Hans Jonas, Günther Anders, and the Atomic Priesthood: An Exploration into Ethics, Religion and Technology in the Nuclear Age

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Abstract: This article investigates the ethical implications of the notion of an Atomic Priesthood, an artificially constructed religion built around the preservation of knowledge related to nuclear-waste storage by using the work of Hans Jonas (1903–1993) and Günther Anders (1902–1992). Building on Jonas’ The Imperative of Responsibility from 1979 and Anders’ The Outdatedness of Human Beings from 1956, this article participates in the debate regarding the ethics of the post-closure marking of nuclear-waste storage sites. Assuming that we have a moral obligation toward future generations, as Jonas argued, even after the nuclear-waste storages have been filled and closed, there remains a need to communicate the danger of these sites to future civilizations to whom our languages and other semiotic systems are incomprehensible. Discussing the hypothetical concept of the Atomic Priesthood, an artificial religion whose central purpose would be to make it taboo to approach certain “impure” sites where our civilization had buried nuclear waste, this article argues that due to the unsolved ethical stakes, technological solutions are unequipped to deal with the long-term ramifications of nuclear power.

Keywords: ethics; religion; nuclear waste; nuclear age; philosophy; transgenerational responsibility; new religion

1. Introduction

For the German-born Jewish-American philosopher Hans Jonas (1903–1993), the 20th century posed a new problem for humanity: while throughout history, technology was dependent on human power (i.e., the creation of tools and their operation), in the 20th century, technology and its effects had reached new spheres in which they were no longer completely controllable (Nikulin 2001). Humans have become what Jonas called “Prometheus unbound”, entities to whom science and technology confer forces never seen before. Technology has a wider range and magnitude than ever before in human history, and its effects go beyond one lifetime, even beyond the lifetime of our civilization (Jonas 2003, p. 7; See: Nikulin 2001). As a consequence, the actions of an individual or small group can have ramifications across the globe, in both the immediate and distant future. Traditional ethics had almost completely ignored this problem, which became urgent after the Second World War.

This article investigates the ethical implications of the notion of an Atomic Priesthood, an artificially constructed religion built around the preservation of knowledge related to nuclear-waste storage by using the work of Jonas and Günther Anders (1902–1992). Combining the thought experiment Atomic Priesthood with the work and lives of these two philosophers, this article participates in the debate regarding the ethics of the post-closure marking of nuclear-waste storage sites. This debate originated in the nuclear industry during the 1980s, during which the long-term problems arising from nuclear-waste storage were amply discussed, generating the interdisciplinary but small and short-lived field of nuclear semiotics (See: Zeitschrift für Semiotik 1984; Posner 1990). The question has been...
also incorporated into discussions of environmental ethics and transgenerational justice (for example: Löfquist 2008; Madsen 2010; also: De-Shalit 1994). What has been lacking in the discussion so far—which this article offers—is a critical engagement with the religious underpinnings that guide much of the discussed solutions to the post-closure marking of nuclear-waste storage sites.

The notion of the Atomic Priesthood is tied to the following question: How do we safeguard nuclear-waste storage facilities after the demise of our civilization? or, How to communicate with the future? The basic problem is that nuclear waste remains dangerous in some cases for many thousands of years. Thus—assuming that we have a moral obligation toward future generations, as Jonas argued—even after the nuclear-waste storages have been filled and closed, there remains a need to communicate the danger of these sites to future civilizations to whom our languages and other semiotic systems are incomprehensible. Nuclear waste storage stands at the end of the nuclear production line and will harbor the remnants of both peaceful usage of nuclear energy as well as nuclear weapons. They are designed to outlive our civilization, even though this engineering claim is dubious and will give witness of our nuclear age to the future.

As a possible solution to this problem, the Atomic Priesthood is generally construed as accompanied by a set of artificial legends and myths whose central purpose would be to make it taboo to approach certain “impure” sites where our civilization had buried nuclear waste. The Atomic Priesthood would also possess an accompanying scripture, which could be subsequently translated into new languages arising over the next 10,000 years, thus assuring the transmission of relevant knowledge. Building on Jonas’ seminal work The Imperative of Responsibility—Das Prinzip Verantwortung in German—(German edition: Jonas 1979; English translation: Jonas 1984) and Anders’ The Outdatedness of Human Beings Die Antiquiertheit des Menschen in German (German editions: Anders 1987a, no English edition), this article focuses on the entangled interplay of religion and nuclear technology and investigates the ethical stakes arising from this entanglement.

