

Inquiring Minds Topic Paper

August 7 th, 2015

Howard Pachman [moderator]

Prequel: the author postulates that the evolution of human beliefs and behavior has occurred by reason that the scientific way of thinking. This has made people—and society as a whole—more moral all inspired by The Age of Reason and Enlightenment. To agree or disagree read this paper and let us have a reasoned conversation.

Science, Reason, and Moral Progress

By Michael Shermer

We are living in the most moral period in human history.

I realize that to most readers that statement will sound almost hallucinatory, but not only have we become more moral over the past several centuries, most of this progress has been the result of secular forces, and the most important of these that emerged from the age of reason and the Enlightenment are science and reason, terms I use in the broadest sense to mean reasoning through a series of arguments and then confirming that the conclusions are true through empirical verification.

The arc of the moral universe bends not only toward justice, but toward truth and freedom, and these positive outcomes have largely been the product of societies moving toward more secular forms of governance and politics, law and jurisprudence, moral reasoning and ethical analysis. Over time it has become less acceptable to argue that my beliefs, morals, and ways of life are better than yours simply because they are mine, or because they are traditional, or because my religion is better than your religion, or because my nation can pound the crap out of your nation. It is no longer acceptable to simply *assert* your moral beliefs; you have to provide *reasons* for them, and those reasons had better be grounded in rational arguments and empirical evidence or else they will likely be ignored or rejected.

Historically, we can look back and see that we have been steadily — albeit at times haltingly — expanding the moral sphere to include more members of our species (and now even other species) as legitimate participants in the moral community. The burgeoning conscience of humanity has grown to the point where we no longer consider the well-being only of our family, extended family, and local community; rather, our consideration now extends to people quite unlike ourselves, with whom we gladly trade goods and ideas and exchange sentiments and genes, rather than beating, enslaving, raping, or killing them (as our sorry species was wont to do with reckless abandon not so long ago). Nailing down the cause-and-effect relationship between human action and moral progress — that is, determining why it's happened — is the other major theme of my book *The Moral Arc: What can we do to adjust the variables in the equation to continue expanding the moral sphere and push our civilization further along the moral arc?* Improvements in the domain of morality are evident in many areas of life:

- *governance* (the rise of liberal democracies and the decline of theocracies and autocracies);
- *economics* (broader property rights and the freedom to trade goods and services with others without oppressive restrictions);
- *rights* (to life, liberty, property, marriage, reproduction, voting, speech, worship, assembly, protest, autonomy, and the pursuit of happiness);

- *prosperity* (the explosion of wealth and increasing affluence for more people in more places, and the decline of poverty worldwide in which a smaller percentage of the world's people are impoverished than at any time in history);
- *health* and longevity (more people in more places more of the time live longer, healthier lives than at any time in the past);
- *war* (a smaller percentage of populations die as a result of violent conflict today than at any time since our species began);
- *slavery* (outlawed everywhere in the world and practiced in only a few places in the form of sexual slavery and slave labor that are now being targeted for total abolition);
- *homicide* (rates have fallen precipitously from over 100 murders per 100,000 people in the Middle Ages to less than 1 per 100,000 today in the Industrial West, and the chances of an individual dying violently is the lowest it has ever been in history);
- *rape and sexual assault* (trending downward, and while still too prevalent, it is outlawed by all Western states and increasingly prosecuted);
- *judicial restraint* (torture and the death penalty have been almost universally outlawed by states, and where it is still legal it is less frequently practiced);
- *judicial equality* (citizens of nations are treated more equally under the law than any time in the past);
- *and civility* (people are kinder, more civilized, and less violent to one another than ever before).

THE WITCH THEORY OF CAUSALITY

If your explanation for why bad things happen is that your neighbor flies around on a broom and cavorts with the devil at night, afflicting people, crops, and cattle with disease, preventing cows from giving milk, beer from fermenting, and butter from churning — and that the proper way to cure the problem is to burn her at the stake — then you are either insane or you lived in Europe six centuries ago, and you could even find biblical support in Exodus 22:18: “Thou shalt not suffer a witch to live.”

