciences would be the disciplines that design exams to be read by Scantrons and offer courses in which students generally don’t complain about their grades. The “practical” sciences, on the other hand, involved a degree of inexactitude, as the subjects they study are not reducible to predictability. Such sciences would include, broadly, the practice of medicine, which (as the TV show *House* teaches us weekly) can be more like detective work than like a “theoretical” science. Above all, the practical sciences generally involve the study of human phenomena. Humans, because of their irreducible freedom, act in ways that are unpredictable, and thus cannot be subject to the same kind of science as we find in the theoretical sciences.

What is striking about this ancient understanding of science is that the *theoretical* sciences were so named because they were a form of

knowledge that was acquired *for the sake of knowing*. Theoretical sciences involved gaining knowledge so as to understand the order and nature of reality, without a necessary application. To be sure, there were often applications for the theoretical sciences—for example, mathematics was used in the design of buildings, but such forms of applied science were not to be confused with the study of mathematics itself. At the conclusion of the *Nicomachean Ethics*, Aristotle establishes a strong contrast between the contemplative orientation of the *theoretical* sciences and the kind of knowledge gained through the *practical* sciences, which aim at informing human action.

This is not to suggest, however, that the subject of theoretical sciences and the subject of practical sciences—broadly speaking, nature on the one hand and humanity on the other—are unrelated. For the natural order is the context in which human activities take place: if human beings are free, they are nevertheless constrained by the natural conditions that are the subject of the theoretical sciences. Further, our freedom is bound by the fact that human beings possess a nature which, by our free actions, we can distort or damage. For instance, in matters of appetite, we can consume to excess, leading to a condition that undermines our health. But the same is true more broadly in the moral domain: we can act in ways that fall short or exceed right action, and thus lead to the undermining of the human good.

To act in accordance with our bounded freedom is to act in accordance with the *virtues*. It is to act in a way that is rightly oriented toward the fulfillment of our nature, within the context of a natural order. Virtues combine our pre-conscious dispositions and habituations to do what is right—such as generosity, friendliness, cleanliness, and right speech—with an intellectual ability to reason, reflect upon, develop, and train those habituations—an ability which is itself the virtue Aristotle calls *phronesis*, or “practical wisdom.”

According to ancient theory, the aim of the practical sciences is perhaps above all the achievement of the virtues. The knowledge of these sciences was aimed at informing *action*; in particular, those forms of activity that hinged on our capacity to exercise good judgment. For this reason, the practical sciences were those that aimed not at gaining *exact* answers, but at gaining *sufficient* understanding of inexact conditions in areas requiring *judgment* or *practical wisdom*. As Aristotle discloses at the outset of the *Nicomachean Ethics*, young people should not engage in politics—that most architectonic of the practical sciences—because they do not yet have an adequate fund of experience by which to exercise good judgment. Science, in this sense, requires experience.

On the other hand, the *theoretical* sciences were not, and could not be, a source of knowledge about action. The sort of inquiry used by the theoretical sciences was a tool ill-suited for discerning answers sought by the practical sciences. In addressing particularly human affairs, practitioners of the practical sciences had to settle for inexact applications of inexact knowledge, in full awareness of the unpredictability arising from human freedom and the variation of circumstances. Further, there was an accompanying awareness that efforts to enforce political solutions drawn from theoretical sciences were likely to end badly—as Aristotle intimates in his criticisms of various utopian political schemes in Book II of the *Politics*, whether the communistic family arrangements described by Plato in the *Republic*, or the equalization of property defended by Phaleas of Chalcedon, or the strict and mathematical division of social roles recommended by Hippodamus of Miletus.

Thus, for Aristotle, a science such as politics must rest in broad measure on observation and human experience, but cannot be addressed through the approach employed by the theoretical sciences. In turn, the theoretical sciences are thought to be the highest and most godlike form of knowing, but do not offer a guide to action. Ultimately, perhaps the most important kind of knowledge arising from the practical sciences is the ability to maintain knowledge of the *difference* between the two sciences. Maintaining this knowledge requires cultivating the habits of mind and behavior necessary to avoid the temptation of applying one science in a manner inappropriate to another, especially that temptation to apply a theoretical solution to a problem arising from the phenomena examined by the practical sciences. Part of exercising the judgment that arises especially from the practical sciences, it was understood, was the ability to avoid applying the theoretical approach to the human domain.

