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Human Rights at the End of Nature

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Abstract:

Nature has been deployed as a norm across the millennia. The development of human rights is also beholden to the standard of nature, as it grew directly out of the tradition of natural law. This paper explores whether human rights today can and should be linked to this tradition, given that the physical and metaphysical status of nature, and human nature, is increasingly cast in doubt. It argues for the relevance of the life sciences in the continued development of a culture of rights.

 The advocacy of human rights arose from theories of natural law and natural right that were birthed in the ancient world, were conceptually developed in medieval times, and found constitutional enshrinement in the early modern world. In this respect, they are part of the broader cultural phenomenon of employing nature as a standard. Human history is often viewed as a chronology of the conquest of nature. Even in the midst of this conquest, however, our species has always looked to nature as a norm.

 The emulation of nature continues today. A popular website devoted to biomimicry, AskNature.org, prompts viewers to browse its library of ways in which they might model their lives, activities, technologies, businesses, and organizations on nature. Popular magazines highlight the topic *What Would Nature Do?* (*Yes!* Magazine, Winter 2013). Posing the same query to Google puts you in touch with over a billion links. Many people believe that nature—rather than a specific spiritual leader or scripture—provides the best guide for a life well lived.

The sustainability movement has added to the allure, and perhaps necessity, of living in accord with nature. One of the top-selling books on sustainable business is entitled *Natural Capitalism.* Its authors explain how we might develop an economy “organized not around the lifeless abstractions of neoclassical economics and accountancy but around the biological realities of nature.” (Hawken, Lovins, and Lovins, 2008, 9). Contemporary sustainability efforts explicitly link the standard of nature to the protection of people. “We’re entering the Age of Nature,” writes Bioneer Kenny Ausubel. “It calls for a new social contract of interdependence. Taking care of nature means taking care of people, and taking care of people means taking care of nature.” (Ausubel 2012, 63). One of the oldest and most venerated sustainability organizations, *The Natural Step*, places this interdependence at the core of its mandate to foster thriving human societies within nature’s limits. Living sustainability entails following nature.

There can be little doubt that an ever-increasing number of people revere and emulate nature today. At the same time, rising levels of pollution, species extinction, habitat loss, climate change, and other forms of environmental degradation gravely threaten the natural world. The independent status of nature is further challenged by powerful technologies that seamlessly blend the organic with the artificial. Beyond acute physical threats, nature faces perils of a more philosophical variety, as its ontological status is increasingly cast in doubt. Much like Friedrich Nietzsche announced the death of God in the 19th century, the “end of nature” as a transcendent entity and ideal is frequently proclaimed today. Obituaries are common, provided by the philosophically skeptical and the environmentally alarmed (Merchant 1982; McKibben 1989; Wapner 2013).

Ironically, then, the emulation of nature is reaching a crescendo just as she succumbs on her deathbed. In light of these conflicting trends, we must ask whether a culture of human rights—which some predict will flourish in the age of nature*—*can survive the end of nature. The effort to ground human rights in nature has always been contested. Today that contestation is heightened owing to the speed and scale of industrial development, technological innovation, and intellectual trends. Given this context, contemporary advocates of human rights often avoid all reference to natural law and the standard of nature. This strategy is mistaken. We should acknowledge that the core features of human rights—*universality* and *inalienability*—were originally derived from natural law and, arguably, only make sense as characteristics of natural rights. In turn, attending to nature through the life sciences helps us understand and justify human rights in terms of our evolutionary development as a species.

 To make this latter claim is not to endorse biological determinism, which is as wrongheaded and dangerous as cultural determinism. Rather, we should explore the impact of gene-culture coevolution. This interactionistapproach allows us view natural law and natural rights as meaningful concepts notwithstanding the demise of metaphysical standards.

From “is” to “ought” in the Anthropocene

"Few ideas," historian Donald Worster writes, "have been recycled as often as the belief that the 'Is' of nature must become the 'Ought' of man" (Worster 1994, 335.). From the dawn of civilization, living in accordance with nature has been a religious, moral and political aspiration. As American patriot and pamphleteer Thomas Paine stated in his *Rights of Man*, “All the great laws of society are laws of nature” (Paine 2003, 273).

 Since Darwin’s time, efforts to model society on nature often embraced evolutionary science for support. Some even proposed that the field of ethics be "removed temporarily from the hands of the philosophers and biologicized" (Wilson 1975, 562). But the use of nature to bind culture has always been a troubled endeavor. More than a century of efforts to tether ethics to biology has produced a "dismal track record" (Farber 1994, 8, 175; and see Caplan 1974, Bradie 1994 and Sober 1994). The failure, in large part, stems from the impossibility of deriving a moral 'ought' from a scientific 'is.' As the Scottish Enlightenment philosopher David Hume demonstrated, purely descriptive premises cannot yield prescriptive conclusions (Hume 1978, 469-470).

To argue that “what is” provides unswerving path to “what ought to be” is to commit the naturalistic fallacy. Scientific data do not lend themselves directly and immediately to the formulation of ethical dicta. Knowledge of our species’ history, capacities, or tendencies does not validate any particular set of norms. For example, aggressive tendencies undoubtedly served individual and collective interests during our forebears’ Pleistocene lives as hunter-gatherers. But this fact no more justifies opposition to contemporary norms of fairness, justice and non-violence than the law of gravitation justifies opposition to heavier-than-air flight. As philosopher Daniel Dennett observes: “According to the Social Darwinists, it is ‘natural’ for the strong to vanquish the weak, and for the rich to exploit the poor. This is simply bad thinking, and Hobbes has already shown us why. It is equally ‘natural’ to die young and illiterate, without benefit of eyeglasses for myopia, or medicine for illness—for that is how it was in the state of nature—but surely this counts for nothing when we ask: Ought it, then, to be that way now?” (Dennett 1995, 461). In the same vein, biologist E. O. Wilson, notwithstanding early hopes of biologicizing ethics, acknowledges that “The demonstration of any genetic bias cannot be used to justify a continuing practice in present and future societies.... For example, the tendency under certain conditions to conduct warfare against competing groups might well be in our genes, having been advantageous to our Neolithic ancestors, but it could lead to global suicide now. To rear as many healthy children as possible was long the road to security; yet with the population of the world brimming over, such a strategy is now the way to environmental disaster” (Wilson 1996, 93). Tethering moral and political life to something we observe in nature is “bad biology” Wilson states. In an environmentally precarious world, bad biology portends ecological tragedy.