2. Results

2.1. Hans Jonas and the Imperative of Responsibility

Applying Jonas’ complex theoretical constructs to the idea of an artificial religion such as the Atomic Priesthood allows for a discussion of the ethical imperatives that arise when nuclear technology and religion merge. Hans Jonas was born in the West German town Mönchengladbach in 1903 and came from a liberal, Jewish family with a middle-class background (Biographical information according to: Wiese 2007, 1ff; Jonas 2003; Müller 2016; Nielsen-Sikora 2021). In 1921, he studied philosophy for a brief period in Freiburg with the famous founder of phenomenology, Edmund Husserl, and the then-unknown Martin Heidegger, who would later serve as his Doktorvater (PhD advisor) and have a decisive and lasting influence on his thought (See: Wolin 2015; Cf.: Jacob 1996; Elm 2021). The growing sense of being an outsider and the experience of antisemitism in German society during the Weimar Republic led Jonas to embrace Zionism (See: Hotam 2008). After a brief stint in agricultural training in preparation for emigration to Palestine, Jonas returned to Freiburg and in 1924 followed Heidegger to the University of Marburg, where the latter had been appointed as a professor, and worked on his dissertation, Der Begriff der Gnosis, which was the starting point of his lifelong interest in Gnosticism. After completing his PhD in 1928, Jonas joined the sociologist Karl Mannheim at the University of Heidelberg, but his academic career was thrown into disarray by the rise to power of the National Socialists in 1933, which prompted him to leave Germany. He went to the UK before settling in Mandatory Palestine in 1935 (See: Wiese 2007, p. 9). Jonas spent the next decade lecturing at the Hebrew University in Jerusalem, even though he never received a fixed appointment, and when the effects of the Second World War were felt in Mandatory Palestine, he joined the British army, acting in various roles and, among other things, taking part in the military campaign for the liberation of Italy. After the declaration of independence, he served in the Israeli army until 1949. Frustrated by a lack of clear prospects for an
academic career, Jonas left for Canada, where he taught in Ottawa at various institutions. During these years, Jonas first delved into philosophical questions concerning biology and technology (Nielsen-Sikora 2021, 11f). In 1954, he was appointed professor at the New School for Social Research in New York. Having secured a permanent appointment, Jonas further developed his philosophical interests with his unique mixture of Jewish philosophy, Gnosticism, Heideggerianism, and Kantian ethics. In 1979, he published his magnum opus, *The Imperative of Responsibility*. He died in 1993.

The year of publication was not coincidental, as Jonas’ inquiry into ethics for the technological age was the result of a growing awareness of the possible negative consequences of technological progress during and after the Second World War. The postwar intellectual landscape in the German-speaking world, especially in the Federal Republic of Germany, was wrestling with, on the one hand, the legacy of the Second World War and the Holocaust and, on the other hand, with the dawn of the nuclear age and its potential for global destruction, especially in the context of the global devastation of the Second World War (Hahnemann 2013; Stölken-Fitschen 1995). Next to Jonas’ *The Imperative of Responsibility*, Günther Anders’ *The Outdatedness of Human Beings* from 1956, Karl Jaspers’ *The Atomic Bomb and the Future of Mankind* from 1957, and Friedrich Dürrenmatt’s play *The Physicists* from 1962—to name just the most important works—offered the most penetrating investigation of the philosophical and ethical conundrums brought up by the technological revolution during, and in the immediate aftermath of, the Second World War (See: Anders 1987a; Jaspers 1957; Dürrenmatt 1962; Cf.: Hahnemann 2013). As such, they seem to be well suited to address the ethical ramifications of the Atomic Priesthood. These intellectuals were critical observers of the rise of the nuclear age. They saw a zeitgeist that proposed technological solutions to problems caused by technological development. As witnesses to the technophilic hubris that captured much of the Western public in the decades following the Second World War, Jonas and Anders, as observers and critics of the nuclear age, became the philosophical expression of the societal growth of skepticism. Their critique of nuclear power and its ramification might seem milquetoast or sophistical, but when confronted with the notion of the Atomic Priesthood, Jonas and Anders offered compelling answers that traditional ethics were inadequate to provide.