The Science of Liberalism

Political science—reflecting a certain approach to the knowledge of political matters—was thus an appropriate undertaking so long as it employed the ancient understanding of the word *science*. But it would rest on the kinds of knowledge one would expect of the practical sciences; history, rhetoric, warfare, economics, law, and other forms of “practical” study were long understood to be necessary components in the study of political phenomena. Parts of the “theoretical” sciences could be useful as supplements to the study of political phenomena: for instance, a knowledge of the behavior of rivers and a mastery of mathematics were helpful

in planning the construction of bridges. However, in such an approach, a distinction was maintained between the two sciences as forms of comprehensive inquiry.

But the advent of modernity was marked by the belief that political science could be approached by the same method as the theoretical sciences. This transition rested on two fundamental transformations—or, put another way, a kind of inversion of the classical understanding of the role of the two sciences.

In the first transformation, human beings came to be viewed as *predictable material entities*, governed by laws determining their behavior. In particular, the philosophic efforts of Hobbes and later Locke redefined human beings, understanding them to be subject to laws similar in form to the Galilean laws of matter and motion, which determined human activities and behaviors. Taking human beings to be motivated by fear, desire, and, above all, self-interest, modern theorists dismissed the idea that virtues could or ought to be the aim of politics. Rather, useful harnessing and redirection of these motivations became the aim of the new science. By understanding the universality and predictability of the laws of human behavior, human beings could fashion structures of government that would no longer be subject to the vagaries tolerated by and resulting from pre-modern political science. The human sciences were to become forms of theoretical science.

In the second transformation, natural phenomena were to be understood not as a subject of theoretical study—that is, the object of contemplation—but rather, were to be understood as material to be worked on, as a domain that could be altered and transformed through human knowledge and activity. Action upon nature was to become the main object of modern science, particularly as inaugurated by Francis Bacon. The truly *practical* sciences were now understood to be the natural sciences which would act upon nature, altering its original form to exist in conformity with human comfort—to provide for “the relief of man’s estate,” as Bacon put it.

While modern political science was now understood to be subject to the same kinds of laws that the ancients thought governed natural phenomena, the natural sciences were now to be pursued in order to transform the subject of study, nature. The idea that political principles operated according to ironclad laws lent itself to a theory that was thought to be universally valid in all times and all places. At the same time, nature was to be increasingly the subject of human dominion. Human freedom was no longer seen as limited by nature, but was to be extended, potentially infinitely, by the advance of modern science.

This transformation, of course, describes the birth of liberalism—the philosophy that sought to liberate humans from the constraints of a prior approach to political philosophy that was content, in the words of Machiavelli, to settle for “imagined republics and principalities.” It was in order to effect this end that the revolution of the sciences first articulated by Francis Bacon and Thomas Hobbes was embraced: To secure human liberty, political science must become a theoretical science, while natural science must be treated as a practical science, in the specific sense that it would be a realm of human action and freedom. Within the horizon of a determined political setting—the liberal state—human beings would achieve a form of security and a new kind of liberty—the absence of constraint—through the conquest of nature.

Beyond Liberal Science?

On the basis of a belief in the fundamental predictability of human behavior, liberal theory laid claim to universal legitimacy. But liberal theory, now only a few centuries old, may yet prove historically short-lived, as we seem poised to enter into a new period of scientific revolution. Early modern theory regarded human nature as fundamentally “given”—in the same way that the ancients had regarded natural phenomena to be “given”—while nature itself was regarded as fundamentally malleable. But today we are confronted with a new understanding of humanity’s relationship to nature, one deriving neither from the Aristotelian tradition, nor from Hobbesian-Lockean theory, but from a logic inherent in Darwin’s discovery of the mutability of nature.

While Darwin’s theory itself, like Galileo’s observation of the heavens, takes the form of ancient theoretical science (that is, the observation and contemplation of natural phenomena), after its formulation, it too was quickly adapted to the norms of the modern transformation of science, becoming “applied” in ways that sought to make it comprehensive in its applicability. These efforts began, infamously, as the late-nineteenth- and early-twentieth-century versions of Social Darwinism, with corresponding efforts to apply what were thought to be Darwinian approaches to the improvement of the species—particularly in the form of eugenics: enforced infertility and the euthanizing of “inferior” individuals and races. For all the viciousness of this attempted application of Darwinism, these first translations of Darwin into a political science intuited a basic implication of Darwin’s discovery: once Darwin articulated the basic functioning of evolution, evolution in the form he described had officially come to an end.

