

Arendt, Jaspers, and the Politicized Physicists

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*We do not yet know whether this situation is final. But it could be that we, who are earth-bound creatures and have begun to act as though we were dwellers of the universe, will forever be unable to understand, that is, to think and speak about the things which nevertheless we are able to do.*¹

*If knowledge is to bear fruit in us, we must think of it daily. Today the terrible threat of the hydrogen bomb seems not yet acute. It does not affect me bodily, here and now. I know of it, to be sure, when I am asked; but I think there is time. No, there is not much time.*²

Writing to Karl Jaspers in the summer of 1957, Hannah Arendt expressed her eagerness to read the finished manuscript of what they both called his “Atom Bomb” book. He had been promising to send her a copy for several months, but, typical for a professor and public intellectual, his writing was interrupted and delayed.³ The book—eventually published as *The Future of Mankind*—was to be an extended examination of issues Jaspers had raised on a radio broadcast in 1956. Arendt had already read an earlier essay relating to the project, about which she had “questions and objections” that she was not going to raise until she had the chance to read the revised work. At the end of 1956, when Jaspers first told Arendt about his endeavor to write his book, he already sensed that the two were working on something closely related and complementary. His “pamphlet” dealt with the “suprapolitical” dimension and would almost certainly “coincide in outlook” with her “two political books.”⁴ One of those “political books” was about Marx, and was never completed.⁵ The other one, “Amor Mundi,” became *The Human Condition*.⁶

Does Arendt’s investigation of modernity’s impact on human “political” capacities in *The Human Condition* harmonize with Jaspers’s confrontation of the moral-existential implications of nuclear arms, as Jaspers had predicted? Or is there dissonance between their parallel works, from which we might imagine the (otherwise unknown) content of Arendt’s initial “questions and objections”? There is no simple way to answer this question—how could there be, when both books are so ambitious and complex? Jaspers’s book invites its readers into the restless process of thinking about the real possibility of nuclear destruction, hoping to prepare us for judgment by paradoxically unsettling and suspending all conclusions. For Jaspers, only communication that holds several thought processes together at once can produce the “integrated political consciousness” adequate to the problems that arise with the possibility of nuclear destruction.⁷ Arendt attempts to “think what we are doing,” as she narrates the shifting relationships in our capacities and realms of activity that brought us to the threshold of our Nuclear Age. Her concern is with how the world and its spaces of action are in danger of no longer being hospitable to speech—to the relations that give action meaning and make it thinkable. This essay does not aim to solve any grand riddles between these two close friends. Instead I want to focus on one particular figure that appears in their interventions—the “politicized” scientist—and specifically the nuclear physicist.

In 1950, physicist Robert Watson-Watt echoed the sentiments of many when he stated, “there is no greater necessity in the world of today than a closer understanding by the politician and the citizen of the motives and methods of science, and by the scientific

worker of the inevitability of politics and the responsibilities of citizenship.”⁸ Though the politicization of scientists pre-dated World War II, the massive scientific projects undertaken during the war, culminating in the bombing of Hiroshima and Nagasaki, brought a heightened sense of the geo-political power of organized science.⁹ This, together with the increasing complexity of theories and applications that were beyond most people’s comprehension, presented scientists with what seemed to them to be unique moral burdens and political responsibilities. Prominent physicists were in the spotlight when it came to questions of the morality and practicality of nuclear proliferation, and they held a variety of views about whether and how to participate in an arms race. As they grappled with the moral implications of having used their skills to make nuclear weapons, scientists in the U.S. were also avid to put their profession on a sound public footing—to convince fellow citizens and government power-brokers of the value of basic research, and the wisdom of funding it generously. It was important to point to the virtues of science and to suggest that those virtues were good for society at large. These and other factors fed into scientists’ various efforts to project an authority that combined epistemic and moral dimensions, hoping to influence public opinion and policy on matters of atomic energy and nuclear armament.¹⁰

In what follows, I will track the discussions of scientists and nuclear physicists in Arendt’s *The Human Condition* and Jaspers’s *The Future of Mankind*—books that they worked on and published during the height (or depth) of the Cold War. This will call for some unpacking of their conceptions of scientific progress. For Jaspers, in his effort toward formulating the grounds for political consciousness, and for Arendt, in her effort to disclose the relation between the modern world and the human capacity for action, the politicized nuclear physicist becomes an important locus of twentieth century self-misunderstanding. Although there are deep affinities between their treatments of the politicized physicist, I will point out some of the differences—of which perhaps Arendt was more acutely aware than her mentor—in the political and existential lessons they most urgently want this figure to reveal. While Jaspers’s and Arendt’s ambiguous stance toward scientists can be seen as symptomatic of widely held anxieties, what they do with this figure is philosophically complex. The relationship between the politicized scientist and the public becomes a focal point that allows Arendt and Jaspers to clarify their own philosophical priorities. In doing so, they help us to think about the links between moral and epistemic authority, contemplation and politics, and organization and power.

Jaspers

In July 1955, Bertrand Russell issued a statement that he had drafted with Einstein’s approval, and which was signed by the world’s leading scientists, calling for citizens of all nations to suspend their particular interests and to think of themselves simply as human beings.¹¹ In it, they declare,

We have to learn to think in a new way. We have to learn to ask ourselves, not what steps can be taken to gain military victory to whatever group we prefer, for there no longer are such steps; the question we have to ask ourselves is: what steps can be taken to prevent a military contest of which the issue must be disastrous to all parties?¹²

The manifesto insists that nuclear war will do more than destroy individual cities: it will likely obliterate all human life and much other life on the earth besides. Emphasizing the stark likelihood that this will happen if nothing is changed they offer an alternative: “Shall we put an end to the human race; or shall mankind renounce war?” The “new way of thinking”

that they propose has a specific content: we are to shift our conceptions of ourselves from being citizens of nations to being citizens of the human race, and we are to collectively agree, as citizens of the human race, that war is no longer an option. This agreement is to shape our future policies.

Not long after this declaration was made, and in the climate of many similar declarations, Karl Jaspers transformed his own series of radio addresses into a longer book dedicated to a sustained consideration of the implications of nuclear weapons technology. It was an ambitious undertaking. Jaspers aimed to consider the possibility that human action could destroy all life on earth—what he called the “new fact”—and to question it “in all directions.”¹³ Jaspers was also after a “new way of thinking,” but for him the change in thinking had to involve an altered attitude not only toward politics and war, but toward science itself—and importantly, toward the *scientists* themselves. On the one hand, as I will explain below, Jaspers wanted his readers to listen to the physicists and to rely on their judgments of factual matters.¹⁴ On the other hand, Jaspers wanted his readers to *stop* listening to them, or rather to stop granting scientists special status or authority—an authority many seemed to claim in their well-meaning public statements.

In *The Future of Mankind*, “Scientists and the ‘New Way of Thinking,’”¹⁵ Jaspers gratefully acknowledges that it was “the scientists and engineers, not the generals and the politicians” who first alerted the world to the truly frightening possibilities in advancing nuclear-bomb technology. “Thanks to them, everyone can now know what is happening.”¹⁶ The central importance of the realistic information daringly offered by the scientific community is not in doubt. Jaspers’s concern is with the general public’s attitude toward these scientists-turned-activists:

People tend to blame the scientists for the evils that the discovery of atomic energy has loosed upon the world. Having given man the use of atomic energy, some feel, the scientists must teach him what to do with it; the producer must teach the proper use of his product, and he who achieved something so monstrous must know how to control the monster. Hence, many listen to the admired scientists as to great sages, while others consider them incompetent outside the sphere of physics.¹⁷

Which is the appropriate attitude to have toward the physicists? Does their experience—having helped to build atomic weapons, or at least having the expertise to be able to imagine the level of destruction these weapons could bring—translate into wisdom and clarity about how we should face our dangerous future? Or is that experience irrelevant for “teaching” us what to do with atomic energy?