As Jonas stated in *The Imperative of Responsibility*, traditional ethics have not kept up with the speed of technological development, and their focus on the motives or actions of individuals are inadequate for dealing with the trans-generational technological threat. Jonas wrote succinctly, “The danger comes from the over-dimensioning of the natural-scientific-technical-industrial civilization” (“Die Gefahr geht aus von der Überdimensionierung der naturwissenschaftlich-technisch-industriellen Zivilisation.”; Jonas 2003, p. 251). The societal acceptance of technological over-dimensioning is based on the two false promises of technology: first, almightiness, i.e., the promise that all desires are attainable through technology and that all risks are controllable through technology, and second, innocence, i.e., the separation of actions and consequences from responsibility (Tibaldeo 2015, p. 227). In the face of this over-dimensioning, Jonas offered an updated version of Kant’s categorical imperative: “Act in such a way that the effects of your actions are compatible with the permanence of an authentically human life on earth” (Jonas 1979, p. 36).

Faulting Kant for not taking into account “real consequences [italics original]” (reale Folgen), Jonas argued for the addition of a “time horizon” (Zeithorizont) to moral calculations (Jonas 2003, p. 37). Such a temporal perspective closes a gap in Kant’s imperative by which it becomes truly imperative. The morality of one’s actions are no longer tied to universalizability but are contingent on one’s embedding into a collective whole, i.e., humanity (Hirsch Hadorn 2000, p. 231). For Jonas, each individual is responsible for humanity as a whole and for its future on planet earth.

In the face of an uncertain future and the effects of technology, Jonas proposed a “heuristics of fear” (Heuristik der Furcht), meaning that in our ethical considerations for the future, we should pay more attention to our fears than to our desires (Jonas 1979, p. 64). In other words, when facing the unknowable future consequences of our actions today, it is better to
err on the side of caution. Based on this “uncertainty, which threatens to make the ethical insight ineffectual for the long-range responsibility toward the future” (“diese Ungewißheit nun aber, welche die ethische Einsicht für die hier gemeinte Zukunftsverantwortung unwirksam zu machen droht”), Jonas calls this principle the “prevalence of the bad over the good prognosis” (“Vorrang der schlechten vor der guten Prognose”; Jonas 1979, p. 70). Combining a focus on the collective (i.e., humanity) with considerations of the future, Jonas held that the true categorical imperative creates an “ontological responsibility”, namely to ensure “that humans exist” (“das es Menschen gibt”) now and in the future (Jonas 1979, 91f). In fact, our responsibility is non-reciprocal, as we must act according to our ontological obligation and not for our own advantage. Actions that put the survival of humanity at risk are therefore morally wrong, even if the risk is low. Furthermore, Jonas argues for the congruence of being and nature, meaning that (human) existence is ontologically tied to its surrounding environment (Niggemeier 2002, 97ff). We as humans are not only responsible for the existence of mankind but also for preserving the possibility of assuming the ontological duty of said responsibility (Tibaldeo 2015, p. 230). In other words, preserving the freedom to be responsible (or not) in the future must guide us in our present actions.

2.2. What Is the Atomic Priesthood?

Proposed solutions to the problem of the post-closure marking of nuclear-waste storage sites are not lacking, and the interdisciplinary field of nuclear semiotics was dedicated to finding them. The 1984 special issue of the German journal *Zeitschrift für Semiotik* on nuclear semiotics remains one of the most comprehensive discussions of the issue (*Zeitschrift für Semiotik* 1984). However, these questions are not purely academic. State and private actors in charge of storing nuclear waste have also sought to address the issue.

In 1980, a private company, the Bechtel group, which is in charge of several nuclear facilities in the US, commissioned a Human Interference Task Force that was to investigate long-term solutions to the post-closure marking of nuclear-waste storage sites (Human Interference Task Force 1984). In 1993, the Sandia National Laboratories in Albuquerque, New Mexico, and Livermore, California, compiled a nearly 350-page report titled *Expert Judgment on Markers to Deter Inadvertent Human Intrusion into the Waste Isolation Pilot Plant* for the Waste Isolation Pilot Plant near Carlsbad, New Mexico (Trauth et al. 1993). In 2004, the US Department of Energy prepared the *Permanent Markers Implementation Plan for the Waste Isolation Pilot Plant* (Waste Isolation Pilot Plant 2004), focusing mostly on warning signs in different languages.