The witch theory of causality gives us insight into how moral progress is made — by achieving a better understanding of causality. It is evident that most of what we think of as our medieval ancestors' barbaric practices, such as witch burning, were based on mistaken beliefs about how the laws of nature actually operate. If you — and everyone around you — truly believe that witches cause disease, crop failures, sickness, catastrophes, and accidents, then it is not only a rational act to burn witches, it is a moral duty. This is what Voltaire meant when he wrote: “Those who can make you believe absurdities, can make you commit atrocities.”

Consider a popular thought experiment and how you would respond in the following scenario: You are standing next to a fork in a railroad line and a switch. A trolley car is about to kill five workers on the track — unless you throw the switch and divert the trolley down the side track — but there it will kill one worker. Would you throw the switch to kill one but save five? Most people say that they would. We should not be surprised, then, that our medieval ancestors performed the same kind of moral calculation in the case of witches. Medieval witch-burners torched women primarily out of a utilitarian calculus — better to kill a few to save many.

The primary difference between these pre-modern people and us is, in a word, science.

Frankly, they often had not even the slightest clue what they were doing, operating as they were in an information vacuum, and they had no systematic method to determine the correct course of action, either. The witch theory of causality, and how it was debunked through science, encapsulates the larger trend in the improvement of humanity through the centuries by the gradual replacement of religious supernaturalism with scientific naturalism.

My point here is that beliefs such as witchcraft are not immoral so much as they are mistaken. In the West, science debunked the witch theory of causality, as it has and continues to discredit other superstitions.

We refrain from burning women as witches not because our government prohibits it, but because we do not believe in witches and therefore the thought of incinerating someone for such practices never even enters our minds. What was once a moral issue is now a non-issue, pushed out of our consciousness — and our conscience — by a naturalistic, science-and reason-based worldview.

FROM THE PHYSICAL SCIENCES TO THE MORAL SCIENCES

To the debunking of the witch theory of causality, we can add as promoters of moral progress the general application of reason and science to all fields, including governance and the economy. This shift was the result of two intellectual revolutions: (1) the Scientific Revolution, dated roughly from the publication of Copernicus's *On the Revolutions of the Heavenly Spheres* in 1543 to the publication of Isaac Newton's *Principia* in 1687; and (2) the age of reason and the Enlightenment, dated from approximately 1687 to 1795 (Newton to the French Revolution).

The first revolution led directly to the second, as intellectuals in the 18th century sought to emulate the great scientists of the previous centuries in applying the rigorous methods of the natural sciences and philosophy to explaining phenomena and solving problems. This marriage of philosophies resulted in Enlightenment ideals that placed supreme value on reason, scientific inquiry, human natural rights, liberty, equality, freedom of thought and expression, and on a diverse, cosmopolitan worldview that most people today embrace — a “science of man” as the great Scottish Enlightenment philosopher David Hume called it.

The watershed event that changed everything was the publication in 1687 of Isaac Newton's *Principia Mathematica*, which synthesized the physical sciences and which his contemporaries declared to be “the premier production of the human mind” (Joseph-Louis Lagrange) and a work which “has a pre-eminence above all other productions of the human intellect” (Pierre-Simon Laplace). The Scientific Revolution that culminated in Newtonian science led scientists in diverse fields to strive to be the Newton of their own particular science. In his 1748 work *De l'esprit des lois* (*The Spirit of the Laws*), for example, the French philosopher Montesquieu consciously invoked Newton when he compared a well-functioning monarchy to “the system of the universe” that includes “a power of gravitation” that “attracts” all bodies to “the center” (the monarch).

And his method was the deductive method of Descartes: “I have laid down first principles and have found that the particular cases follow naturally from them.” By “spirit” Montesquieu meant “causes” from which one could derive “laws” that govern society. One such law was the relationship between trade and peace, in which he noted that hunting and herding nations often found themselves in conflict and wars, whereas trading nations “became reciprocally dependent,” making peace “the natural effect of trade.” The psychology behind the effect, Montesquieu speculated, was exposure of different societies to customs and manners different from their own, which leads to “a cure for the most destructive prejudices.” Thus, he concluded, “we see that in countries where the people move only by the spirit of commerce, they make a traffic of all the humane, all the moral virtues.” The trade theory of peace has held up well in modern empirical studies, and here we can draw the links from empirical science to moral values: if you agree that peace is better than war (the survival and flourishing of sentient beings is my moral starting point), then moral progress may be made through the application of the principle of free trade and open economic borders between nations.