The arrival of the Anthropocene further challenges any effort to ground norms in nature. Geologists have named the current epoch the Anthropocene, as it is characterized by the preponderant human impact on the planet. Our species is altering the earth’s climate and is the primary cause of extinction of its myriad forms of life.  In turn, humans are creating wholly new organisms through synthetic biology, and modifying thousands more. As the world of technologically enhanced *Anthropos* hurriedly expands, the natural world steadily shrinks. Nature is no longer something pristine, predominant, and plentiful. Humans have occupied its spaces, depleted its numbers, appropriated its forces, and altered its processes.

The Anthropocene marks the decline if not death of nature, understood as something distinct from and untouched by human hands. Some believe it also portends the death of human nature. As genetic engineering, robotics, nanotechnology and artificial intelligence further develop, future societies will likely be inhabited, and may well be controlled, by genetically enhanced humans, by cyborgs, and by superintelligent machines (Barrat 2015; Bostrum 2014; Kelly 2011; Garreau 2005; Kurzweil 2005). It is unclear what will remain of human nature—something that has been relatively stable for millennia—in this future world.

Social constructionists believe that we need not await transformative technology to witness the end of nature and human nature. They declare nature to be a social construct and insist that culture, not biology, makes us what we are. They reject the ontological independence of nature and deconstruct its socio-political deployments (Hacking 2000; Elder-Vass 2012).

For good reason the concept of nature has come under scrutiny and attack. Throughout the ages, and across cultures, nature has been utilized to legitimate unjust and inhumane social structures, institutions, and practices. Genocide, war, slavery, imperialism, racial segregation, the domination of women, the subjugation and persecution of religious and ethnic minorities, the oppression of gays, and sundry forms of cruelty and discrimination have been carried out in her name. In every historical time and culture, whenever the “teachings” of nature have been appropriated, they have been used for inhumane purposes. Certainly nature has not been a steady friend of human rights.

Still, we stand at a watershed today. The exemplary status of nature—a central feature of the cultural development of our species—may soon be little more than a historical curiosity. We would then find ourselves in uncharted waters, unanchored by the age-old aspiration for universal prescriptions and proscriptions. The moral and political implications of the end of nature may be as straightforward as it is frightening: anything goes.

The stakes are particularly high for those who value human rights, which historically have been closely linked to natural law. Social constructionists might argue that we can keep the baby of human rights whilst throwing out the bathwater of natural law. Notwithstanding the general progressivism of social constructionists, however, it would be imprudent to appropriate their position as a safeguard for human rights. To their credit, social constructionists have actively criticized efforts to derive ethics and public policy from scientific laws. Biological determinism certainly deserves rejection. The genocidal racism of the Nazis, couched in an appeal to nature—to the destiny of the German *Volk* grounded in *Blut und Boden—*well exposed its pernicious potential. The “naturalness” of human propensities for competition and aggression was deployed in the defense of war, and more generally for justifying the law of the jungle within domestic and international affairs. The concepts of nature and human nature served as empty vessels into which the Nazi’s murderous ideology got poured.

But the track record of cultural determinism is no better, as the murderous Stalinist purges and the devastations of China’s cultural revolution well demonstrated. The "good thing" about his country's peasants, Mao Tse-tung insisted, is that they were "blank." The Chinese people were like "A clean sheet of paper [that] has no blotches, and so the newest and most beautiful words can be written on it, the newest and most beautiful pictures can be painted on it" (Schram 1969, 352). Unfortunately for the Cultural Revolutionaries, the people of China proved not so malleable. Unfortunately for the Chinese people, the Cultural Revolutionaries were zealous constructors of Procrustean beds. As a result, millions of Chinese were tortured, persecuted, and imprisoned and tens if not hundreds of thousands were murdered, starved or worked to death. Stalin’s efforts to construct a new Soviet Man were no less destructive. As Noam Chomsky writes: “The concept of the [human being as an] ‘empty organism,’ plastic and unstructured, apart from being false, also serves naturally as the support for the most reactionary social doctrines.... The principle that human nature, in its psychological aspects, is nothing more than a product of history and given social relations removes all barriers to coercion and manipulation by the powerful” (Chomsky 1975, 132). Cultural determinism has a historical face at least as ugly as biological determinism.

So we face a vexing question of the gravest importance. Can nature today, at the onset of the Anthropocene, still supply a compass to guide our socio-political institutions and cultural endeavors, and in so doing stimulate the development of just and sustainable societies? Can and should a fast-shrinking nature whose capacity to serve as a metaphysical standard is increasingly in doubt and whose historical misuses are patent be linked to the development of human rights? And if not, do we have to face the possibility that anything goes?

To assess whether an appeal to nature might strengthen a culture of human rights, we must first acquaint ourselves with the tradition of natural law and natural rights. This historical review demonstrates that the core features of contemporary human rights, their universality and inalienability, were grounded in natural law. The traditional understanding of natural law as universally inscribed on the human heart and discovered by reason, the subsequent section reveals, can be cautiously supported by the life sciences. This historical review also serves as an act of conservation, the justification for which is addressed in the concluding section.

Natural law and natural rights

Natural law has traditionally been defined as a universal set of binding rules of moral behavior deduced by reason in light of the essential attributes of human nature. It is distinguished from positive law, which is an explicitly promulgated set of legally binding rules, and from common law, which is a set of legally binding rules established by custom and judicial recognition. Natural law is *discovered* by reason; positive law and common law are *crafted*, respectively, by legal authorities and customary practice.

