
Science and Totalitarianism

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The central concern of Hannah Arendt's writing is the attempt to salvage freedom, through politics, from the collapse of civilization in the face of totalitarianism. During the twentieth century, as Arendt put it in the preface to the first edition of *The Origins of Totalitarianism* (1951), "the subterranean stream of Western history has finally come to the surface and usurped the dignity of our tradition." Without the support of tradition, religion, and authority, liberalism proved as effective as the Maginot Line at holding off the attack. The Allied victory in World War II, Arendt worried, might blind us to the largely undisturbed progress of the ideas which had brought about totalitarianism. For Arendt, totalitarianism was no passing phenomenon

or failed ideology. No matter the proximate cause of totalitarianism—a momentary political crisis in Weimar Germany, say, or the megalomania of Josef Stalin—its onset exposed longstanding troubles within the broader currents of political and moral thought. The deeper tributaries which fed it—the Rights of Man, nationalism, capitalism, modern science, ideology—all could take benign directions or dangerous ones. Arendt rejected the Hegelian premise that ideas have a volition of their own, or that history moves in any predetermined direction. It is the actions of men, the words and decisions which constitute political life, that set events in motion, and that block and divert them in unexpected and unpredictable ways.

It is this vital arena of political action and language that Arendt saw threatened by the modern scientific project. Science and politics, she argues, no longer speak the same language—a problem not merely because science is amoral, or because there is widespread public ignorance of scientific ideas (a refrain commonly heard since Sputnik), but because the scientific method itself may set dangerous precedents for political life.

The Conquest of Space and the Stature of Man” is best read in conversation with Arendt’s 1958 book *The Human Condition*, wherein she develops some of the same themes and lays out with care her views on freedom, political agency, and modernity. (Unless otherwise noted, all the ensuing quotations from Arendt appear in *The Human Condition*.) She argues that the divide between politics and science is in essence a divergence of language, with its source in the insufficiency of sense perception for modern science. Galileo’s invention of the telescope, Arendt observes, marked the first time that “the secrets of the universe were delivered to human cognition ‘with the certainty of sense-perception’” by a man-made instrument. It demonstrated that man could, through his technical ingenuity, transcend the limitations of his body and his earth-bound condition and come to an understanding of nature previously accessible only through abstract speculation. At the same time, the telescope demonstrated that man’s senses were woefully insufficient—even misleading—in his quest to understand nature. Paradoxically, the abandonment of sense perception for fabricated instruments, rather than illuminating the physical world, “has left us a universe whose qualities we know no more than the way they affect our measuring instruments.” The more we rely on instruments to deliver the remote reality of atomic particles or distant galaxies to us, the more true it is that, as Heisenberg wrote, “the object of research is no longer nature itself, but man’s investigation of nature. Here, again, man confronts himself alone.”

This for Arendt was symptomatic of a kind of “world alienation”—the isolation of the individual from the shared human world—that endangers the possibility of political life. When Descartes observed that sensual knowledge and reason failed to render truths about the universe as well as instruments could, he concluded, as Alfred North Whitehead put it, “that the mind can only know that which it has itself produced and that remains in some sense within itself.” The result of this logic was the rise of introspection, and with it, a concomitant decline in common sense. “For common sense,” Arendt writes, “which had once been the one by which all other senses, with their intimately private sensations, were fitted into the common world...now became an inner faculty without a world relationship....What men now have in common is not the world, but the structure of their minds.” This turn toward introspection is a turn away from the world. The world still exists, of course, and we remain mortal, earth-bound creatures, but since we can only trust the things we create, it becomes an obstacle to self-understanding rather than a vehicle for it.

But political life requires a common language, rooted in a shared experience of reality. If man can no longer trust his senses to reveal reality, if he requires instruments to measure and describe it to him, then the language of sense will become irrelevant to politics.

