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Science Is Not Your Enemy

An impassioned plea to neglected novelists, embattled professors, and tenure-less historians

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The great thinkers of the Age of Reason and the Enlightenment were scientists. Not only did many of them contribute to mathematics, physics, and physiology, but all of them were avid theorists in the sciences of human nature. They were cognitive neuroscientists, who tried to explain thought and emotion in terms of physical mechanisms of the nervous system. They were evolutionary psychologists, who speculated on life in a state of nature and on animal instincts that are “infused into our bosoms.” And they were social psychologists, who wrote of the moral sentiments that draw us together, the selfish passions that inflame us, and the foibles of shortsightedness that frustrate our best-laid plans.

These thinkers—Descartes, Spinoza, Hobbes, Locke, Hume, Rousseau, Leibniz, Kant, Smith—are all the more remarkable for having crafted their ideas in the absence of formal theory and empirical data. The mathematical theories of information, computation, and games had yet to be invented. The words “neuron,” “hormone,” and “gene” meant nothing to them. When reading these thinkers, I often long to travel back in time and offer them some bit of twenty-first-century freshman science that would fill a gap in their arguments or guide them around a stumbling block. What would these Fausts have given for such knowledge? What could they have done with it?

WATCH: Leon Wieseltier's rejoinder: Science doesn't have all the answers

We don't have to fantasize about this scenario, because we are living it. We have the works of the great thinkers and their heirs, and we have scientific knowledge they could not have dreamed of. This is an extraordinary time for the understanding of the human condition. Intellectual problems from antiquity are being illuminated by insights from the sciences of mind, brain, genes, and evolution. Powerful tools have been developed to explore them, from genetically engineered neurons that can be controlled with pinpoints of light to the mining of "big data" as a means of understanding how ideas propagate.

One would think that writers in the humanities would be delighted and energized by the efflorescence of new ideas from the sciences. But one would be wrong. Though everyone endorses science when it can cure disease, monitor the environment, or bash political opponents, the intrusion of science into the territories of the humanities has been deeply resented. Just as reviled is the application of scientific reasoning to religion; many writers without a trace of a belief in God maintain that there is something unseemly about scientists weighing in on the biggest questions. In the major journals of opinion, scientific carpetbaggers are regularly accused of determinism, reductionism, essentialism, positivism, and worst of all, something called "scientism." The past couple years have seen four denunciations of scientism in this magazine alone, together with attacks in *Bookforum*, *The Claremont Review of Books*, *The Huffington Post*, *The Nation*, *National Review Online*, *The New Atlantis*, *The New York Times*, and *Standpoint*.

The eclectic politics of these publications reflects the bipartisan nature of the resentment. This passage, from a 2011 review in *The Nation* of three books by Sam Harris by the historian Jackson Lears, makes the standard case for the prosecution by the left:

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Positivist assumptions provided the epistemological foundations for Social Darwinism and pop-evolutionary notions of progress, as well as for scientific racism and imperialism. These tendencies coalesced in eugenics, the doctrine that human well-being could be improved and eventually perfected through the selective breeding of the "fit" and the sterilization or elimination of the "unfit." ... Every schoolkid knows about what happened next: the catastrophic twentieth century. Two world wars, the systematic slaughter of innocents on an unprecedented scale, the proliferation of unimaginable destructive weapons, brushfire wars on the periphery of empire—all these events involved, in various degrees, the application of scientific research to advanced technology.

The case from the right, captured in this 2007 speech from Leon Kass, George W. Bush's bioethics adviser, is just as measured:

Scientific ideas and discoveries about living nature and man, perfectly welcome and harmless in themselves, are being enlisted to do battle against our traditional religious and moral teachings, and even our self-understanding as creatures with freedom and dignity. A quasi-religious faith has sprung up among us—let me call it "soul-less scientism"—which believes that our new biology, eliminating all mystery, can give a complete account of human life, giving purely scientific explanations of human thought, love, creativity, moral judgment, and even why we believe in God. ... Make no mistake. The stakes in this contest are high: at issue are the moral and spiritual health of our nation, the continued vitality of science, and our own self-understanding as human beings and as children of the West.

These are zealous prosecutors indeed. But their cases are weak. The mindset of science cannot be blamed for genocide and war and does not threaten the moral and spiritual health of our nation. It is, rather, indispensable in all areas of human concern, including politics, the arts, and the search for meaning, purpose, and morality.

The term "scientism" is anything but clear, more of a boo-word than a label for any coherent doctrine. Sometimes it is equated with lunatic positions, such as that "science is all that matters" or that "scientists should be entrusted to solve all problems." Sometimes it is clarified with adjectives like "simplistic," "naïve," and "vulgar." The definitional vacuum allows me to replicate gay activists' flaunting of "queer" and appropriate the pejorative for a position I am prepared to defend.

Scientism, in this good sense, is not the belief that members of the occupational guild called "science" are particularly wise or noble. On the contrary, the defining practices of science, including open debate, peer review, and double-blind methods, are explicitly designed to circumvent the errors and sins to which scientists, being human, are vulnerable. Scientism does not mean that all current scientific hypotheses are true; most new ones are not, since the cycle of conjecture and refutation is the lifeblood of science. It is not an imperialistic drive to occupy the humanities; the promise of science is to enrich and diversify the intellectual tools of humanistic scholarship, not to obliterate them. And it is not the dogma that physical stuff is the only thing that exists. Scientists themselves are immersed in the ethereal medium of *information*, including the truths of mathematics, the logic of their theories, and the values that guide their enterprise. In this conception, science is of a piece with philosophy, reason, and Enlightenment humanism. It is

distinguished by an explicit commitment to two ideals, and it is these that scientism seeks to export to the rest of intellectual life.