Natural rights are said to derive from natural law, though some theorists assert their precedence. Like natural law, natural rights are also held to be universal. They are not contingent upon the customs, beliefs or laws of any particular government or society. And they are deemed inalienable: natural rights cannot be eroded, taken away, transferred, or sold. Though they may be (unjustly) ignored, natural rights always remain intact and in force.

In the ancient Greek world, *natural law* might have sounded like a contradiction in terms**,** as nature (*physis*) was clearly distinguished from law or custom (*nomos*). Laws, customs, and conventions varied from place to place, while nature was unchanging. Still, Plato’s most famous work, the *Republic,* subtitled *On the Just,* endorses a “healthy state” where people live according to nature. Socrates’ interlocutor derides this natural polity as a “city of pigs” that lacks the delicacies and refinements that culture allows and custom demands. Faced with this derision, Socrates agrees to explore the origins of a more luxurious and “feverish” city. But the philosopher does so only because this effort will allow the origins of injustice to be illustrated. The assumption is that the just polity follows nature.

Plato’s student, Aristotle, also investigated the meaning and prescriptions of natural law or natural right (*dikaion physikon*) and applauded their observance. He insists that there exists a “natural justice” which, unlike customary law, is not highly contextual (Aristotle 1998, 124-125). But it was the Stoics of the ancient world who made the most systematic effort to ground law and moral obligation upon the dictates of nature. These cosmopolitan philosophers were the first to argue that natural law established the fundamental and universal equality of all human beings, including slaves. As all human beings have the capacity for reason, understood as the divine spark that ignites humanity, all are subject to natural law and can lay claim to natural right, regardless of ethnic, national, political or legal status.

The Roman statesman and orator Marcus Tullius Cicero promoted Stoicism within the Eternal City. He wrote that "we are born for Justice, and that what is just is based, not on opinion, but on nature." As this “highest law ... came into being countless centuries before any law was written down or any state was even founded,” we must “look to nature for the origins of justice. She must be our constant guide” (Cicero 1998, 107, 104). Cicero influenced the tradition of natural law through the era of the American Revolution.

Early Christian thinkers seldom referenced natural law, but they claimed eternal laws were inscribed on the human heart. The New Testament’s *Letter to the Hebrews* (8:10) distinguishes Mosaic Law, which bound the Jewish people after the exodus from Egypt, from a new covenant. The former was written on stone at Sinai; the latter is inscribed on human hearts. Likewise, Paul’s *Second Letter to the Corinthians* (3:3) argues that Christians should understand themselves as “a letter from Christ … written not with ink but with the Spirit of the living God, not on tablets of stone but on tablets of human hearts.” His *Letter to the Romans* (2:15) observes that gentiles, unlike Jews who abide by the Mosaic Law, have the “requirements of the law … written on their hearts.” Augustine addressed natural law explicitly in reference to Paul’s epistles, appealing to the “law of nature in the hearts of men” while stipulating that natural law was “transcribed” in the soul (Augustine 1973, 124; Augustine 1981, 92).

Augustine was sparing in his references to natural law. Only with Thomas Aquinas, the medieval Dominican friar, did the concept become central to Christian thought. Aquinas relied on early scripture and Augustine’s writings as well as Aristotle and Cicero to develop his understanding of natural law as an unvarying and supreme standard. Aquinas argued the independent status of natural law as the means by which human beings, as rational creatures, could participate in eternal law. All human or positive laws were to be interpreted and judged in terms of their conformity with natural law.

The Thomistic understanding held sway in the Western world for the rest of the millennium. Occasionally, it brought its adherents into sharp conflict with the powers that be. Spanish clerics of the 16th century referencing the unlimited jurisdiction of natural law developed the earliest formulation of universal rights. Dominican friars Bartolomé de Las Casas and Francisco de Vitoria argued that all people, regardless of race or religion, share the same nature and have a right to life and liberty, and hence freedom from enslavement. For Las Casas and Vitoria, natural law and natural right took precedence over the positive law established by the slave-trading Spanish Crown and the ruthless customary practices in her colonies.

While Thomism dominated philosophic thought in the Western world, efforts were also made to defend and deploy natural law absent a theistic grounding. In the 17th century, the Dutch republican Hugo Grotius formulated just war theory on natural law. In his magnum opus, *On the Laws of War and Peace,* Grotius effectively secularized natural law, asserting that it was immutable and valid independent of its relationship to (the existence or interventions of) a deity. Natural law would maintain its validity, Grotius states, even if God did not exist. Importantly, Grotius never actually posited the absence of God. Indeed, he stipulated that nature was God’s creation, and therefore no contradiction could exist between natural law and the moral precepts found within Christian religion.

Thomas Hobbes, Grotius’ contemporary, explicitly rejected Thomism. For Hobbes, the Right of Nature—the individual’s right to life and liberty, or rather, the individual’s right to employ his liberty to preserve his life—precedes natural law, understood as a set of obligations. In turn, Hobbes insisted that law must always be grounded in the power of a worldly sovereign who enforces covenants. We can only escape the anarchic and war-prone state of nature by enabling a law-making sovereign. But Hobbes’ legal positivism did not stop him from extolling natural law. Like the Stoics and Thomists before him, he maintained that natural law could be discovered by reason and that it advanced the general good of society. Hobbes lists no less than nineteen laws of nature, which collectively promote (but, in the absence of a sovereign power, do not ensure) peace, social welfare, equality, fairness, lawfulness, and the fulfillment of contracts.

John Locke rejected Hobbes’ absolutism while maintaining the notion of a social contract as the basis of legitimate government. Natural rights to life, liberty and property were sacrosanct for Locke, who maintained that “the Law of Nature stands as an Eternal Rule to all Men, *Legislators* as well as others” (Locke 1960, 403). A ruler’s failure to abide by natural law and safeguard natural rights constituted grounds for revolt. Along with subsequent theorists and statesmen of the Enlightenment, Locke employed natural law to challenge the divine right of kings. Locke helped draft the *English Bill of Rights* of 1689, an act of Parliament that limited the powers of the crown, established the rights and obligations of Parliament, identified the limits of responsible government, and affirmed the rule of law.