Following in the natural-law tradition of Montesquieu, a group of French scientists and scholars known as the physiocrats declared that all “social facts are linked together in necessary bonds eternal, by immutable, ineluctable, and inevitable laws” that should be obeyed by people and governments “if they were once made known to them” and that human societies are “regulated by *natural laws* ... the same laws that govern the physical world, animal societies, and even the internal life of every organism.” One of these physiocrats, François Quesnay — a physician to the king of France who later served as an emissary to Napoleon for Thomas Jefferson — modeled the economy after the human body, in which money flowed through a nation like blood flows through a body, and ruinous government policies were like diseases that impeded economic health. He argued that even though people have unequal abilities, they have equal natural rights, and so it was the government's duty to protect the rights of individuals from being usurped by other individuals, while at the

same time enabling people to pursue their own best interests. This led the physiocrats to advocate for private property and a free market. It was, in fact, the physiocrats who gave us the term *laissez faire*.

In the arena of governance, another Enlightenment luminary who consciously applied the principles and methods of the physical sciences to the moral sciences was the English philosopher Thomas Hobbes, whose 1651 book *Leviathan* is considered to be one of the most influential works in the history of political thought. In it, Hobbes deliberately modeled his analysis of the social world after the work of Galileo and the English physician William Harvey, whose 1628 book *On the Motion of the Heart and the Blood* outlined a mechanical model of the workings of the human body.

As Hobbes later immodestly reflected: “Galileus ... was the first that opened to us the gate of natural philosophy universal, which is the knowledge of the nature of motion The science of man’s body, the most profitable part of natural science, was first discovered with admirable sagacity by our countryman, Doctor Harvey. Natural philosophy is therefore but young; but civil philosophy is yet much younger, as being no older ... than my own *de Cive*.”

CONCLUSION

Here we see both the connection from the physical and biological sciences to the social sciences, and also the point of my focusing on this period in the history of science — our modern concepts of governance arose out of this drive to apply reason and science to any and all problems, including human social problems. In other words, we can ground human values and morals not just in philosophical principles such as Aristotle’s virtue ethics, Kant’s categorical imperative, Mill’s utilitarianism, or Rawls’s fairness ethics, but in scientific reasoning as well.

From the Scientific Revolution through the Enlightenment reason and science slowly but systematically replaced superstition, dogmatism, and religious authority as the most reliable means of solving social and moral problems. I am not arguing, for example, that discoveries in physics and biology led directly to moral changes in society; rather, the application of the methods of science, as first developed in the physical and biological sciences, when applied to the human and social sciences led to advances that bent the moral arc toward justice and freedom.

For tens of millennia, moral *regress* best described our species, and hundreds of millions of people suffered as a result. But then something happened half a millennium ago — the Scientific Revolution led to the age of reason and the Enlightenment, and that changed everything. Instead of divining truth through the authority of an ancient holy book or philosophical treatise, people began to explore the book of nature for themselves. Instead of human sacrifices to assuage the angry weather gods, naturalists made measurements of temperature, barometric pressure, and winds to create the meteorological sciences. And instead of a tiny handful of elites holding most of the political power by keeping their citizens illiterate, uneducated, and unenlightened, through science, literacy, and education people could see for themselves the power and corruption that held them down and they began to throw off their chains of bondage and demand rights.

We ought to understand how and why these changes reversed our species’ historical trend downward, and we ought to know that we can do more to elevate humanity, extend the moral arc, and bend it ever upward.

Michael Shermer is the founding publisher of *Skeptical* magazine, a monthly columnist for *Scientific American*, and an adjunct professor at Claremont Graduate University and Chapman University. This article is excerpted from his new book, *The Moral Arc: How Science and Reason Lead Humanity toward Truth, Justice, and Freedom* (New York: Henry Holt, 2015).