The problem with the language of science is not that most citizens are unable to understand it, but that even the scientists themselves—because their work is demonstrated primarily through symbols—cannot speak it. Mathematics can represent infinity, but the sensual imagination and its language cannot grasp it. What are the implications of this disjunction? “If it should turn out to be true that knowledge (in the modern sense of know-how) and thought have parted company for good,” Arendt warns, “then we would indeed become the helpless slaves, not so much of our machines as of our know-how, thoughtless creatures at the mercy of every gadget which is technically possible, no matter how murderous it is.” The question is not whether citizens know enough science to make informed decisions about it or whether such decisions should be left to the “experts.” Arendt’s question is, given the assumptions of science, what can the experts really claim to know?

Since Galileo, science has shifted from the *natural*, following Aristotle’s examination of earthly nature, to the *universal*, following a method simultaneously abstract and experimental and aiming at the discovery of how cosmic processes occur, in order ultimately to imitate them. The

introduction of laboratory experiments is symbolic of the move from given nature to fabricated nature. “Through the introduction of the experiment,” Arendt writes, “in which we prescribed man-thought conditions to natural processes and forced them to fall into man-made patterns, we eventually learned how to ‘repeat the process that only goes on in the sun.’”

The “what” question that drove classical science has given way to the “how” question that motivates modern science. The “how” question can only have as its object a process, so that nature is reduced by it to constant motion. Everything that appears to *be* to our senses is in reality on its way to becoming something else. The object of a “what” question is a thing with a reality and a meaning. But the object of a “how” question is always a process, something that can only be said to “exist” in constant motion. The processes unleashed by laboratory scientists are parallel in some respects to the processes initiated by human action in politics, but unlike the political processes whose course can be altered by the human activities of forgiveness and promise-making, natural processes do not speak our language and cannot always be reversed by man.

Success in universal science then cannot rest on accurately describing nature as it is. Instead, it lies in describing the natural laws that govern all of nature’s processes, and in re-creating these processes. But in order to discover those laws, nature must be met from a distance, from (as Arendt puts it in the essay) “a point in the universe outside the earth,” so the natural laws we discover are in fact universal, applicable to motion in the entire universe. In experimental science, Arendt writes in *The Human Condition*, “man realized his newly won freedom from the shackles of earth-bound experience; instead of observing natural phenomena as they were given to him, he placed nature under the conditions of his own mind, that is, under conditions won from a...cosmic standpoint outside nature itself.”

This is the Archimedean point to which Arendt turns in the essay. Archimedes is said to have boasted that he could unhinge the earth given a sufficiently long lever and a point outside it where he could stand. Standing on that point, from which one can survey the earth and its human inhabitants objectively, has become the goal of modern science. But Arendt feared that this desire was ultimately self-defeating, as Kafka wrote: “[Man] found the Archimedean point, but he used it against himself; it seems that he was permitted to find it only under this condition.” The scientific effort to find and stand on the Archimedean point was always fueled by the philosophic desire to know nature, man, and

ultimately, Being. But, paradoxically, every effort to release us from the earth has only buried us deeper in our own minds.

The paradox highlights the limits of the scientific enterprise. Man cannot know his own nature in the same way that he may come to know the natures of the things that surround him in the world. As a human, he can never be completely objective about humanity; in order to learn his own nature, he would have to become not-man, and view man as an object like all the other objects of his investigation. It would be, as Arendt puts it, “like jumping over his own shadow.” Modern science determined to remove this element of subjectivity from the investigation, but the effort was contradictory since science, even when it is carried out by instruments and through a language of symbols, can only be initiated and understood by humans. Space exploration may push the Archimedean point increasingly farther away from Earth in our effort to explore the infinite universe, but never *beyond* the universe, which would be the only true place from which we could survey all existence in all space and all time. That point can only be manned in the imagination.

Standing at the Archimedean point outside the earth, rather than revealing man to himself, has instead allowed man and everything he has created to be assimilated into the world of nature. From the Archimedean point, all our instruments and mathematical formulae cannot account for great political deeds or even mundane but particularly human actions; all we can account for in human life is its animal aspect, its predictable, repetitive, appetitive behavior. Far from raising the stature of man, the view of man from space reveals him to be no higher than the lowest of earth’s organisms.