Locke’s writings on natural law were an inspiration to American revolutionaries. The “truths” of the *Declaration of Independence* that “all men are created equal” and are endowed with “unalienable rights including life, liberty and the pursuit of happiness” are modified Lockean edicts. The American colonists likened taxation without (parliamentary) representation to theft, and their *Declaration of Independence*, which eventually gave rise to the *United States Bill of Rights*, was formulated in response to the abrogation of perceived natural rights, both political and economic.

The truths enumerated in the *Declaration of Independence* are considered self-evident owing to their origins in natural law. Thomas Jefferson identifies Cicero as one of a select few who contributed to a tradition of “public right” informing his draft of the *Declaration*. One prominent signatory, James Wilson, later appointed a Supreme Court Justice by George Washington*,* wrote that “Government, in my humble opinion, should be formed to secure and to enlarge the exercise of natural rights of its members, and every government, which has not this in view, as its principle object, is not a government of the legitimate kind” (Wilson 2007). The conviction that government is grounded in natural law and justified by its protection of natural rights was widespread in the young nation.

This same conviction ignited the passions of republican revolutionaries across the Atlantic. On July 14, 1789, French insurgents stormed the Bastille, a medieval fortress and prison in Paris that represented the power and injustices of the *Ancien Régime*. A month later, the French National Assembly, having abolished feudal prerogatives, approved The *Declaration of the Rights of Man and Citizen.* The document, a draft of which Thomas Jefferson, then in Paris, helped the Marquis de Lafayette write, was grounded in natural law and natural rights. The declaration enumerates a set of “natural, unalienable, and sacred rights.” Article 4 states that “the exercise of the natural rights of each man has no limits except those which assure to the other members of the society the enjoyment of the same rights.” The *Declaration of the Rights of Man* was the most radical and revolutionary manifesto produced to date that was grounded on the tradition of natural law.

Defending the French Revolution from the attacks of conservative theorist Edmund Burke, Thomas Paine reaffirmed the inalienable and “equal natural right” of every man. Paine states that “Every civil right has for its foundation some natural right pre-existing in the individual, but to the enjoyment of which his individual power is not, in all cases, sufficiently competent” (Paine 2003, 169). For Paine, government and its (positive) laws are instituted and can only be justified as a means to secure natural rights. The failure of government to safeguard natural rights legitimates revolution.

In the 19th century, American and French declarations of natural rights were appropriated to fight slavery. William Lloyd Garrison wrote “Wherever there is a human being, I see God-given rights inherent in that being, whatever may be the sex or complexion” (Garrison 1894, 390). Garrison founded the American Anti-Slavery Society, and published the Boston-based newspaper *The Liberator*. Here Garrison called for the immediate and complete emancipation of all slaves in the United States. The newspaper ended its 25 years of advocacy when that goal had been met following a civil war, with the ratification of the 13th Amendment to the Constitution in 1865. The first publicized use of the term *human rights* is attributed to Garrison “Human rights,” he wrote in an 1840 edition of *The Liberator*, “that is the great question which agitates the age.”

Garrison’s remark was prophetic, though the Boston abolitionist miscalculated the onset of the age. Notwithstanding the crucial role of natural law in the abolitionist struggle, only in the century following the end of slavery did human rights per se gained international prominence. And when they did, natural law did not figure in their articulation.

The “nature” of universal, inalienable rights

 Unlike previous national bills, declarations, and constitutions, the modern world’s most important document of human rights, the United Nation’s *Universal Declaration of Human Rights* (UDHR) was not grounded upon natural law and makes no mention of natural rights. Apart from the designation of the family (in Article 16) as “the natural and fundamental group unit of society,” the UN document neglects all reference to nature and its norms.

The argument grounding rights on natural law has always been controversial, and its absence in the *UDHR* reflects a prudent choice by its authors. Their efforts simply did not require the support of the troubled tradition of natural law. Historically, human rights have most prominently been asserted in the wake of their gross infringement, as anti-slavery efforts of the 16th and 19th centuries and revolutionary documents of the 17th and 18th century demonstrated. The *UDHR*, commissioned in 1946 and adopted by the United Nations two years later, had similar origins. In the aftermath of the Second World War, as the barbarities of Nazism came fully to light, it was patent what a shambles the world can become in the absence of the rule of law grounded in the dignity and freedom of the individual. Given recent atrocities, a contentious appeal to nature as a standard was unnecessary.

Also absent, and for the same reason, was an appeal to deities. When Thomas Jefferson penned the *Declaration of Independence*, he began by invoking the “separate and equal station” of peoples as established by the “Laws of Nature and Nature’s God.” Jefferson was appealing to Christian colonists, and to his fellow deist legislators and delegates. The *UDHR,* in contrast, was written for a pluralist world including atheists, secularists, and peoples of diverse religious backgrounds. Its drafters could not afford divisive reference to deities.

That both *nature* and *god* were absent from the *UDHR* is not a coincidence. Since the time of the ancient Stoics, and much more explicitly with the onset of Christianity, the tradition of natural law has been theistic at base. Advocates of natural law and natural rights grounded their pronouncements in theology. The common understanding was concisely phrased by the preeminent 16th century English jurist, Sir Edward Coke: "The law of nature is that which God at the time of creation of the nature of man infused into his heart, for his preservation and direction" (Coke 1727, 12). Historically, nature and “Nature’s God” provided the metaphysical foundation for the development of universal and inalienable human rights. The only exceptions were Grotius and Hobbes. But they, along with Locke and the Founding Fathers, still maintained that natural law supported the moral dictates of Christianity.

Still, we must ask what Grotius may have meant by his novel claim—which he did not try to justify—that natural law would exist even if God did not. Across its 2500-year tradition, natural law enshrined “God-given rights” that were deemed *universal* and *inalienable*. The question at hand, then, is whether we can make sense of these features of natural law and natural rights without reference to theology. Is it possible that evolutionary history achieved such a comprehensive and indelible inscription on our species? The life sciences offer a cautious affirmation.