The evolution of atomic knowledge and scientific practices, to the point where Jaspers takes them up, is not a story of “pure” science, but of human relationships shaped by world events, starting with the excitement of scientific discoveries at Göttingen University, followed by the expulsion and dispersal of Jewish scientists, the uniting of scientists in the effort to stop Hitler, and the confusion, conflict, and disillusion among them once the first bomb was dropped and their effort became increasingly bound to a highly controlled “industrial operation.”¹⁸ The physicists began their project in a politicized manner—to use their knowledge to fight Hitler; and when their state-usurped efforts were clearly no longer being used for ends that made sense, many of these same scientists came out politically against the proliferation of weapons of mass destruction. The “turning point” as the scientists’ own testimony tells it, was the dropping of the bombs over Hiroshima and Nagasaki.

But Jaspers questions this narrative: “if we talk of the ‘basic calamity,’ we may ask if the atom bomb is not, perhaps, just a symbol. Could the release of atomic energy be a

mere incident in a larger train of events—and if so, which?” With this question, Jaspers turns our attention to two apparently opposing narratives—one in which the bomb is a symbol of the rational and unavoidable unfolding of technological progress, the other in which it is a symbol of the violence and folly inherent in all attempts to transcend the given human situation. Reflection on this opposition brings the more complex recognition that the scientific and technological developments which disturb the human world also allow human beings to realize existential potentialities that would otherwise lie dormant.¹⁹ It is not a matter of choosing which developments go forward and which remain untouched—because the meaning of any new discovery cannot be known in advance of how human beings choose to use it. The proper reaction to the “age-old” doubts and fears—doubts and fears often experienced by scientists themselves—is *not* to try to counter the discord brought about by new technologies by trying to realize a mythic harmony on earth.

What, then, is the appropriate response to the creation of dangerous powers? Jaspers’s point is not to give a definitive answer to this question, but to sketch a nuanced picture of the nature of the dilemma. What appears to be an unstoppable wave of human history is actually a movement made up of countless free individual actions. Though it is impossible for any individual to know whether an overarching plan is involved, the individual, whenever she thinks, is always confronted with the choice: she can “share the risks as well as the potentialities and successes” involved in living in a world characterized by scientific progress, or she can act as if it has nothing to do with her.²⁰ Scientists have no morally privileged position in this picture. As “links in the chain” of technological discovery, they cannot “be blamed for discovering and inventing sources of dangers whose very point is the trial and transformation of man.” As human beings, they “also face the situation and the question [of] what the consequences of their actions could and should be . . .” The average, everyday helplessness of scientists is evidenced in Einstein’s inability to stop the process his letter to Roosevelt helped initiate. Despite their lack of clairvoyance or political clarity, Jaspers worries that scientists are still considered “oracles of truth” due to the “superstition that life might be based upon science and conducted according to science[.]”²¹

Jaspers observes four kinds of responses typical of post-war physicists.²² First is to “come close to treason” actively working to prevent the production of nuclear weapons. The presupposition behind this step is that totalitarianism would be a fate preferable to nuclear war. The second type of response is to assert the independence of science and to exercise the privilege of living in a free state by refusing to personally co-operate. A third response is to aid the free democratic state in the production of weapons, and to await the moment where a critical buildup forces the hand of nations into an agreement on both sides, in the form of an international community. The fourth approach, which Jaspers maintains is that of the majority, is to “serve their own countries as professional scientists and engineers . . . like skilled workers performing their assigned tasks” and to deflect responsibility to the government. Although he suggests that this “personality split between profession and conscience” is extremely pernicious, Jaspers’s focus is on the reactions of those who do believe that scientists have some responsibility for the uses to which their labors are put. He does not intend to argue about which of these approaches is best given the political circumstances, but to point out that a scientific community wracked with these pressures is making a mistake if they assume can rely on an especially helpful brand of “truthfulness, reason, and humanity” integral to their current practice to see them, or us, through the Cold War.

In rejecting the notion that modern scientists shared keen ethical habits of mind extending beyond the domains of their specialization Jaspers was adding to the ongoing discourse around what Steven Shapin calls the “moral equivalence of the scientist”—a discourse that

Jaspers's teacher Max Weber had anticipated in his famous talk "Science as a Vocation." The dramatic results of scientific work and the trend toward large-scale scientific organization intersected with an ambivalence about scientists' moral authority that was already available in popular and intellectual culture.²³ This view had numerous offshoots, from the benign idea that scientists are fallible human beings and not wizards, to the more damaging distrust of scientists as potentially disloyal citizens. While scientists embraced the former view, they also did not hesitate to call upon the idea of their profession's extraordinary ethical standards in order to combat the latter.²⁴ Furthermore, those scientists who felt compelled to express themselves in print were understandably inclined, when imagining the contributions of scientists to world peace, to highlight their own international, open, and honest "habits" of mind. But Jaspers contends, "[s]cience is no world-uniting power, and scientific communication is no sign of friendship and trust."²⁵ In his view, scientists reveal just how questionable it is to cling to a notion of expansive vocational virtues when they accuse a physicist as *dedicated* to his calling as Edward Teller of betraying the "ideals of science." When Teller pushed the U.S. to build the H-Bomb, surely he betrayed something, but it wasn't physics.

Rather than simply argue that those who produce scientific knowledge are morally no better than the rest of us, Jaspers suggests that there *is* something edifying in the values developed by scientific communities. Jaspers argues that the "source" of these values, however, can only be found in *non-scientific* philosophy. Scientists' ethical and unselfish tendencies—Kepler's indifference to whether he or Galileo got credit for Kepler's ideas—do not arise out of scientific practice as it is understood today, but out of the philosophical-religious sense of wonder that made the scientist believe his or her actions were connected to "the thoughts of the Creator."²⁶ Modern science surely continues to advance knowledge by way of its independent criteria for truth, but the scientific expert can only be relied upon in relation to their special field; motivation for truth-seeking and self-understanding is not integral to the advancement of the "cogent knowledge of nature."²⁷ It is philosophy that "knows the life of knowledge as the dignity of man," that "warns against being deceived by anything, by any involvement or prejudice," that "develops the methods of cogent discovery and constant self criticism."²⁸

Drawing inspiration from Kant's distinction between *Verstand* (understanding) and *Vernunft* (reason) and, associating philosophy's task with the latter, Jaspers argues that true philosophy lacks a distinct objective domain that it can set out to explain with a theory.²⁹ Instead, as "reason," it involves a kind of encompassing and inconclusive thinking.³⁰ Important is the different way reason is thought to relate human beings to one another and to their world, as compared to scientific knowledge. According to Jaspers, scientific knowledge draws its importance from the way it unites *like-minds* intellectually. Its truths are in principle lawful and irrefutable, and yet the agreement it wins cannot on its own advance mutual understanding of the issues beyond the facts. Reason, on the other hand

belongs to all men, but it belongs to their whole being and is not merely a special field of comprehension. It links men who may differ completely in all other respects, in their way of life, in their feelings, their desires; it links them more strongly than they are divided by all their diversities.³¹

"Reason" denotes a way of thinking that is constantly engaged with others in a common language, but *not* one in which a working interpretation of reality can be stabilized the way it can in science. As Jaspers puts it, "[t]he paradox of reason is to be open and to preserve freedom while at the same time binding itself so as to lead to a decision in the concrete historical moment."³² In other words, the reasoning process, which tries to take in as many

points of view as possible and desires to know as much as possible, only comes to an end at the moment in which a judgment and an action are called for. What distinguishes a reasoning public (which Jaspers also calls the “rational community”) from the rationalizations that go on in any particular knowledge domain is that the rationality of the former is inseparable from trust, candor, mutual vulnerability and what Jaspers calls “boundless communication”³³—just those values that are alleged to be integral to good science.