The reduction of human life into process is, for Arendt, the most self-defeating and dangerous implication of the scientific worldview. It arises from the shift from the “what” to the “how” question, and the attempt to apply the laws of nature and motion to man himself. Of course, it is meaningless to apply the law of universal gravitation to politics, but it is possible to subordinate politics to constant motion, as Arendt pointed out in later editions of *The Origins of Totalitarianism*:

Darwin’s introduction of the concept of development into nature, his insistence that, at least in the field of biology, natural movement is not circular but unilinear, moving in an infinitely progressing direction, means in fact that nature is, as it were, being swept into history, that natural life is considered to be historical....The tremendous intellectual change

which took place in the middle of the last century [i.e., the nineteenth] consisted in the refusal to view or accept anything “as it is” and in the consistent interpretation of everything as being only a stage of some further development. Whether the driving force of this development was called nature or history is relatively secondary. In these ideologies, the term “law” itself changed its meaning: from expressing the framework of stability within which human actions and motions can take place, it became the expression of the motion itself.

The effort to harmonize positive laws with scientific laws (that is, universal laws of motion), Arendt worries, is a basically totalitarian undertaking. It reflects the seemingly apolitical desire to allow the “force of nature or of history to race freely through mankind, unhindered by any spontaneous human action.” Indeed, totalitarianism is the abolition of politics insofar as politics is characterized by the freedom of men to act. Traditionally, positive laws create the very space for such action, but in order to liberate the forces of nature or history, it is necessary for laws to “stabilize” men, that is, to prevent them from acting. A government premised on the laws of nature or history is a government that legislates through terror. Its “rulers themselves do not claim to be just or wise, but only to execute historical or natural laws; they do not apply laws, but execute a movement in accordance with its inherent law. Terror is lawfulness, if law is the law of the movement of some suprahuman force, Nature or History.”

It is here that the fundamental connection between science and totalitarianism is made. What Arendt rejects is the widespread misconception that totalitarianism arises from localized conditions, such as racism, nationalism, or religious fundamentalism. Ideology itself is a product of the same force that encourages totalitarianism because, like science, it attempts to reduce human action to simple, predictable patterns with known causes and predetermined effects. The impetus for totalitarianism arises from the legitimate human fear of politics—that is, of action. Because action is inherently unpredictable, it is one of most dangerous capacities that man possesses.

Of course, the fear of man’s unpredictability hardly puts us on an inexorable path to totalitarianism. Neither, for that matter, does modern science, or even space travel itself, which confronts us starkly with the image of ourselves as mere animals. The fabrication of technology is one of man’s primary capacities; through it, he creates a relatively permanent human world, which one generation bequeaths to the next and through which successive generations mitigate their individual mortality. Arendt’s

critique of science is not intended to diminish this essential aspect of man as a fabricator and builder of the world. Nor does she deny that man is an animal who must attend to his nutritive and reproductive functions to survive. The Archimedean point is even, her argument admits, a boon to human understanding, so long as we don't apply that line of reasoning to ourselves. The image from space of humans as ants is not wrong, but it is incomplete, especially in light of man's vast technological know-how.

Arendt offers a view of a future in which space travel, rather than drawing man farther away from the earth, would instead remind him of the limitations of his condition—what she calls, in her essay, the “factual mortality” that is among the “elementary conditions” of his existence on earth that allow for science. These conditions include the earth itself, the prerequisite of life and man's connection to nature. They include the fabricated world, man's effort to introduce something onto the earth that will outlast his individual life. And they include the fact of plurality—the fact, as she famously put it, “that men, not Man, live on the earth and inhabit the world,” and each birth is the beginning of something wholly new in the world. Arendt's call in her essay to “think what we are doing” is not merely an injunction to passively ponder our situation, but to consider the meaning of science in light of man's capacities, and to take responsibility to ensure that the world we transmit to future generations is a world “fit for action and speech.”

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