Clearly natural law is not something to which all humans *must* adhere, in the same sense that all humans must breathe, drink, and eat to survive. An individual might well ignore natural law and not perish. In any number of circumstances, given the ways of the world, he or she might well prosper. Natural law is not, in this sense, dictated by our biology. Our evolutionary history has bestowed us with a very large behavioral repertoire. Only a fraction of the actions to which we are prone or capable might reasonably be considered influenced by or generative of normative standards. And from a purely biological or evolutionary perspective, every human action is equally natural, whether or not it adheres to ethical norms.

Of course, ethical norms have produced collective benefits for our species and likely contributed to its development. Consider the evolutionary origins of what is widely held to be our most important feature: a large and sophisticated brain. Upright walkers have relatively small pelvises. So when our ancestors came down from the trees and started ambling about on the African savannah, giving birth to large-headed babies presented difficulties. Midwifery, one might predict, would quickly develop in such a species. And this cooperative practice would encourage the development of norms of reciprocity.

While large at birth, the human brain develops mostly outside the womb, tripling in size between birth and age four. Our closest genetic relative, the chimpanzee, has a brain that reaches 80 per cent of its adult size by the time of birth. Other animals newly born or hatched have brains even closer to their mature size, and are comparatively much more viable. The human baby’s large but slow-developing brain necessitates an extensive period of childhood dependence, which requires a particular form of social organization. The infirmity of human babies dictates that they remain in the intensive care of guardians for a much longer period than is the case for other animals. This biological necessity makes relatively stable bonds of mutual understanding, trust and collaboration (in childrearing at a minimum) a requirement for our species. To raise a human child, evolutionary anthropologist Sarah Hrdy suggests, does indeed take a village (Hrdy 2011).

Social cooperation in the birthing and nurturing of offspring increases the likelihood that the genes for large but slow-developing brains get passed on. Cultural practices, in this instance, would impact genetic evolution. As Roger Masters observes: "It is often argued that humans cooperate in society because they have big brains. Perhaps the truth is that we have big brains because we cooperate in society" (Masters 1989, 26). In all probability, the causal arrows point in both directions: bigger brains allowed increasingly sophisticated forms of cooperation among primitive hominids, and greater cooperation allowed the development of bigger, slower developing brains.

Even beyond midwifery and collective parenting, mores oriented toward cooperation would ensure greater regularity of behaviors among social animals, serving individual needs while providing group benefits. In this respect, belief in and adherence to moral standards is an evolutionary advantage. It is a cultural adaptation that allows greater reproductive success while better equipping social animals to secure scarce resources in a world of competing tribes. In sum, there is good reason to believe that the development of ethical norms had a significant impact on the genetic evolution of our species. And there is no question that the genetic evolution of our species facilitated the development of ethical norms.

The mutual influence of genetic adaptations and cultural developments is called gene-culture co-evolution. A classic example is the development (in certain European and African peoples) of lactose tolerance. Lactose tolerance is gained by way of a gene that makes lactase, an enzyme that breaks down lactose. In all other mammals, this gene shuts off after weaning. In many human populations, it continues to produce lactase, allowing the digestion of the milk of herd animals. Such a genetic change would improve the fitness of those early human herders of cattle, camels, reindeer, sheep and goats, thus increasing the prevalence of lactose tolerance in the population. Here a genetic mutation spread owing to a cultural practice, namely, animal husbandry. Gene-culture coevolution, sometimes referred to as interactionism, is the best available candidate to explain how our species moved beyond the small group sociality displayed by other primates to the “ultrasociality” of contemporary human communities that reap the benefits of a division of labor and widely accepted moral standards and institutions, such as human rights (Haidt 2012; Richerson and Boyd 2005; Gazzaniga 1992; Masters and Gruter 1992).

As a rule, human beings do not think themselves into new ways of acting. Rather, they act themselves into new ways of thinking. This is the key insight of the pragmatist school of thought associated with William James and John Dewey, and it arguably constitutes Aristotle’s most notable advance over Platonic idealism. I reference this tradition only to underline the reasonableness of the assertion that practices of reciprocity, in an animal with our cognitive capacity, would quite naturally develop into concepts, ideas, and theories that explain, enumerate, expand, and justify these practices. The selective advantage gained through norms that facilitate reciprocity and cooperation is the biological basis of the sense of justice, explaining its prevalence in all human societies. With this in mind, concepts like natural law and natural right, and conventions of human rights derived from these concepts, may be seen as predictable cultural developments given the selective advantage conferred on our species by prosocial behavior.

Charles Darwin once described human language as "an instinctive tendency to acquire an art" (Pinker 1994, 20). Human beings are not born speakers. But as every parent knows, children are born predisposed to become proficient speakers if regularly exposed to speech. What is said here of speech applies equally to morality. Ethical beliefs, and perforce commitments to natural law and natural right, are not innate. But all humans (with the exception of psychopaths, whose neurological wiring is different) are predisposed to absorb and abide by ethical norms if exposed to them early and often.

Dutch primatologist Frans de Waal, among others, has shown that primates also demonstrate prosocial behavior grounded in reciprocity and empathy. This rudimentary sense of fairness in our mammalian brethren likely also served as a selective advantage (Brosnan and de Waal, 2003; Brosnan 2006). Of course, lacking more sophisticated capacities for reason and language, their rudimentary sense of fairness never became cognitively systematized. In non-human primates, lack of speech prevented a rudimentary sense of reciprocity from developing into a consistent morality. In human tribes, language allowed those who were cheated or bullied to confirm and strengthen their sense of outrage and form alliances against the (typically alpha male and physically stronger) cheater or bully (Haidt 2012). In short, other primates’ *doing* of reciprocity did not develop into *thinking* and *speaking* of justice. Behavior, in animals with a less developed neocortex, did not produce sophisticated understanding. Hence practices could not foster theories.