The Linder Gallery, c.1622-1629, Cordover Collection, LLC

The first is that the world is *intelligible*. The phenomena we experience may be explained by principles that are more general than the phenomena themselves. These principles may in turn be explained by more fundamental principles, and so on. In making sense of our world, there should be few occasions in which we are forced to concede “It just is” or “It’s magic” or “Because I said so.” The commitment to intelligibility is not a matter of brute faith, but gradually validates itself as more and more of the world becomes explicable in scientific terms. The processes of life, for example, used to be attributed to a mysterious *élan vital*; now we know they are powered by chemical and physical reactions among complex molecules.

Demonizers of scientism often confuse intelligibility with a sin called reductionism. But to explain a complex happening in terms of deeper principles is not to discard its richness. No sane thinker would try to explain World War I in the language of physics, chemistry, and biology as opposed to

the more perspicuous language of the perceptions and goals of leaders in 1914 Europe. At the same time, a curious person can legitimately ask why human minds are apt to have such perceptions and goals, including the tribalism, overconfidence, and sense of honor that fell into a deadly combination at that historical moment.

The second ideal is that the acquisition of knowledge is *hard*. The world does not go out of its way to reveal its workings, and even if it did, our minds are prone to illusions, fallacies, and superstitions.

Most of the traditional causes of belief—faith, revelation, dogma, authority,

charisma, conventional wisdom, the invigorating glow of subjective certainty—are generators of error and should be dismissed as sources of knowledge. To understand the world, we must cultivate work-arounds for our cognitive limitations, including skepticism, open debate, formal precision, and empirical tests, often requiring feats of ingenuity. Any movement that calls itself “scientific” but fails to nurture opportunities for the falsification of its own beliefs (most obviously when it murders or imprisons the people who disagree with it) is not a scientific movement.

In which ways, then, does science illuminate human affairs? Let me start with the most ambitious: the deepest questions about who we are, where we came from, and how we define the meaning and purpose of our lives. This is the traditional territory of religion, and its defenders tend to be the most excitable critics of scientism. They are apt to endorse the partition plan proposed by Stephen Jay Gould in his worst book, *Rocks of Ages*, according to which the proper concerns of science and religion belong to “non-overlapping magisteria.” Science gets the empirical universe; religion gets the questions of moral meaning and value.

Unfortunately, this entente unravels as soon as you begin to examine it. The moral worldview of any scientifically literate person—one who is not blinkered by fundamentalism—requires a radical break from religious conceptions of meaning and value.

To begin with, the findings of science entail that the belief systems of all the world’s traditional religions and cultures—their theories of the origins of life, humans, and societies—are factually mistaken. We know, but our ancestors did not, that humans belong to a single species of African primate that developed agriculture, government, and writing late in its history. We know that our species is a tiny twig of a genealogical tree that embraces all living things and that emerged from

Many of our cultural institutions cultivate a philistine indifference to science.

prebiotic chemicals almost four billion years ago. We know that we live on a planet that revolves around one of a hundred billion stars in our galaxy, which is one of a hundred billion galaxies in a 13.8-billion-year-old universe, possibly one of a vast number of universes. We know that our intuitions about space, time, matter, and causation are incommensurable with the nature of reality on scales that are very large and very small. We know that the laws governing the physical world (including accidents, disease, and other misfortunes) have no goals that pertain to human well-being. There is no such thing as fate, providence, karma, spells, curses, augury, divine retribution, or answered prayers—though the discrepancy between the laws of probability and the workings of cognition may explain why people believe there are. And we know that we did not always know these things, that the beloved convictions of every time and culture may be decisively falsified, doubtless including some we hold today.

In other words, the worldview that guides the moral and spiritual values of an educated person today is the worldview given to us by science. Though the scientific facts do not by themselves dictate values, they certainly hem in the possibilities. By stripping ecclesiastical authority of its credibility on factual matters, they cast doubt on its claims to certitude in matters of morality. The scientific refutation of the theory of vengeful gods and occult forces undermines practices such as human sacrifice, witch hunts, faith healing, trial by ordeal, and the persecution of heretics. The facts of science, by exposing the absence of purpose in the laws governing the universe, force us to take responsibility for the welfare of ourselves, our species, and our planet. For the same reason, they undercut any moral or political system based on mystical forces, quests, destinies, dialectics, struggles, or messianic ages. And in combination with a few unexceptionable convictions—that all of us value our own welfare and that we are social beings who impinge on each other and can negotiate codes of conduct—the scientific facts militate toward a defensible morality, namely adhering to principles that maximize the flourishing of humans and other sentient beings. This humanism, which is inextricable from a scientific understanding of the world, is becoming the de facto morality of modern democracies, international organizations, and liberalizing religions, and its unfulfilled promises define the moral imperatives we face today.

Moreover, science has contributed—directly and enormously—to the fulfillment of these values. If one were to list the proudest accomplishments of our species (setting aside the removal of obstacles we set in our own path, such as the abolition of slavery and the defeat of fascism), many would be gifts bestowed by science.

The most obvious is the exhilarating achievement of scientific knowledge itself. We can say much about the history of the universe, the forces that make it tick, the stuff we're made of, the origin of living things, and the machinery of life, including our own mental life. Better still, this