Jaspers was convinced about the importance of distinguishing philosophy (reason), which was non-scientific, from natural and social sciences. As he saw it, the effort to turn philosophy into yet another science was a dangerous step.³⁴ Although it can never be conclusive in the manner of science, people must recognize that science is dependent upon philosophical thinking. Reason’s effort to grasp the limits of objectivity is the ultimate source that shapes which potentially “answerable” questions we pursue and how we go about pursuing them. The demotion of philosophy deprives scientific thinkers of a truly pluralistic place from which to comprehend the deeper meanings and implications of their work. And scientists do themselves no favors when they encourage humanity to trust that they will find a way to engineer us through the most difficult obstacles. Such hopes too often end in disappointment, accompanied by superstitious backlash against scientific thinking. Or worse, the idea of science is elevated to a faith that supports totalizing—and potentially totalitarian—pseudosciences like Marxism.³⁵

Just as it was tempting for the general public to believe that they could no longer access a “reality” that was too complex—and to thus choose mysticism or fatalism over philosophical thinking—so it was also all too easy for the finest minds, capable of forming striking questions and producing elegant answers, to inadvertently suggest to the public that the multifaceted problem of nuclear threat rested ultimately on the relation between force and politics—and furthermore, that this was relatively straightforward, if technically difficult, matter of making treaties that will abolish war. Such elegance threatened to render the call for a “new way of thinking” into either a formula or a platitude.³⁶ But, unlike particular problems with their solutions, the “change in man”

cannot be sought as a purpose. It cannot be planned; the very act of planning would, in our situation, be a choice of the road to perdition. Something else is needed, coming—or failing to come—from the depths of the free human person, from the resolve in which he finds himself changed to a new kind of preparedness that will let him plan but cannot be planned itself.³⁷

Science may need philosophy, but Jaspers also professes: “Without science truthfulness in philosophical thinking is no longer possible today.”³⁸ Philosophical thinking has to begin from concrete knowledge and particular perspectives and it has to take these as its subjects and its concern. Someone ignorant of or indifferent to the production of knowledge and theory would be hobbled in any effort to contemplate the borderlines we face as human beings. And although Jaspers denies that we can genuinely “settle” the questions raised by weapons of mass destruction he is not anti-pragmatic. Indeed, Jaspers’s own hope for “world order” is not always easy to distinguish from the Nobel laureates’ calls for international law, regulation, and the commitment between nations to put an end to war.³⁹ He admits that we are accustomed to planning and instrumental means-end thinking, and that such thinking is indispensable. The task is to move from the “definite knowledge of what can possibly happen,” which the scientists helped to make us aware of, to “encompassing philosophical thought” that gives meaning to this knowledge, “*and then back again to thinking in that world of knowledge and planning.*”⁴⁰ The vast majority of people cannot be expected to

become physicists with a scientific orientation that would allow them to confirm for themselves the almost incomprehensible facts about atomic energy. But everyone can and must become philosophical and political “experts.” For that, Jaspers says, all that is needed is “the experience of life itself” and, of course, the willingness to reason, to “draw not only upon the intellect but upon the whole of man with his original motives.”⁴¹

Arendt

Unlike *The Future of Mankind*, *The Human Condition* is, first of all, not intended to be a text devoted directly to considerations of the atomic/space age—or what Arendt calls the “modern world” from which she writes.⁴² Her historical thinking-through of the spaces and capacities of human action is meant to “arrive at an understanding of the nature of society as it had developed and presented itself at the very moment when it was overcome by the advent of a new and yet unknown age.” In other words, it might be possible to become thoughtful and alert within the “present” age—that begins with the bombing of Hiroshima, and that changes yet again with Sputnik—if we understand something about the prejudices and transformations presupposed by these two earth-shattering events.⁴³ Secondly, Arendt claims that *The Human Condition*, because it is to be a consideration of the *vita activa*, is not going to dwell upon matters relating to that other realm: the *vita contemplativa*, which includes the activities of reasoning and thinking. While it is true that *The Human Condition* technically makes good on these promises, it is also true that the two interconnected concerns—with nuclear age and with the activity of thinking—to quote Jaspers, “exert such a palpable influence from the background”⁴⁴ that it is difficult to read the book without the sense that it is indeed *about* them.

If Arendt’s aim in *The Human Condition* is to “think what we are doing,” this may be partly due to her concern that scientists—those towering figures of expert knowledge to whom we are inclined to look for truthful insight and orienting explanations—have become constitutionally unable to offer it. The preface offers a condensed view of this concern:

If we would follow the advice, so frequently urged upon us, to adjust our cultural attitudes to the present status of scientific achievement, we would in all earnest adopt a way of life in which speech is no longer meaningful. For the sciences today have been forced to adopt a “language” of mathematical symbols, which, though it was originally meant only as an abbreviation for spoken statements, now contains statements that in no way can be translated back into speech. The reason why it may be wise to distrust the political judgment of the scientists *qua* scientists is not primarily their lack of “character”—that they did not refuse to develop atomic weapons—or their naiveté—that they did not understand that once these weapons were developed they would be the last to be consulted about their use—but precisely the fact that they move in a world where speech has lost its power. And whatever men do or know or experience can make sense only to the extent that it can be spoken about.⁴⁵

This passage encapsulates Arendt’s view of the vexed relationship between “we” citizens and politicized scientists, and the need to make meaning or sense out of “modern times.” In the following sections I will try to unpack this vexed relationship, as Arendt understands it, between scientists and their (speechless) actions.⁴⁶

I. Doing without Thinking

If, as Arendt claims, scientists' political judgment is compromised by the fact that "they move in a world where speech has lost its power," how did this come about? And what has speech to do with political judgment?

Chapter VI of *The Human Condition*, "The *Vita Activa* and the Modern Age," opens with this aphorism from Kafka: "He found the Archimedean point, but he used it against himself; it seems that he was permitted to find it only under this condition."⁴⁷ The epigraph is meant to convey a sense of the paradoxical result of the mind-blowing achievements of scientists: They (and we through our identification with their endeavors) found a perspective from which the "secrets" of the universe could be unlocked, but the cost was (a) the diminishment of the value of the *human* perspective, which is necessarily tied to our earthly condition and our plurality, and (b) literally the endangerment of all life on earth.⁴⁸

The achievement of finding the "Archimedean point"—"the development of a new science that considers the nature of the earth from the viewpoint of the universe"—is the worldview of modern astrophysics.⁴⁹ The telescope, rather than the theories that predated it, brings with it a wholly unprecedented kind of experience: an instrument "adjusted to human senses" was able to "uncover what definitely and forever must lie beyond them."⁵⁰ This put the Archimedean experience in reach of common human cognition—the same cognitive processes that utilize sense perception in "every-day" life could now come to know things completely alien to earth-bound human beings. With the telescope came the realization that human beings can "think in terms of the universe while remaining on the earth" and that we can "use cosmic laws as guiding principles for terrestrial action."⁵¹ Algebra, a non-spatial language of symbols, develops from and expresses this new scientific attitude, becoming its "most important mental instrument." Decisively, this non-spatial language makes the new experimental method possible. According to Arendt, it is with the experiment that "man realized his newly won freedom from the shackles of earth-bound experience."⁵² In other words, the experiment allowed the scientist to employ nature in a controlled way, based on this "cosmic standpoint," that was entirely different from previous methods that had relied on observing given phenomena. Arendt's point is that this new scientific attitude, which will become modern astrophysics, represents a radical departure from all past science. Scientific research had always born a relationship with philosophy, with wonder at the world of appearances. Now if there is wonder, it is with the "structure of the human mind."⁵³