Indeed, as the author Tom Wolfe pointed out in his 2006 Jefferson Lecture in the Humanities, as soon as humans developed the ability of speech, they were effectively able to put an end to most forms of accidental evolution. In developing the ability to dominate every other species on the planet, humanity has taken charge of the evolutionary process. It is not that evolution has ended: it is that *accidental* evolution has ended (at least for the foreseeable future), and instead, a new period of what is likely to be conscious and planned evolution has taken its place.

The logic of Darwinism suggests that once humans grasp the concept of evolution, humanity is now in a position to assume responsibility for its own evolutionary development and improvement. Where the early modern political thought that gave rise to liberalism held that human nature is “given” and natural phenomena are mutable, today we are increasingly likely to hold that *everything* is mutable in the hands of science—nature and humanity alike. Thus enter the transhumanists. Author Simon Young, in *Designer Evolution: A Transhumanist Manifesto* (2005), pens a letter to Nature itself in which he declares “our intention to take over the business of Evolution.” He favorably quotes the novelist William Gibson, who observed that “here we are, the first species that’s ever effectively taken over its own evolution,” and claims that “we’re going to change big time. It’s like human evolution is now *designer evolution*.”

Joel Garreau, in his 2005 book *Radical Evolution*, has described what we might expect to see through future “enhancements.” These include some relating to our physical nature, such as longevity, accelerated healing, and greater beauty; but also changes to our psyches, including heightened cognitive abilities, photographic memory, total recall, “vaccination” against pain, the elimination of sleep, wireless delivery of information directly to the brain, and even electronically interconnected consciousness—and thus a wholly transformed experience of selfhood. As Garreau giddily declares, we are in the midst of “transforming no less than human nature.”

Scientific revolutions, it should by now be clear, have not been limited to “science,” but expand to underlying assumptions about the relationship of humanity to the natural world, assumptions that inform our deepest political beliefs. The revolution in scientific thinking in the early modern period, in which the conquest of nature became a central aim, underlay the deepest presuppositions of the liberal political project—just as a different scientific conception had underlain the pre-modern understanding of politics, as aimed at realizing the human *telos*. Scientific assumptions unavoidably inform political theory.

And so we can surmise that the expansion of the ideal of conquering nature to include humanity itself is likely to have political consequences as far-reaching as the scientific revolution that informed the now-nearly-universal modern regime of liberalism. We can and must expect that a similar transformation of our political ideas will come with what many hope to be the expansion of the evolutionary imperative as knowingly and intentionally guided by scientific advances and human design.

Despite the historical parallel, experience offers us little guidance in the current circumstance. For this newest scientific revolution begins with the *rejection* of the idea of any immutable nature, whether the natural world or human nature itself. We find ourselves in uncharted waters—an unknown topography that encourages speculation about the future, pointing alternatively to nirvana and dystopia. And the problem with either the dream or nightmare scenario, or anything in between, is that our projections about the future are based *upon* contemporary, which is to say steady, assumptions about human nature. But if the science proves to be correct—if the transhumanist project really does succeed in remaking our nature—then we are talking about a subject (*post*-human nature) with which we as yet do not have any knowledge or experience. Speculations of any kind about such a future must then be suspect.

In the cases of the two broad political-scientific philosophies we can roughly call Aristotelian and Lockean, we can see with some clarity the relationship between the scientific assumptions and the political assumptions. In the pre-modern view, human beings organized society around the ideal of attaining the virtues, in light of the need to attain a proper condition of human freedom. Human freedom was considered to be a condition of self-governance within self-imposed limits, consistent with the idea of a given human nature and a fundamentally unalterable natural order. While regime types varied in the pre-modern world, a basic set of anthropological assumptions informed a broad consensus that political society should be organized around the ideal of the attainment of human virtues in accordance with a given human *telos*.

Early modern thought rejected these assumptions, seeking to base political society upon reliable and replicable scientific laws of human behavior (above all, the reliability of self-interest and the fear of death as wellsprings of human action), and to render those behaviors productive and beneficial by directing them away from conflict in the political sphere and toward an expansion of humanity's capacity to exercise mastery over nature. Ancient limits upon acquisitiveness were lifted, in the belief that the expansion of human mastery could provide for the fulfillment of

limitless human desires. Restlessness—described so well by Tocqueville, though also anticipated by such thinkers as Locke, Pascal, Rousseau, and Montesquieu—was predicted to become a basic condition of modern life for every citizen.