In this light, it makes sense to say that natural law is *discovered* by reason, at least in a certain respect. Aquinas acknowledges that animals share with humans all the inclinations that produce the first three principles of natural law, including the pursuit of self-interest and self-preservation, reproduction, and the care of offspring. What distinguishes humans from other animals is the fourth precept, which pertains to the pursuit of knowledge. To update Aquinas, one might say that natural law is how the human neocortex made sense of predominant modes of evolutionary adaptive human behavior. Natural law is discovered as that concept which makes sense of the prosocial tendencies of the species. With this in mind, we might agree with Grotius: natural law would exist—that is to say, would be discovered by reason—even if God did not.

To say that natural law is discovered by reason bestows no metaphysical status upon natural law or the faculty of reason. Like natural law, reason is a product of gene-culture coevolution. Our cognitive faculties become what they are by way of the social environment within which they develop, and have developed over evolutionary time scales. As anthropologist Clifford Geertz observed, “Men without culture ... would be unworkable monstrosities with very few useful instincts, fewer recognizable sentiments, and no intellect: mental basket cases. As our central nervous system—and most particularly its crowning curse and glory, the neocortex—grew up in great part in interaction with culture, it is incapable of directing our behavior or organizing our experience without the guidance provided by systems of significant symbols” (Geertz 1973, 49). Without language, abstract thinking, education and other components of human culture, our capacity for reason would be very rudimentary—far too rudimentary to discover natural law. Gene-culture coevolution explains how we became rational thinkers and speakers, and how natural law was “discovered” to address our prosocial behavior.

Rhetorical declarations

Now we face a problem. If natural law, as discovered by reason, is the product of human *culture*, one might question in what sense it is *natural*? One might respond by asserting that human beings naturally exist culturally, as culture is the product of natural human faculties and propensities. Though a *cultural* artifact, natural law is not for that reason any less *natural.*

If we adopt this position, however, we have to acknowledge that positive law is as natural as natural law. And this we cannot abide if we want to maintain that the naturalness of natural law and natural right, and by extension the *sine qua non* of human rights, is manifest in their *universality* and *inalienability*. To circumvent this problem, one might argue that natural law is more natural than positive law because the latter has not impacted the evolutionary development of our species, being at best a few thousand years old, dating from the 24th century BCE legal code of the Mesopotamian king, Urukagina. If one generously assumes that natural law informed the practices of reciprocity among early hominids, then its natural status might be awarded owing to its participation in gene-culture coevolution over eons.

The problem with this line of argument is that many cultural achievements have impacted the evolutionary development of our species. Examples include the use of fire to cook food, animal husbandry, and agriculture. Each of these cultural activites greatly increased our species’ nutritional options and hence its physical and cerebral development. The advance of trade or exchange likely also had a significant impact (Ofek 2001). And, of course, the development of language is the most noteworthy cultural achievement that enhanced the cerebral development, and ultrasocial nature, of our species (Dunbar1996: Haidt 2012). If we tie the naturalness of natural law to its evolutionary impact, therefore, we would be forced to acknowledge the naturalness of any number of cultural innovations.

And so we should, in keeping with an interactionist approach. But we should also insist that interactionism is not the same as social constructivism. While social constructivists reject any standing for *nature*, dissolving it wholly into *culture*, proponents of gene-culture coevolution maintain the meaningfulness of both terms. An analogy may be helpful here. Physicists usefully distinguish between energy and mass. Maintaining the distinction has countless theoretical and practical benefits. At the same time, physicists investigate how energy and mass interact and, in certain circumstances according to ascertainable laws (E=mc2), how one can be transformed into the other. Likewise, we can and should distinguish between nature and culture, all the while investigating their interactions.

Natural law is discovered by reason as a concept that makes sense of the prosocial tendencies of our species. It is a cultural artifact that addresses evolutionary adaptive traits. The *universality* and *inalienability* of human rights, accordingly, are cultural norms arising from our interpretation of natural propensities. They are prescriptive rather than descriptive terms; standards we may rhetorically advance, not facts we can scientifically validate.

Jeremy Bentham said as much. In his *Anarchical Fallacies*, a polemic of the recently promulgated *Declaration of the Rights of Man*, the 18th century British utilitarian philosopher lampooned the notion of unchanging and unchangeable rights. The development of law and rights, Bentham insisted, is the collective effort of members of particular communities and their governments at particular historical junctures. Those laws and rights that benefit such communities are good and should be celebrated and retained. Those that do not yield individual and collective advantages are bad, and should be abolished. There is no reason to confer rights with the metaphysical property of naturalness, or assume their inalienability. Indeed, Bentham believed such efforts to be dangerous.

Since a natural right would precede any law, Bentham argued, law could not limit it. The effect of invoking natural rights unrestricted by laws or government, he concluded, is anarchy. Excited francophone efforts to celebrate the universal, inalienable rights of men effectively fostered “a spirit of resistance to all laws -- a spirit of insurrection against all governments.” Talk of natural rights amounts to the use of “stale epigrams,” “figurative expressions,” “sentimental conceits,” and “frippery ornament” instead of “apt and precise expressions” that make “necessary distinctions.” Advocating a firm legal positivism, Bentham famously asserted that “*Natural rights* is simple nonsense: natural and imprescriptible rights, rhetorical nonsense, -- nonsense upon stilts” (Bentham 1843; and see Burke 1987, 51).

Bentham’s linkage of universal and inalienable rights to anarchy has been repeatedly contradicted by history. Responsible government, not anarchy, is consistently associated with the promotion of such rights. At the same time, we should acknowledge the rhetorical quality of rights discourse.