This shift from the truth-criteria based on the world and the earth to truth-criteria based on the structure of the human mind is what allows us to recognize the seemingly paradoxical connection between the celebrated scientific discoveries of the modern age, and despair.⁵⁴ The shift is not merely from earth to mind, it is from a science that stems from and is informed by contemplation to a science where those incomprehensible mental structures are made "practical." Their "truth" comes straight out of the results yielded by the experiment.⁵⁵ Despair issues from finding only oneself in the feedback loop of one's own theories.⁵⁶ Scientists like Heisenberg articulated the sense of loss that Arendt represents in Kafka's statement. Knowledge is no longer revealed by nature to the senses, and translated into every-day temporal, spatial language. Now knowledge is "produced" in the experiment, and what is known is only that an unearthly language can be used to imitate and grasp natural processes—*how* matter is converted into energy—but not *why* there is this matter, this energy.⁵⁷ Galileo's "event" would lead to Einstein's relativism, and in taking a universal standpoint—which contributed to the reversal of *doing* and *thinking* for science.⁵⁸ Paradoxically, the Archimedean point does not achieve that supreme *uninvolvement* that might allow the spectator to grasp

the truth: first, because we abandon the observer role and take up the role of the fabricator (and then the actor) who “makes” the truth happen in the experiment. Second, because our discoveries of universal laws make taking any “point” of view impossible, drawing humanity toward a relativism that denies the priority of beings with points of view and instead pursues a view from nowhere.

What does all this have to do with “untrustworthy” scientists moving in a world where “speech has lost its power”? Before addressing the relationship between speech and action, it will be useful to discuss two related aspects of this “loss of speech” of physicists. The first links speech to plurality, and the second links it to thought. To utilize mathematical formulae and the power of logical calculation is to do something with one’s mind that can be replicated identically in each similarly structured mind. The implication is that there is no need to *discuss* the matter at hand. One need only prove whether or not the formulae work. The proof takes the form of symbolic language and need not be “translated” into conversation: the answer is either agreed to on the basis of its logical validity, or it is rejected. Insofar as physics is characterized by the form of communication just described, we can also see Arendt’s claim that speech has no power in their domain in terms of the relationship of *thought* and *speech*. In *The Life of the Mind* (Part I, “Thinking”), Arendt, interpreting Aristotle, discusses what drives the “urge” to speak. It is not, it turns out, *truth* that makes us want to speak. It is *meaning*. Words and thoughts have a special relationship: “words—carriers of meaning—and thoughts resemble each other, *thinking beings have an urge to speak, speaking beings have an urge to think*.”⁵⁹ It is not *doing* that makes us want to speak, even if our “doings” are questing for truth. Thinking, insofar as it quests for meaning, tries to find itself in speech, because words are pregnant with meanings, and have always been a way of relating to the world.⁶⁰ One cannot, it turns out, really *speak* in terms of the universe when one has lost the ability to *think* in universal terms.⁶¹

II. Acting without Speaking

In Part III of *The Human Condition*, on “Work,” Arendt traces the movement of technology and production from activities that express the attitude of *homo faber* to systems that express the attitude of *animal laborans*. To explain this movement she discusses two stages of modern technological development. The first stage, that of the steam engine, involves *imitation* of natural processes and the use of natural forces, characteristic of the attitude of “making.”⁶² The second stage could not have happened without the utilitarian attitude toward nature embodied in the first, but it is fundamentally different. “This stage can no longer be described in terms of a gigantic enlargement and continuation of the old arts and crafts” and the category of *homo faber* no longer applies.⁶³ This stage has two sub-stages: electricity and automation. With the triumph of electricity and subsequently automation,

we have begun to . . . unchain natural processes of our own which would never have happened without us, and instead of carefully surrounding the human artifice with defenses against nature’s elementary forces . . . we have channeled these forces, along with their elementary power, into the world itself.⁶⁴

Arendt charges that this reconfiguring of natural forces has “shattered the very purposefulness of the world” because automation has transformed what was means-end fabrication into processes without beginning or end, akin to life’s metabolism with nature.⁶⁵ The cyclical experience of production of mere life has been brought into the world and transformed its character, so that form really does only follow function, and “permanence,” to the extent

that one can speak of it, is not the permanence of the work of art, but the endlessness of consumable goods, energy, and so on.

As unsettling as this reality is—and it is the reality that Arendt believes continues to define her own moment—it is not the stage that concerns us. What concerns us is the stage that is at once already here and still on the horizon—in which technology is no longer operating according to the rules of biological, organic earthly life, but according to the laws of the universe. The move from the former to the latter constitutes a move from labor to action, but, as we shall see, Arendt takes this to be a move of action into a region that renders it disastrously dangerous. While the automatic age is the “culmination” of modern development, Arendt suggests that a “new and as yet unknown age” will be based upon “nuclear discoveries.”

Here it would no longer be a question of unchaining and letting loose elementary natural processes, but of handling on the earth and in everyday life energies and forces such as occur only outside the earth, in the universe If present technology consists of channeling natural forces into the world of human artifice, future technology may yet consist of channeling the universal forces of the cosmos around us into the nature of the earth.⁶⁶

Arendt refers to this phenomenon as “acting into nature.” The processes that are initiated by electricity and machine-based manufacturing are indeed *initiated* by human beings, but only in the spirit of reconfiguring forces already available from the earth. The “processes” initiated by the fabricator are means to an end, and lose their importance once that end is achieved. The processes of the natural world have no beginning and no end. They are cyclical and self-moving. In contrast, when physicists initiate nuclear processes they are truly starting something new. In their case the activity takes on the major characteristics of action: the process they begin has a distinct character of beginning, of introducing something new into the world. In accord with action, the ramifications are endless.⁶⁷

Action, which had been the only way to really transform the concrete world into a “space of appearance,” had suffered from longstanding prejudices and had, for all intents and purposes been banished from the world—or so it seemed. But human capabilities are not so easily extinguished.

To what an extent we have begun to act into nature, in the literal sense of the word, is perhaps best illustrated by a recent, casual remark of a scientist who quite seriously suggested that “basic research is when I am doing what I don’t know what I am doing.”⁶⁸

Being unable to know what one is doing is not by itself any cause for alarm. It is characteristic of action, with all its glories, that the agent does not know what it is she does. The problem (as connected to the alienation from thought, speech, and meaning discussed above) is that acting into nature is fundamentally different from acting into “the web of human relationships.”⁶⁹ Two things are going on here. First of all, the scientists are poorly situated when it comes to being able to “think” what they are doing,⁷⁰ since the world in which they operate is so far removed from appearances and the world of meaningful and commonly shared language and thought that appearances engender. Second, the “events” they set off—the new processes they initiate—occur at a level that is inhospitable, literally not of this world—and so in this sense, too, *there are no words* because words require a world that is ready to receive them.