Proposed solutions include the inscription of mathematical formulas in precious metals and living, self-generating sign matter (e.g., cats that react with discoloration when exposed to atomic radiation), a relay system of warning signs that are continuously updated with new languages, an artificial moon, and thorned landscapes (See: Sebeok 1984b; Sonntag 1990; Lem 1990; Voigt 1990; Bastidi and Fabbri 1990; Cf.: Madsen 2010). Others have argued that, given the outlandish nature of these proposals, the best way to safeguard nuclear-waste storages is not to communicate at all, instead burying the sites and erasing any surficial trace of them. In the 1993 report *Expert Judgment on Markers to Deter Inadvertent Human Intrusion into the Waste Isolation Pilot Plant*, two of the four assigned interdisciplinary teams tasked with finding solutions for the post-closure of nuclear-waste storage recommended not marking the sites so as to not draw attention to them. The other two teams recommended a mix of language and warning signs (Trauth et al. 1993).

One proposal, from the noted semiotician Thomas A. Sebeok, who was a member of the 1980s Human Interference Task Force, was not included in the final report for the Bechtel group. In his own report, titled *Communication Measures to Bridge Ten Millennia*, Sebeok proposed the founding of an Atomic Priesthood, an artificially created religion with the sole purpose of securing the storage sites. Sebeok noted that the quality of information decays over time, and therefore he deemed it necessary to update all relevant information
every three generations in order to adjust to linguistic and cultural change (Sebeok 1984a, p. 26). However, Sebeok deemed this relay system insufficient by itself, and he thought it necessary to add “moral reasons, with perhaps the veiled threat that to ignore the mandate would be tantamount to inviting some sort of supernatural retribution” in order to counter the informational entropy that could lead to incomprehensibility (Sebeok 1984a, p. 27). This threat could be “launched and artificially passed on into the short-term and long-term future with the supplementary aid of folkloristic devices, in particular a combination of an artificially created and nurtured ritual-and-legend” (Sebeok 1984a, p. 24).

Even though Sebeok chose the name “Atomic Priesthood” for “dramatic purposes” and actually envisioned it as “a commission of knowledgeable physicists, experts in radiation sickness, anthropologists, linguists, psychologists, semiologists, and whatever additional expertise may be called for now and in the future”, functionally, the parallels to an elite religious caste are conspicuous (Sebeok 1984a, p. 24). This is not accidental, as the Atomic Priesthood models an elite caste whose designated role comprises preserving knowledge and ensuring the integrity of a dogmatic core and its accompanying scripture. This caste of experts would be the sole carrier of the true purpose of the storage site and would create a mythology with the purpose of deceiving the broader public:

“The legend-and-ritual, as now envisaged, would be tantamount to laying a ‘false trail’, meaning that the uninitiated will be steered away from the hazard site for reasons other than the scientific knowledge of the possibility of radiation and its implications; essentially, the reason would be accumulated superstition to shun a certain area permanently”. (Sebeok 1984a, p. 24)

The rational base of the Atomic Priesthood is thus slowly—or accumulatively—transformed into superstitious beliefs. The Atomic Priesthood would start without any metaphysical foundation or eschatological outlook, although the development of both over time cannot be ruled out, but rather with its function as a religion. Eschatological or messianic components as well as a belief in an afterlife associated with a supreme being—typical aspects of religion—are not part of the original setup, even though the Atomic Priesthood may add them. “A ritual annually renewed can be foreseen, with the legend retold year-by-year with, presumably, slight variations,” wrote Sebeok (Sebeok 1984a, p. 24). The aim is twofold: first, to offer the adherents of the religion of the Atomic Priesthood fodder for internal contemplation, and second, to instigate public camaraderie (Cf.: Maloney et al. 2010, p. 445). Following this understanding of religion by its function vis-à-vis society, the institutional setup and its ties to scriptural and oral transmission of knowledge are designed to create a priestly elite. This structure around the elite serves to enforce legitimation of the priesthood and to establish and secure a consensus on the taboo of entering nuclear-waste storage sites—or however the sites will be known in the future. As noted by American sociologist Richard N. Bellah, in most of the historical civilizations, religion has acted as a “legitimation and reinforcement of the existing social order” (Bellah 1964, p. 368). To fulfill its purpose and to preserve its legitimacy and the role of the priestly elite, the Atomic Priesthood must enlarge its original task. While responsible for creating a religious taboo around nuclear-waste storage sites, over time, self-preservation will become increasingly important. In its role as the sole bearer of truth and the only preserver of the integrity of the storage sites, the Atomic Priesthood will struggle to fend off usurpers—apostates, heretics, and schismatics—and will need to develop “innovations in dogma and practices” to keep up with the inevitable change of its surroundings (See: Maloney et al. 2010, p. 442).