That the advocacy of universal, inalienable rights is more a rhetorical strategy than a metaphysical or scientific claim is perhaps already hinted at by Aristotle, who addresses natural law most thoroughly not in his *Ethics,* his *Politics*, or his *Metaphysics,* but in his *Rhetoric.* The universal “law of Nature,” Aristotle here states, is “binding on all men, even on those who have no association or covenant with each other.” He references the poets to illustrate the case: Sophocles' Antigone upholds the law of nature in her burial of Polyneices. The girl’s defiant behavior constitutes an act of justice notwithstanding its legal prohibition. Of course, Creon, the ruler of Thebes, did not recognize the law requiring Antigone to bury her traitorous brother. The conclusion the reader of Sophocles’ tragedy reasonably draws is that those who invoke the universal, binding quality of natural law are championing not *what* *is*, but *what* *ought* *to be*. Throughout the long tradition of natural law, rhetorical efforts serve the purpose of making the declared but indemonstrable universality and inalienability of rights ever more widely accepted.

The *UDHR* is a case in point. It does not claim the *universality* of human rights as a fact. Rather, it identifies itself as a “universal declaration of human rights” that seeks to engender the “promotion of universal respect for and observance of human rights and fundamental freedoms” and “secure their universal and effective recognition and observance.” In other words, it is an effort to achieve, as a goal and ideal, the universal endorsement of human rights. No claim is made that these rights actually *are* universal.

Likewise, the inalienability of human rights is not asserted as afact. Rather, the “recognition” of “equal and inalienable rights” is claimed to be “the foundation of freedom, justice and peace in the world.” Disregard for inalienable rights, in contrast, results in “barbarous acts which have outraged the conscience of mankind” while their observance prevents “recourse, as a last resort, to rebellion against tyranny and oppression.” Here the inalienability of rights is not established by argument or evidence. Rather, the widespread recognition of inalienable rights serves as “the foundation of freedom, justice and peace in the world.” The *UDHR* is grounded in the practical benefits of a “faith in fundamental human rights.” The inalienable rights enumerated in its thirty articles are not proffered as descriptions of metaphysical entities. Rather, they are presented as moral convictions that have salutary effects.

Nature has no voice in the *UDHR,* but she plays the crucial role of a silent partner. By frequently employing the terms "inalienable" and "universal," the authors of the *UDHR* implied the naturalness of rights without acknowledging their historical linkage to the tradition of natural law or their dependence upon the ontological status of natural rights. The “inalienable rights of all members of the human family” is asserted without its advocates ever having to enter the turbid waters surrounding the metaphysics of *naturalness*. To put matters uncharitably, the authors of the *UDHR* achieved their goals by rhetorical sleight of hand. And they were able to secure widespread endorsement of their efforts by way of an emotional appeal, relying on passion to carry the day in the absence of firmer intellectual foundations. Nature succeeds in her mute mission in the UDHR because Nazi atrocities had aroused the compassion—and that combination of anger and disgust that constitutes moral outrage—of its drafters and delegates.

So what is the point of appealing to nature in the advocacy of human rights today? Why not simply mimic the rhetorical strategy of the authors of the *UDHR*, keeping nature as a silent partner and letting passion carry the day? A more direct appeal to nature is recommended because we should not await new barbarisms capable of shocking the conscience of humanity to further the development of rights. Furthermore, it is dangerous and unnecessary to let passion do all the heavy lifting unaided by reason.

This brings us back to Hume and the life sciences. Notwithstanding his formulation of what later became known as the naturalistic fallacy, Hume did not think biology irrelevant to morality. Indeed, he believed that innate human sentiments dispose us to ethical life. Hume simply argued that scientific facts, including those related to the physical capacities, psychological features, and historical development of human beings, cannot on their own produce ethical standards or instill a sense of moral obligation. For that, emotions are required.

This insight is buttressed by contemporary cognitive, social, and evolutionary psychology and neuroscience. Empirical research confirms that affect gets reason off the ground and subsequently directs its operations. Indeed, the contemporary life sciences go further than Hume was able in demonstrating the indispensability of passion. The involvement of areas of the brain primarily associated with emotion and feeling are requisite for rational thought and behavior, at least in its social dimension. Absent the interplay of these emotional centers of the brain, rational faculties prove incapable of motivating behavior or even informing relatively mundane decisions. Affect is an indispensable component of moral judgment and rationality. If we fail to feel, the life sciences teach us, we will fail to act morally or rationally (Damasio 1994; LeDoux 1996; Damasio 1999; Marcus, Neuman and MacKuen 2000; Greene and Haidt 2002; McDermott 2004; Thiele 2006).

So Hume was right to underline the indispensability of passion. But he went too far in stating, famously, that “reason is, and ought only to be, the slave of the passions.” To be sure, reason often serves as the handmaiden of affect. But the cognitive pursuit of consistency, coherence, and impartiality in one’s inquiries, beliefs, and convictions—which might serve as a basic definition of reason or reasonableness—can also stimulate the passions. Reason can help us formulate and abide by principles that unaided affect could not produce or sustain. And these principles can stir our emotions. Reason has carried out this role within philosophic and political traditions for millennia. Here rational argument has abetted the cultivation of virtue, the fulfillment of duties, and the enhancement of democratic practices. The tradition of natural law is a case in point. Reason is often passion’s slave. But reason can also help establish and sustain moral conviction and practice. Within a restricted but not insignificant realm, we can indeed think ourselves into new ways of acting.

A theological foundation for human rights is not a workable option today, given our secular governments and pluralistic world. In its absence, I would argue, nature remains the most viable candidate for an intellectual grounding. The life sciences help us establish this foundation, illuminating the rational and affective components of a culture of rights. This illumination can stimulate commitments to expand and deepen that culture.

Sustaining a culture of rights

In *Mutual Aid: A Factor of Evolution*, the 19th century anarchist philosopher Peter Kropotkin insisted that cooperation more so than competition and aggression defined the evolutionary development of many species, including humankind. Kropotkin provided a needed counterpoint to the self-serving interpretations of natural history advanced by Social Darwinists. But Kropotkin may have leaned too far in the other direction. The life sciences teach us that our species demonstrates evolutionary adaptive tendencies to compassion *and* aggression, cooperation *and* competition, emotion *and* reason. Figuring out how these tendencies can be effectively channeled—the task of culture—is greatly abetted by the life sciences.