The dangers intrinsic to action involve its unpredictability and irreversibility. Every time any of us starts something new, we risk unleashing a chain of events that will harm others or our world in ways we could not have anticipated. Unlike fabrication, the harms our actions

do cannot be undone by us. All capacities pose dangers, and for each hazard, assuming the capacity keeps to its proper domain, a remedy can be found. These remedies look miraculous from the perspective of the capacity in need of them.⁷¹ According to Arendt, not only is action the miracle-working capacity *par excellence*, it is also the only capacity that contains its own on-board remedies: the powers of forgiveness and promising. The catch is that these remedies can only become operative under the “condition of plurality”; therefore,

it is very dangerous to use this faculty in any but the realm of human affairs. Modern natural science and technology, which no longer observe or take material form or imitate processes of nature but seem to act into it, seem, by the same token, to have carried irreversibility and human unpredictability into the natural realm, where no remedy can be found to undo what has been done.⁷²

The “chain reaction” that occurs when nuclear technologies are set in motion is not a reaction that any word of human forgiveness can interrupt. While it may be true that the capacity for action has not disappeared, but “has become the exclusive prerogative of the scientists,” the nature of their action is fundamentally flawed.⁷³ The distance of this kind of “acting” from the human world of appearances, and its breathtaking reach, renders speech virtually useless. Our scientists become like apprentices who lack “the magic formula to break the spell.”⁷⁴ One interesting detail, however, is that these “actors” are not anonymous. When one considers what Arendt has to say about the scientists it becomes clear that at the very least they are *somebodies* who are quite clearly on the world stage.⁷⁵

III. Power Undone by Force

In a letter to Jaspers, in the midst of both of their books, Arendt writes:

What do you think about the statement of the German physicists? I’m very pleased, almost grateful. There’s finally some sign of life. That could lead to very crucial changes in the whole matter. One important thing it accomplishes is to call attention at last to the incredibly important role into which physicists have suddenly been thrust, for without their implicit or explicit cooperation, no one can conduct foreign policy at all anymore.⁷⁶

She is referring to the Göttingen Declaration, in which a number of famous German physicists declared that they would not support the West German government in any attempt to initiate a nuclear arms program.⁷⁷ Jaspers’s amusing, if somewhat unfair, response, is to tenderly admonish Arendt for her “typically German” naivety. In opposition to her excitement he argues a number of points, the most relevant one is to charge the physicists with irresponsible political vacuity for putting out a public statement concerning a program that did not really exist.⁷⁸

What Arendt’s letter to Jaspers suggests is that, at some level, she took the *power* of the physicists of her time quite seriously. In *The Human Condition* her allusions to their power have an interesting ambiguity. While there is no ambivalence in her view that the scientists’ “scientific” actions are disastrously misdirected, her understanding of the role of scientists as actors stems in part from their centuries-old organizational fortitude:

[T]heir early organizations, which they founded in the seventeenth century for the conquest of nature and in which they developed their own moral standards and their own code of honor, have not only survived all vicissitudes of the modern age, but they have become one of the most potent power-generating groups in all history.⁷⁹

In fact, she contends, with characteristic hyperbole, that the scientists are *the only* people left “who still know how to act and how to act in concert.” There is little doubt that this fascinated Arendt. Perhaps it was fascinating because of what the apparent irony—members of society typically considered to have their heads in the clouds and to be deeply a-political turn out to be the ones whose actions had forever altered global politics and the future of mankind—says about the nature of *power* itself. Reflecting upon the history of the scientific Royal Society she notes,

[a]n organization, whether of scientists who have abjured politics or of politicians, is always a political institution; where men organize they intend to act and to acquire power. No scientific teamwork is pure science, whether its aim is to act upon society and secure its members a certain position within it or—as was and still is to a large extent the case of organized research in the natural sciences—to act together and in concert in order to conquer nature.⁸⁰

When Arendt looks at the history of this organized effort, she sees more than an aggregate of people working with the same intellectual theorems, she sees people developing new codes of ethics—a “zeal for truthfulness” and objectivity that replaced the deeper loss of certainty—that would be touted not only as the “greatest virtues of modern science” but would, for better or worse, also shape the moral and ethical imaginations of future generations.⁸¹ It is not science that gives rise to this, but the *politics* inherent in any organized effort.⁸² And yet it is the scientists who are the ones still having such “political” experiences.

Power, Arendt explains, can be actualized “only where word and deed have not parted company.”⁸³ In some sense, the organized scientists enjoy a situation in which their words and deeds are not severed. Among the few who can apparently still work together in this way, there is no reason to doubt the ability of this “comparatively small but well-organized group” to wield an enormous influence. It is no surprise that a group of mentally “strong” individuals not bothered by envy and greed could, without any will to power, carry out “the most radical and the most rapid revolutionary process the world has ever seen.”⁸⁴ This explains how they might exert public influence beyond the influence exerted by the “murderous gadgets” they helped build. But what is the nature of this influence of scientists on public opinion? In “The Conquest of Space and the Stature of Man,” Arendt suggests that logical, *scientific* arguments against the unleashing of “universal” powers are not possible. Like Jaspers, she seems to believe that the logic of science is no longer attached to the requirements of humanity at all. Arendt points to the self-misunderstanding of those who suppose there is an affinity between the norms of modern science and humanistic concerns:

The simple fact that physicists split the atom without any hesitations . . . demonstrates that the scientist *qua* scientist does not even care about the survival of the human race on earth or, for that matter, about the survival of the planet itself. All associations for “Atoms for Peace,” all warnings not to use the new power unwisely, and even the pangs of conscience many scientists felt when the first bombs fell on Hiroshima and Nagasaki cannot obscure this simple, elementary fact. For in all these efforts the scientists acted not as scientists but as citizens, and if their voices have more authority than the voices of laymen, they do so only because the scientists are in possession of more precise information.⁸⁵

Even if scientific tenacity is geared toward wrestling with cosmic and not human questions, why would such a *powerful* group not have been able to stop the dangerous processes they set in motion? The answer, at least partly, is that the scientists inserted their organizational power into a political context in which *power* was no longer the characteristic feature. In material recently published as “Introduction into Politics,” Arendt suggests that the development of

nuclear weapons technology presupposes *and then further solidifies* a crisis situation that renders politics all but meaningless.

The monstrous growth of the means of force and destruction was possible not only because of technological inventions, but also because political, public space had itself become an arena of force both in the modern world's theoretical self-perception and in its brute reality. This alone made it possible for technological progress to become primarily progress in the possibilities of mutual mass destruction. Since power arises wherever people act in concert, and since people's concerted actions occur essentially in the political arena, the potential power inherent in all human affairs has made itself felt in a space dominated by force. As a result, power and force appear to be identical, and under modern conditions, that is indeed largely the case Wherever force . . . is combined with power . . . the result is a monstrous increase in potential force: Though derived from the power of an organized space, it, like every potential force, grows and develops at the expense of power.⁸⁶

Politics in the modern era has become, for all intents and purposes, an arena in which *force* and not *power* is operative. Arendt and her generation are faced with an impossible choice between going along with a politics based on a force that could destroy life "in the name of freedom" and allowing "free" states to become dangerously vulnerable to the totalitarian drive to annihilate freedom "in the name of life."

At the same time, scientists are not only using their public authority and organized power to jejunely protest the bomb "in the name of physics." Instead of questioning the meaning of politics and how we might somehow shape our *world* so that power and genuine action take precedence over force, scientists can be heard making promises to transform *human behavior* and *human nature*.⁸⁷ "The future man, whom the scientists tell us they will produce in no more than a hundred years" will no longer be bound to the limits of our earthly condition.⁸⁸ But, Arendt retorts, this *change in man* is *not* a decision that should be left up to scientific means, "it is a political question of the first order," and it will have to be decided among citizens, in whatever remains of the world of shared opinions.

Arendt's and Jaspers's Reluctant Differences

Jaspers worries that we are hesitating to really think—we are hesitating to let ourselves be transformed by a complex and ongoing process of communication. This hesitation is partly the result of our own misunderstanding about what thinking is—it is not the intellectual process that we associate with scientific activities that seek resolution. It is an ongoing process that prepares us for judgment by the very way it suspends us from sinking into either narrowly objective or emotional reactions and connects us to many points of view. Perhaps, in reading a book or in listening to a radio program, people can one by one be transformed and drop-by-drop change the composition of the ocean and the direction of its movement.

There is no question that Jaspers's commitment to reason as preparation for judgment had a profound impact on Arendt's own thought. Nevertheless, having placed their criticisms of the politicized physicists side by side, what we can see is a subtle pattern of disagreement, like the creases in a map made by two friends who fold it differently. Like Jaspers, Arendt worries that we might be "forever unable to understand, that is to think and speak" about what we do in and to the earth, the world, and ourselves. But her main concern is not to offer an approach to thinking like the one Jaspers performs. The meaningful speech that we so desperately need is not going to be achieved by reading Jaspers's book (although it certainly would not hurt to do so). Despite the obvious connection between thought and meaningful

speech, the latter, if it is to be politically transformative, requires a public culture that is characterized by a degree of political freedom. Instead, what we are faced with is a “public” realm that is home only to the ill-fated marriage of politics and state instrumental violence.