Taking the cue from Sebeok, for the purpose of this article, we can define the Atomic Priesthood as an elite religious caste who would be in charge of the continuous supervision of nuclear waste storage sites, the launch of a surrounding ethical system, and the adaptation of the folkloristic devices. Since the Atomic Priesthood would be designed with these specific purposes in mind, its design as a religion is based on functional considerations. Its mythological shell would be built around a metaphysical void that could initially be filled with nuclear physics. This functional approach, based on the premises that the
preservation of knowledge and erecting a taboo regarding nuclear-waste storage sites, is the main purpose of the Atomic Priesthood; it does not, however, address the motivation of humans to subscribe to this new religion. This remains a blind spot for the project, and top-down measures for enforcing adherence to the Atomic Priesthood seem to be the most fitting approach, given that deceit forms the kernel of the whole endeavor.

2.3. The Entanglement of Religion and Nuclear Technology

It has been argued that the longevity of nuclear waste does not fit into the ethical paradigm developed by Jonas and that radioactive contamination caused by nuclear waste would not threaten the existence of humanity in the distant future (Löfquist 2008, 195ff). A potential threat against only a small number of people, nuclear waste does not have the potential to permanently endanger human life that Jonas originally named as a prerequisite for applying the heuristics of fear. Therefore, the ethical framework is judged to be an inadequate tool for dealing with this kind of issue, and the “uncompromising version of the precautionary principle” that Jonas adopted does not apply to nuclear waste as long as the existence of humanity is not at risk (Löfquist 2008, p. 195).

But is the potential damage of nuclear-waste storage to humanity as a whole so negligible that Jonas’ ethical framework loses its relevance? Jonas himself did not shy away from testing his theory on the technological advancements of his day. He focused particularly on advancements in medicine and biotechnology and published a range of essays on the practical implications of his theory of responsibility.

Jonas was also concerned with the harm of nuclear energy and nuclear bombs, even though he did not pay as much attention to this issue as to medical and biotechnological questions. Alert to the dangers of nuclear fission, he had a more favorable, albeit cautious, opinion of nuclear fusion. Regarding nuclear waste, Jonas noted:

“Nuclear fission, already practiced, is subject to the passionately debated problem of radioactive threats to the environment, especially the many thousands of years of its waste—an unprecedented consequence of human activity, for which no satisfactory technical solution is yet in sight”\(^2\). (Jonas 1979, p. 335)

Jonas did not elaborate further on the issue; however, by taking Jonas’ short remark cited above at face value, one can conclude that the problem of nuclear-waste storage falls into the ethical framework of Jonas’ principle of responsibility. As Jonas remarked, no satisfactory technical solution is yet in sight, but expectations of future technological progress cannot substitute responsible conduct in the present (See: Jonas 1979, p. 218). The mere invention of the notion of an Atomic Priesthood indicates that—as Jonas remarked—no technical solution to the problem of nuclear waste is known; the search for solutions outside the technological realm turns to religion. Sebok’s Atomic Priesthood enlists religion out of the necessity to find a remedy. Both the longevity of nuclear waste and material and the idea of unlimited energy and its potential for complete destruction cause nuclear technology to take on a religious association (Musch 2016, p. 630). The utopian and dystopian potentials of nuclear technology point to the religious dimension of human existence. The entanglement of technology and religion that becomes apparent here not only demonstrates how technology turns to religion when confronted with a problem with no technical solution but also that some features of nuclear technology can lend themselves to religious forms (See: Alexander 2020). The association between nuclear power and nuclear weapons means that there is a possible scenario in which the durability of nuclear-waste storage sites leaves the seeds of mass destruction for future generations to harvest.