The aspect of these political ideas crucial for us moderns to note is that both were premised upon the belief in some *fixed* human nature, and the respective political beliefs and arrangements flowed from those assumptions. That is, each political theory flowed in a sensible fashion from basic aspects of human nature. Based upon observable facts of human behavior, each respective political philosophy was able to articulate its essential features by means of appeal to a certain fund of knowledge about humanity.

A fundamental debate between ancients and moderns revolves around the question of *which* conception of human nature is more correct—one oriented toward the attainment of virtue within a fixed natural order, or one based upon the expansion of satisfactions of human self-interest through the conquest of nature. In both cases, experience is brought to bear: On the side of the ancients, contemporary authors such as Alasdair MacIntyre argue that modern liberal philosophy and practice is not only morally incoherent, but that it is destructive of the human soul, while authors such as Wendell Berry additionally argue that the practical consequences of the modern project make our world increasingly uninhabitable. On the other side, defenders of liberalism point to its evident success on the modern stage, especially the successes of science in pushing back an indifferent and often cruel nature—thus, along with increasingly humane state policies, increasing human health, wealth, and welfare. The move toward a neo-Darwinian future invites us to consider these questions not only as they apply to the modern project of nature’s dominion, but to the mastery of human biology itself.

Questions without Good Answers

If we are at the advent of a new scientific order, then we must ask what political implications flow from a scientific revolution that urges the transformation of humanity itself. If the human race is to be altered in a unpredictable and perhaps fundamental manner, can *any* political arrangements or assumptions reliably flow from such a moving and unpredictable target?

One common set of concerns of critics on the left and the right about the transhumanist project is the effectual division of human creatures into two separate groups—“enhanced” and “naturals,” in the terminology of

Joel Garreau, or “valids” and “in-valids” in the terminology of the dystopian science-fiction film *Gattaca*. In response to these concerns, libertarian-minded transhumanists seek to assure critics that political solutions to such grim possibilities are sure to forestall any fearful outcome. For instance, a “Frequently Asked Questions” document on the website of the group Humanity+ (formerly known as the World Transhumanist Association, or WTA) admits that

some technologies may cause social inequalities to widen. For example, if some form of intelligence amplification becomes available, it may at first be so expensive that only the wealthiest can afford it. The same could happen when we learn how to genetically enhance our children. Those who are already well off would become smarter and make even more money.

However, seeking to assuage those concerns, the guide continues:

Trying to ban technological innovation on these grounds, however, would be misguided. If a society judges existing inequalities to be unacceptable, a wiser remedy would be progressive taxation and the provision of community-funded services such as education, IT access in public libraries, genetic enhancements covered by social security, and so forth. Economic and technological progress is not a zero sum game; it’s a positive sum game. Technological progress does not solve the hard old political problem of what degree of income redistribution is desirable, but it can greatly increase the size of the pie that is to be divided.

The guide adds that such problems could also be averted by strengthening “those institutions that prevent violence and protect human rights, for instance by building stable democratic traditions and constitutions and by expanding the rule of law to the international plane.” Commenting on this part of the document, James Hughes, the self-described “democratic transhumanist,” claims that “the transhumanists are anticipating the need to build political and cultural solidarity between humans and post-humans, to minimize conflicts, and to have global police institutions that can protect humans from post-humans and vice versa. In short, the WTA documents establish a broad political tent, with an explicit embrace of political engagement, the need to defend and extend liberal democracy, and the inclusion of social democratic policy alternatives as legitimate points of discussion.”

Addressing another set of concerns, namely, the fear that—as in the past—a eugenics policy may become the result of political fiat, enforced by a tyrant with the goal of liquidating sub-par humans, Simon Young

assures his readers: “In the modern world, we do not live under totalitarian regimes, but in democracies, in which individuals are free to do as they please so long as their actions do not harm others. Superbiology will and must be controlled by individual consumers, not the state. We should protect ourselves from totalitarianism by voting out of office any government which shows the first signs of a drift toward authoritarianism.”