In *The Life of the Mind* (Part II, “Willing”), Arendt gives voice to this disagreement with Jaspers on the role of thinking and political power. She writes parenthetically,

An error rather prevalent among modern philosophers who insist on the importance of communication as a guarantee of truth—chiefly Karl Jaspers and Martin Buber, with this I-thou philosophy—is to believe that the intimacy of the dialogue, the “inner action” in which I “appeal” to myself or to the “other self,” Aristotle’s friend, Jaspers’s beloved, Buber’s Thou, can be extended and become paradigmatic for the political sphere.⁸⁹

While the “I will” of philosophical freedom—issuing in affirmations and denials—can manifest whenever one is together with oneself or one’s fellow travelers in thought, the “I can” of political freedom requires community—a plurality regulated by “a great number of . . . laws, customs, habits, and the like.” The political community that grounds power and political freedom is not an extension of the trusting and intimate I-thou relationship. It does not rest primarily on the reflection of the self in the other, but on *consent*, which “entails the recognition that no man can act alone, that men if they wish to achieve something in the world must act in concert.”⁹⁰ The freedom that comes out of action—political freedom—is by nature limited. It is constrained by the very plurality that makes it possible. For Jaspers the back-and-forth process between intimate and open-ended reason and sound practical judgment is politically paramount, because open-ended thinking grounds the individual’s will and her preparation for action at the appropriate moment. For Arendt, however, the bridge that links thinking to action is not the “will” that thinking yields. The bridge is the speaking world itself—one marked and shaped by the spirit of the age and the textures of the various forms of organized power, with their contingent histories. Jaspers rejects the idea that nuclear physicists are endowed by their scientific practices with enhanced moral and political powers of judgment. Arendt agrees that their immersion in a world of speechless symbolic language (as she views it) is inadequate to the task of “thinking what we are doing.” But this inadequacy does not translate directly into political flimsiness. The scientists are to be recognized insofar as they are among the few who still know how to operate in the mode of the “we.”

Arendt’s ambivalent response to the political statements of the physicists thus reflects her appreciation of the difference between (limited) power and (unlimited) thought. Arendt’s enthusiasm about the Göttingen declaration, as well as her *pessimistic* view of the possibility of creating the conditions necessary for “thinking what we are doing,” can be explained by the importance she places on the distinction between the domains of thought and action. Jaspers is by no means overly optimistic on this issue himself; however, his emphasis on self-transformation through “endless communication” underplays an important issue that Arendt brings out. Arendt suggests that the public arena—the space where the power of the scientists materializes—is not, after all, an empty stage upon which any of us can step at the moment of personal judgment and action. Nor is it a stage that avails limitless possibilities to those of us who have succeeded in organizing our power. On the one hand, we had better find ways to work with those who are already organized and situated to take the stage, but on the other hand, we also must be aware that “power” is modified by its context. The instrumental concerns that dominate political spaces in the Nuclear Age can very well keep potential actors from accomplishing their goals when those goals are not part and parcel of the “purposes” of so-called interests of state.

On the other hand, Jaspers's distinction between intellect and reason has advantages over Arendt's almost categorical rejection of modern science's "speechless" language. Arendt's tendency, as Lewis and Sandra Hinchman observe, is to place scientific thinking and action-based opinion-formation on the same practical plane.⁹¹ This unfortunately can suggest that the former is either not legitimate or is too dangerous to be worthwhile. Why should we believe that modern scientific methods of knowing are contaminants, in themselves, to political engagements that can (and should) begin from different premises? Jaspers's emphasis on the always-incomplete search for truth allows him to maintain a deep appreciation for modern science and an openness to its contributions. In contrast, Arendt's stronger interest in the public dimension of speech, makes her suspicious that both natural and social scientists will continually try to exceed their appropriate limits, peddling mathematical theories aimed at the control of plurality and political life.

It is true that we continue to swing between impotent fear and baseless optimism about the potential threat of nuclear violence. The recently activated New Start arms reduction treaty between the U.S. and Russia is an improvement but offers scant reassurance. The meltdowns at the Fukushima Daiichi nuclear power plant have renewed fears about vulnerability to nuclear accidents, prompting strong anti-nuclear reactions from world leaders playing to emotions rather than encouraging thoughtful public debate of the issue. In general, the prospects of human-induced climate change have a much stronger grip on our imagination—and perhaps rightly so. Yet, despite the pervasive worries about points of no return, most of us find it extremely hard to "think of it daily." (Of course these are not the only humanity-impacting scientific matters that hover in the background of our daily lives.) Despite the unfortunate continuities between Arendt's and Jaspers's time and our own, their ruminations about scientists as public figures may strike us as out of sync with twenty-first century reality. If their worries feel distant it may be because our current crises seem to have much less to do with affording undue moral authority to scientists, and much more to do with a multi-faceted failure, at least in the United States, to give appropriate epistemic authority to those who represent scientific consensus. Yet in a way even this quandary returns us to the broad mid-twentieth-century brushstrokes of these two philosophers. We are surely better today than we were in the 1950s at identifying where non-scientific values need to be operative in science-based policy decisions (and thus better at seeing laypersons as legitimate participants in policy formation). Now we could stand to listen to Jaspers's plea that our deepest thinking, though predicated on something beyond objective truth, must be scientifically informed. Jaspers's insights may help locate richer non-scientific grounds to persuade our fellow citizens that the acceptance of professional standards of scientific consensus is crucial to all of our different values. Pursuing communication at this level, we might convince one another that lay-acceptance of scientific consensus is a crucial ingredient for our ability to reason together in a genuinely philosophical or spiritual way. In the meantime, Arendt reminds us that it won't suffice to individually prepare our judgment and wait for the critical moment to arrive—as if one could even recognize that moment. If we are to keep certain dangerous potentialities within "worldly" bounds then we have to strengthen our present organizational ties and try as best we can to carry a powerful voice into the marketplace of opinion.