At the same time, we should recognize that the technological extensions of the sciences potentially threaten human rights. In 1943, C.S. Lewis wrote: “What we call Man’s power over Nature turns out to be a power exercised by some men over other men with Nature as its instrument…. Human nature will be the last part of Nature to surrender to Man. The battle will then be won. We shall have taken the thread of life out of the hand of Clotho and be henceforth free to make our species whatever we wish it to be.... But who, precisely, will have won it? For the power of Man to make himself what he pleases means, as we have seen, the power of some men to make other men what *they* please” (Lewis 1947, 35, 37; and see Berry 2000, 9). Like Chomsky, Lewis worried that positing human beings as plastic creatures wholly malleable by culture opens the door to coercion and domination. While Lewis was explicitly targeting the value relativism—what today we would call social constructionism—finding its way into British schools, he was implicitly addressing the Nazi’s effort to construct a new Aryan man and the Holocaust that was then consuming Europe. Efforts to refashion humankind have always been catastrophic. And we have reason to be wary of technological advances that provide our species with newfound power to reshape itself.

How, then, should we approach the relationship of science and technology to human rights? The Anthropocene may quickly transition into a Postanthropocene, a period characterized by the planetary impact of posthuman lifeforms—genetically enhanced humans, cyborgs, and superintelligent machines. In this world, which some expect to arrive in a few decades, posthumans may vary so much from “natural” humans that they will be considered separate species. That would present advocates of *human* rights with significant challenges. Many worry with C. S. Lewis that technological tampering will erode the moral capacities that constitute the essence of our humanity. Francis Fukuyama, for example, maintains that an essential human nature grounds our “moral sense.” Change human nature, Fukuyama argues, and the foundation for human rights disintegrates (Fukuyama 2002, 13, 83, 101).

Undoubtedly, we will have to muster all of our moral and intellectual resources, including the life science, to well navigate this brave, new world. At the same time, the evolutionary science reassure us that we ought not view human nature as an unchanging essence that now faces an unprecedented threat to its eternal constancy. Genetic tests reveal that one to four percent of the DNA of those of us with Eurasian ancestry comes from Neanderthals, and some Pacific Islanders harbor Denisovan DNA. The *Homo sapiens* who ventured out of Africa 60,000 years ago interbred with these two other species of hominids then occupying Eurasia. Evolutionary scientists speculate that the extinction of Neanderthals and Denisovans may have been as much if not more a product of interbreeding with migrating *Homo sapiens* than outright conflict. If technology produces new types of persons in the future, then, it would not be the first time our species has been faced with managing this sort of diversity, and evolved as a result. Perhaps we might again meet this challenge—metaphorically if not literally—by making love, not war.

In any case, gene-culture coevolution is what made us human in the first place. Notwithstanding Lewis’s and Chomsky’s concerns, and equally valid worries regarding contemporary technological developments, the “book of nature” has always been something written as much as read. Our moral capacities, like most other features deemed essential to human nature, did not simply appear one day, like the goddess Athena who emerged fully formed and armored from the head of Zeus. They developed over evolutionary time scales, a patient product of interactionism. Cultural achievements will continue to shape human nature, as they have throughout our species’ past.

 The truly novel threat we face today does not come from technology per se. The impact of cultural artifacts on human nature is as old as the hills. The novel challenge arises because gene-culture coevolution now occurs with unprecedented speed. The innovations of language, morality, pastoralism, agriculture and exchange took many thousands of years of interactions with hominid genes to generate their coevolutionary effects. Contemporary technology may achieve an impact of greater magnitude in decades.

What will it will take to sustain a culture of rights in the wake of accelerating change? Sustainability may be defined as the practice of satisfying current needs without sacrificing future wellbeing by managing the scale and speed of change so as to preserve core values and relationships (Thiele 2016). To acknowledge that human nature is not a fixed essence but rather a product of gene-culture coevolution is not to abandon ethics. Managing the scale and speed of change is crucial if we are to preserve core values and relationships. To this end, it is important to conserve and learn from our cultural heritage, including the tradition of natural law. In turn, the life sciences can usefully inform our understanding of core values and relationships, and how we might preserve them by channeling our tendencies. But the impact of cultural innovation cannot be ignored. With this in mind, attention should be given to the development of “person rights,” as technological advances will likely present us with the challenge of recognizing and protecting genetically enhanced humans, cyborgs, and potentially self-aware machines (Hughes 2004). The intellectual and ethical mandate of sustainability—balancing creativity with conservation—is a cultural achievement that the life sciences can advance.

The future is uncertain and will be dangerous. It will be much more dangerous in the absence of universal, inalienable rights. Sustaining a culture of rights will entail the rhetorical fueling of compassion and moral outrage, either in the wake of barbarisms or as a bulwark against them. Like the authors of the *UDHR,* we ought to affirm the universal and inalienable character of rights with historical atrocities vividly held in memory, and with future prospects clearly in mind. At the same time, we can pursue firmer foundations for our moral commitments.

Despite our best efforts in this regard, the rights we collectively craft and conserve can never be *derived* from natural laws, neither those proposed by metaphysicians and theologians nor those discovered by scientists. In expanding and deepening a culture of rights, science can further a journey began millennia ago by philosophy and religion. It cannot build a bridge that carries us from *is* to *ought*. Historically, a leap of faith allowed many to embrace the notion that a deity had indelibly inscribed every human heart with natural law. Today, a leap of religious faith is not a viable means of extending and deepening a culture of rights. Yet a leap of sorts is still required. Or, perhaps better said, we require stilts to help us span the chasm that separates the *is* of nature from the *ought* of a just and sustainable life.

These are the stilts of an evolved culture nourished by reason and passion and sustained by the moral capacities these attributes allow. Attentive to the contributions of the tradition of natural law *and* the insights provided by life sciences, we can affirm that a culture of universal, inalienable rights constitutes an adaptive means for our species to stimulate and channel its prosocial behavior in a fast-changing world. That is far from nonsense.

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