This all sounds well and good—but on what basis can it be assumed that liberal political institutions will remain relevant or applicable to a creature that *we do not yet know we will become*? What sense can we make of appeals to our “democratic traditions” when those traditions rest on a fundamentally different set of anthropological assumptions? Liberal forms and institutions are the consequence of a particular scientific and political understanding, one that would be fundamentally altered by a neo-Darwinian transformation. Unlike the ancient or modern views I’ve described, this new understanding aims at the fundamental alteration of humanity itself. How can it be predicted or assumed in advance that political institutions and practices derived from a pre-transhumanist scientific and political understanding will continue to apply or be regarded as relevant? Is it not just as likely that our future selves will come to regard the liberal regime as even more of an antiquated curiosity than we now regard the city-state? For all of the futurism of the neo-Darwinians, when it comes to their political assumptions, they reveal themselves to be utter nostalgists, clinging to a provincial form of belief that is utterly unjustified and unwarranted by their own scientific assumptions.

Neo-Darwinians often resort to explaining our social condition as the result of a long process of social evolution, which gave us the capacity to cooperate with strangers and eventually to establish institutions and behaviors that permit increasingly global forms of governance. Thus, Simon Young argues, “diversity and cooperation have evolved because they increase our ability to survive.” The confidence of various transhumanists in the ability of liberal institutions to resist any authoritarian or inequitable outcomes arising from an enhancement regime seems to derive from a belief in the continuation of this evolutionary trend. But if humans are now going to actively alter our very composition, to what extent can we have confidence that the institutions and processes that have developed by a very different evolutionary track, for very different creatures, will not be regarded as fundamentally disposable? Again, the assumptions about a liberal future seem to be more a matter of faith than science.

Finally, further and deeper reflection on the sedimentation of our various political traditions ought to give pause. The most thoughtful

liberals—perhaps above all, Tocqueville—recognized that liberalism contained an internal logic that threatened its own self-destruction. The anthropological individualism at the heart of its theory could be given institutional credence so long as those assumptions did not colonize every aspect of human life. Liberalism rested fundamentally on pre-modern and pre-liberal institutions and practices, ranging from family to community, from church to civil society. In spite of the official rejection of the pre-modern tradition, liberalism assumed and benefited from a kind of “unofficial” continuity of the pre-modern, Aristotelian-inflected inheritance. Thus, Tocqueville observed, though Americans justified their actions in terms of self-interest, they continued to act altruistically. He wrote that “they would rather do honor to their philosophy than to themselves.”

The proposed new scientific settlement would introduce an even thinner human anthropology. In this view, humanity is reduced largely to physical bodies that seek life and health. Families, where they make an appearance, are generally composed of parents who seek to enhance their children. Society is envisioned as composed of near-immortal autonomous individuals who pursue their own ends, forever.

Ironically enough, transhumanism gains a great deal of its persuasive and intuitive force from its reliance upon our widespread experience of self-sacrificial parental love. We are asked, who would not want to prevent a child from being born with a terrible disease? And what parents don’t want to give their children every advantage in life, whether SAT preparation, or, if it comes to it, genetic enhancement?

Yet the motivation of transhumanism is finally selfish: each of us wants, or should want, to live forever in a condition of perfect health and expanded faculties. What then becomes of the relationship between the generations? In a world of limited resources, space, and opportunity, would not the next generation now be experienced as a threat? Would not every inclination cry out against reproduction? Would not our experience of humanity as generational creatures, bound ceaselessly in relationship to the past and to the future, cease to be a fact of our existence?

Liberalism was the first major step in the weakening of our generational consciousness. As conceived by the theorists of the “state of nature,” humans are to be conceived *by nature* as autonomous, parentless, childless creatures. Society is the consequence of voluntary choice aimed at mutual advantage, not reciprocal gratitude and inherited obligations. Yet this theory was always leavened by the *fact* of our pre-modern inheritance. Families, communities, and religion, even if weakened by the forces and logic of modern liberalism, even if puttering along in bold though largely

unrealized defiance of the theories that purport to dispose of them, nevertheless have long persisted as a bulwark against the full implication of liberal theory.

The looming *new* scientific settlement of neo-Darwinism intimates a final conclusion to this tenuous relationship between ancient and modern political science, proposing a new creature oriented entirely around the satisfactions of a new, enhanced, near-perfect, near-immortal self. If liberal theory has shown itself to be largely incapable of thinking in generational terms, encouraging a populace that demands immediate gratification at the cost of the solvency of future generations, and promoting an ethic of consumption with no mind to the challenges posed to the planet for the unborn, then what of our transhumanist future and the prospects for generational hostility? The unknowability of the nature of a post-human being precludes us from drawing any firm conclusion about what its future will be like. But drawing upon lessons ancient and modern, and looking at the impulses that lead us to want to make ourselves into beings that are not ourselves, it seems that our transhumanist future portends to be anything but humane.