NOTES

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1. Hannah Arendt, *The Human Condition* (Chicago: University of Chicago Press, 1998 [1958]), 3.
2. Karl Jaspers, *The Future of Mankind*, trans. E.B. Ashton (Chicago: Chicago University Press, 1961), 3. Published by R. Piper & Co., Munich, as *Die Atombombe und die Zukunft des Menschen* in 1958. The radio addresses were first published as *Die Atombombe und die Zukunft des Menschen: Ein Radiovortrag* (Munich, 1957).
3. *Hannah Arendt Karl Jaspers: Correspondence 1926–1969*, ed. Lotte Kohler and Hans Saner, trans. Robert and Rita Kimber (New York: Harcourt Brace & Company, 1992), 318 [letter #209, August 1957].
4. *Ibid.*, 307–308 [Letter #203, December 1956].
5. Writings for this project on Marx were published in *The Promise of Politics* (2005).
6. See *Hannah Arendt Karl Jaspers: Correspondence 1926–1969*, 738 [n.3 for letter #169].
7. *Ibid.*, 311 [Letter #205, February 1957].
8. Sir Robert Watson-Watt, “Science, Politics, and Citizenship,” *Bulletin of the Atomic Scientists* 6, no. 1 (1950): 27. This quotation can also be found in J. Rud Nielsen, “Our Responsibilities as Scientists,” *The Scientific Monthly* 71, no. 2 (1955).
9. In this essay, I use the term “politicization” loosely. A scientist is “politicized” if they are in any way actively concerned with the political implications or uses of their work—this can include those who consciously worked for nationalistic or wartime aims even if they did not believe that science was itself fundamentally political or ideological. On the growing political activism of scientists in the 1930s and 40s see Peter J. Kuznick, “The Birth of Scientific Activism,” *Bulletin of the Atomic Scientists* 44, no. 10 (1988); Robert E. Filner, “The Roots of Political Activism in British Science,” *Bulletin of the Atomic Scientists* 32, no. 1 (1976). For a detailed account of the relationship between the American physics community and the U.S. government starting from the post-Civil War years see Daniel Kevles, *The Physicists: The History of a Scientific Community in Modern America, Revised Edition* (Cambridge: Harvard University Press, 1971/1995). For a brief account of the relationship between science and the U.S. government prior to 1940 see Heather Douglas, *Science, Policy, and the Value-Free Ideal* (Pittsburgh University of Pittsburgh Press, 2009), 24–33.
10. See Kevles, *The Physicists: The History of a Scientific Community in Modern America, Revised Edition*. For a detailed exploration of the question of moral and epistemic authority in relation to scientists see Theodore L. Brown, *Imperfect Oracle: The Epistemic and Moral Authority of Science* (University Park: Pennsylvania State University Press, 2009).
11. Einstein died in April of that year, but had approved the statement written by Russell. The statement echoed things Einstein had said prior.
12. “The Russell-Einstein Manifesto,” <http://www.nuclearfiles.org/menu/key-issues/ethics/issues/scientific/russell-einstein-manifesto.htm>.
13. Jaspers, *The Future of Mankind*, 7. There were two “new facts”: totalitarianism and nuclear destruction. Jaspers writes, “the two problems are fatefully linked, inseparable.”
14. *Ibid.*, 1.
15. *The Future of Mankind* is one of those books whose individual chapters are not supposed to be read in isolation. Jaspers structured his book so that when the various attitudes and arguments presented in the chapters are taken together what results (he had hoped) will approximate an “encompassing” and layered awareness of the stakes of the problem. Thus the chapter “Scientists and the ‘New Way of Thinking’” (the first chapter in part III) follows upon two basic movements in the text (parts I and II). Part I is what Jaspers calls a “general discussion that leads to dead ends”—focused on some of the more “idealistic” or general approaches to the atomic threat, while Part II addresses different elements of the concrete worldly situation—a sort of “realistic” approach. Part III aims at what Jaspers calls a “clarification of the human essence”—and its chapters deal with the different possible ways to reconcile the ideal/ethical plane and the concrete plane.
16. Jaspers, *The Future of Mankind*, 189.
17. *Ibid.*
18. *Ibid.*, 190. Jaspers follows Robert Jungk’s narrative, as told in *Brighter than a Thousand Suns* (published first in 1956 under the title, *Heller als Tausend Sonnen*).
19. *Ibid.*, 192.
20. *Ibid.*, 195.
21. *Ibid.*, 195–196.
22. *Ibid.*, 197–198.
23. See Steven Shapin, *The Scientific Life* (Chicago: University of Chicago Press, 2008), Ch. 3. Shapin explains that the idea that scientists are not morally superior but just as fallible as other humans can be found in the 19th century, though it does not really get a foothold until the 1930s.

24. For example, see Niels Bohr, "Energy from the Atom: An Opportunity and a Challenge, the Scientist's View," *The London Times*, August 11, 1945. He writes, "every scientist who has taken part . . . is prepared to assist in any way open to him in bringing about an outcome of the present crisis of humanity worthy of the ideals for which science throughout the ages has stood." See also A. J. Carlson, "Is There 'a Standard to Which the Wise and Honest Can Repair'?" *Science (New Series)* 103, no. 2674 (1946); Douglas, *Science, Policy, and the Value-Free Ideal*; Gerard Piel, "Need for Public Understanding of Science," *Science (New Series)* 121, no. 3140 (1955); J. Bronowski, "Science and Human Values," *Nation* 183, no. 26 (1956).

25. Jaspers, *The Future of Mankind*, 200.

26. *Ibid.*, 199.

27. *Ibid.*, 200.

28. *Ibid.*, 199.

29. For a helpful and concise statement about Jaspers's appropriation of Kantian *Verstand* see Lewis P. Hinchman and Sandra K. Hinchman, "Arendt's Debt to Jaspers," *The Review of Politics* 53, no. 3 (1991), 437–438. As they explain "Jaspers's *Existenz* philosophy began at the limits of cognition established by Kant."

30. In Jaspers's thought "the encompassing" is a term of art (*das Umgreifende*) which has to do with the entirety of Being and with using communication to think beyond the boundaries set by intellect (or its reverse, irrationality). As Christopher Thornhill explains, Jaspers's postwar philosophy utilizes some concepts from Jaspers's reading of Hegel, among them the idea of The Encompassing, which are integrated into his existential Kantianism (Christopher J. Thornhill, *Karl Jaspers: Politics and Metaphysics* (New York: Routledge, 2002), 169–171).

31. Jaspers, *The Future of Mankind*, 229.

32. *Ibid.*, 228.

33. *Ibid.*, 221. "Boundless communication" can be understood as ongoing communication across cultural boundaries, or boundaries that designate different value orientations in a context free of the threat of violence. See Karl Jaspers, *Way to Wisdom: An Introduction to Philosophy*, trans. Ralph Manheim (New Haven: Yale University Press, 1951/2003). Also see Kurt Salamun, "Karl Jaspers on Human Self-Realization," in *Karl Jaspers's Philosophy: Expositions and Interpretations*, ed. Kurt Salamun and Gregory J. Walters (Amherst: Humanity Books, 2008).

34. See Karl Jaspers, *Reason and Anti-Reason in Our Time*, trans. Stanley Godman (New Haven: Yale University Press, 1952), 27–28; 85–87. For discussions of Jaspers's view of "scientific" philosophy see James O. Bennett, "Karl Jaspers and Scientific Philosophy," *The Journal of Philosophy* 31, no. 3 (1993); Gerhard Knauss, "Karl Jaspers on Philosophy and Science," in *Karl Jaspers's Philosophy: Expositions and Interpretations*, ed. Kurt Salamun and Gregory J. Walters (Amherst: Humanity Books, 2008).

35. Jaspers, *Reason and Anti-Reason in Our Time*, 15. "In contrast to the unifying science of Marxism, however, authentic modern science of every kind is essentially particular, leading to cogent, methodically sound, objective insights, recognizing no universal method, adapting its methods to the nature of the object under scrutiny. The unifying 'science' of Marxism has nothing to do with modern science."

36. Jaspers says that the "content" of this needed new way of thinking is that it "tells us where we stand, assures us of our ultimate motives, lets us find and foster our state of mind, and gives us calm" (187–188).

37. Jaspers, *The Future of Mankind*, 232–33.

38. Jaspers, *Reason and Anti-Reason in Our Time*, 30–31. The passage continues, "We profess an unconditional belief in modern science as the way to truth."

39. For Jaspers, "world order" is contrasted with "world empire," and relates both to an ideal that we can never reach as well as to the potentially practicable system of international federation that Jaspers preferred. See Karl Jaspers, *The Origin and Goal of History*, trans. M. Bullock (New Haven: Yale University Press, 1953).

40. Jaspers, *The Future of Mankind*, 204–05 (italics are mine).

41. *Ibid.*, 196.

42. Arendt, *The Human Condition*, 6.

43. Jonathan Schell speculates about the reasons behind Arendt's neglect to write at length about nuclear war in Jonathan Schell, "Hannah Arendt and the Atomic Bomb," in *Politics in Dark Times: Encounters with Hannah Arendt*, ed. Seyla Benhabib; Roy T. Tsao; Peter Verovsek (Cambridge: Cambridge University Press, 2010).

44. *Hannah Arendt Karl Jaspers: Correspondence 1926–1969*, 407 [Letter #270, December 1960]. Jaspers's full remark is, "[w]hat appeals to me so strongly in this book is that the things you explicitly state

you will *not* talk about (right at the beginning and repeatedly thereafter) exert such a palpable influence from the background . . .”

45. Arendt, *The Human Condition*, 3–4.

46. This will be taken up in three parts: (1) the relation of their research to the capacity of speech; (2) what makes their activities in “modern times” a form of *action* rather than labor or work; (3) their specific relation to the power/force dichotomy.

47. Arendt, *The Human Condition*, 248.

48. I will deal with (a) in this section, and (b) in the next section.

49. Arendt, *The Human Condition*, 248.

50. *Ibid.*, 258.

51. *Ibid.*, 264.

52. *Ibid.*, 265.

53. *Ibid.*, 266.

54. *Ibid.*, 261.

55. *Ibid.*, 278. We may want to question Arendt’s narrative about the scientist’s despair. Could we not locate equally relevant examples of joy on the part of the physicist who works in un-earthly languages?

56. *Ibid.*, 261. Whether the journey is “outward” toward the sun and universe or “inward” toward the thing-that-thinks, what occurred was a change from a human experience that relates to otherness (including other humans) and one that is purely self-related: “This modern astrophysical world view, which began with Galileo, and its challenge to the adequacy of the senses to reveal reality, have left us a universe of whose qualities we know no more than the way they affect our measuring instruments, and—in the words of Eddington—‘the former have as much resemblance to the latter as a telephone number has to a subscriber’. Instead of objective qualities, in other words, we find instruments, and instead of nature and the universe—in the words of Heisenberg—man encounters only himself.”

57. See *ibid.*, 285.

58. *Ibid.*, 269–70.

59. Hannah Arendt, “Thinking,” in *The Life of the Mind* (New York: Harvest, 1978 [1971]), 99 (italics are Arendt’s)

60. *Ibid.*, 100: “The sheer naming of things, the creation of words, is the human way of *appropriating* and, as it were disalienating the world into which, after all, each of us is born as a newcomer and a stranger.”

61. Arendt, *The Human Condition*, 270.

62. *Ibid.*, 148.

63. *Ibid.*

64. *Ibid.*, 148–9.

65. *Ibid.*, 150.

66. *Ibid.*, 150.

67. Whether or not “acting into nature” also displays unpredictability is an interesting question. The ability to act into nature is unpredictable in the sense that it is out there for human agents to use. But once a process “into nature” is initiated, a “chain reaction” results—and reactions are in a certain sense predictable. What gives acting into the human world its unpredictability is that other agents take up those actions and do new things with them, or, as we will discuss, intervene with forgiveness.

68. Arendt, *The Human Condition.*, 230–231. Arendt is quoting Wernher von Braun (“Random Notes in Washington: (Subsection: Research at Capitol),” *The New York Times*, December 16 1957.)

69. Arendt, *The Human Condition.*, 323–324.

70. Recall that for Arendt thinking has a dialogic structure utilizing meaningful words that link the co-thinkers (including the self alone in thought as if she were two) to the moral-ethical world of historical and shared facts and contingencies.

71. Arendt, *The Human Condition*.

72. *Ibid.*, 238 (emphasis is Arendt’s).

73. *Ibid.*, 323.

74. *Ibid.*, 237.

75. Were they not “whos”—individuals enmeshed in the mutual accountability and narratives of a shared human world—their actions would not, properly speaking, be actions at all. As Arendt says, in that case they would be nothing more than robots. Not only do these scientists present themselves as accountable, they also *speak* to the public about their work, and about its *political* ramifications.

76. Hannah Arendt *Karl Jaspers: Correspondence 1926–1969*, 313 [Letter #206, April 1957].

77. See “Declaration of the German Nuclear Physicists,” *Bulletin of the Atomic Scientists* XIII, no. 6. Max Born and Werner Heisenberg were among the signatories. They say “we know that it is very difficult to draw political consequences from these facts. Since we are not politicians, one might deny us

the right to judge these questions; however, our activity in pure science and its applications, which brings us into contact with many young people in this field, has bestowed upon us a responsibility for the possible consequences of this activity . . .”

78. Hannah Arendt *Karl Jaspers: Correspondence 1926–1969*, 315–16 [Letter #207, April 1957]. Though Arendt did not directly respond (or her response does not appear in their letters) it is clear that her curiosity about the “German physicists” persisted. In a letter a few weeks later Arendt asks Jaspers’s wife, Gertrud, what *she* thinks about the issue.

79. Arendt, *The Human Condition*, 324.

80. *Ibid.*, 271.

81. *Ibid.*, 278.

82. Arendt notes that even the notion of scientific objectivity (as in the value-free ideal) may well have had political, rather than scientific roots, in the Royal Society pledge to the King “to take no part in political or religious strife.” (*ibid.*, 271n26.)

83. *Ibid.*, 200.

84. Hannah Arendt, “The Conquest of Space and the Stature of Man,” in *Between Past and Future* (New York: Penguin Books, 1968), 272. Arendt writes, “They were simply searching for ‘true reality’ and loved ‘harmony and lawfulness’ . . . this may explain why they seem to have been less distressed by the fact that their discoveries served the invention of the most murderous gadgets than disturbed by the shattering of all their most cherished ideals of necessity and lawfulness. These ideals were lost when the scientists discovered that there is nothing indivisible in matter, no *a-tomos*, that we live in an expanding, non-limited universe, and that chance seems to rule supreme wherever this ‘true reality,’ the physical world, has receded entirely from the range of human senses and from the range of all instruments by which their coarseness is refined.”

85. *Ibid.*, 275–276. Does Arendt intend to condemn modern science for having reached beyond its proper limits? It is not clear that this is her intention. Here she claims, and I think it is without irony, that the indifference to humanity is science’s great accomplishment. Moreover, she suggests that it is foolish to expect science to be concerned with the “stature” of humanity or to hold it accountable for what it does to that stature. Instead, it seems she wants to press upon her listeners the idea that there may be a serious conflict between humanistic and scientific goals.

86. Hannah Arendt, “Introduction *into* Politics,” in *The Promise of Politics*, ed. Jerome Kohn (New York: Schocken Books, 2005), 147.

87. See *ibid.*, 105–6.

88. Arendt, *The Human Condition*.

89. Arendt, “Willing,” 200.

90. *Ibid.*, 201. What distinguishes “consent” from the trusting relation of I and thou? Arendt does not explain but instead moves to a discussion of foundation stories. However, we can hazard a guess. To “consent” to be together under the same laws and customs is to acknowledge that the political community is produced and maintained through the very limits each member puts on herself in the spirit of cooperation and inter-action. The specific world that expresses those limits is the same world that makes freedom (through acting with equals) possible. This being-together in and through limits is quite different from finding oneself already together with a fellow traveler in the boundless regions of thought.

91. Lewis P. Hinchman and Sandra K. Hinchman, “Arendt’s Debt to Jaspers,” *The Review of Politics* 53, no. 3 (1991): 454. Comparing Jaspers’s and Arendt’s respective criticisms of the positivistic/behavioristic self-understanding of mass-society, Lewis and Sandra Hinchman argue “Jaspers’s account of positivism, the life order, and mass conformity foreshadows Arendt’s presentation of these same themes. However, unlike his protégé, Jaspers never really disputed the validity of behavioristic inquiry; he merely criticized its reductionism. For him objective reality not only consisted of discontinuous levels . . . but must itself be distinguished from nonobjective reality, *Existenz*, and transcendence . . . By contrast, Arendt generally took the more extreme position that action and behavior represent alternative modes of conduct standing on the same plane in respect to efforts to analyze them, arguing (implausibly) that people in some ages or circumstances act, while in others they behave.”

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