2.4. Günther Anders and the Nihilism Syndrome

The German-born Austrian-Jewish philosopher and writer Günther Anders was born Günther Stern in 1902 in Breslau, a son of two noted psychologists. Like Jonas, he studied with Edmund Husserl and Martin Heidegger. In 1925, he married his fellow student Hannah Arendt. The two were together until their divorce in 1937. In 1933—like Jonas—he
fled Germany, first to Paris and then to the US. After working odd jobs for several years, he secured a position at the New School for Social Research—years before Jonas—but in 1950 returned with his second wife to Europe. He lived in Vienna until his death in 1992. Anders and Jonas met for the first time in 1921 in Freiburg and began a life-long, if at times troubled, friendship (they did not speak for over a decade; Kokorin 2021, p. 217). Anders’s oeuvre is multifaceted but consistently displays a preoccupation with the consequences of humanity’s capacity for self-annihilation caused by the invention of the nuclear bomb. The atomic bombings of Hiroshima and Nagasaki meant for Anders the arrival of a new age that was in dire need of a new philosophical foundation, a new “philosophical anthropology in the age of technocracy” (“philosophische Anthropologie im Zeitalter der Technokratie”) as he called it in 1980 (Anders 1987b, p. 9). The result of this search for a new philosophical foundation was his work The Outdatedness of Human Beings (Die Antiquiertheit des Menschen), published in 1956 (Anders 1987a). Anders described the primacy of the nuclear bomb over humanity. Human beings were no longer in charge of their own fate; they had relinquished control over their fate to technology. Crucially for our purposes, Anders introduced the notion of “Promethean shame”, the existential embarrassment of human imperfection in the face of the technological drive towards perfection (Steiner 2013, p. 450). Similarly, Anders coined the term “Promethean gap,” i.e., the growing distance between imperfect, relatively powerless human beings and increasingly perfect technology, or, as he put it in The Outdatedness of Human Beings, “the fact of the daily growing a-synchronization of man with his product world, the fact of the day by day widening gap, we call “the Promethean gap” (Anders 1987a, p. 16).

The human mind is able to engineer and manufacture a bomb capable of annihilating the planet; however, when imagining actual annihilation, one reaches the limits of one’s imagination. Similarly, producing nuclear waste and storing it deep inside the earth is entirely within humanity’s capacity, but imagining the consequences exceeds the human mind. Anders saw the height of the Cold War in the 1950s, when he wrote The Outdatedness of Human Beings, as an age of mass-nihilism, in which the threat of the atomic bomb turned all humans into nihilists who accept the potential annihilation of humanity, which he called “annihilism” (Anders 1987a, p. 303). This nihilism syndrome caused blindness toward the waiting apocalypse.

While the issue of nuclear waste and its storage entails a slower threat with ramifications far into the distant future, the inherent logic is the same. We can imagine an Atomic Priesthood, inventing a new religion to keep nuclear-waste storage sites in check, but we cannot bridge the gap between our imagination and the consequences towards which such an invention might lead. Rene Girard wrote that “religion in its broadest sense [...] must be another term for that obscurity that surrounds man’s efforts to defend himself by curative and preventative means against his own violence” (Girard 1977, p. 23). In the light of this remark, the Atomic Priesthood’s role in securing nuclear waste storage sites amounts to defending humanity against its own proclivity to violence and to defusing the potential of its own destruction (See: Musch 2016, p. 631). Or, to connect it to Anders’ thinking, the Atomic Priesthood counteracts our nihilism and bridges the Promethean gap.

But if we take our cue from Anders’ nihilism syndrome, we can think of the notion of the Atomic Priesthood not only as a means to counteract the nihilism of the nuclear age but also as a symptom. We have discussed above how the Atomic Priesthood might be conceived as a solution and how it utterly fails to provide the safeguards that justified its founding. Anders’s thinking reveals the Atomic Priesthood to be a symptom of the nuclear age. Understanding the Atomic Priesthood as an attempt to bridge the Promethean gap—or to counteract Promethean shame—reveals that nihilist technology lacks the tools to solve the dilemma posed by nuclear-waste storage sites and thus must turn to religion. In addition, one can argue with Anders that the turn to religion, or rather the notion of engineering a religion and the complete ignorance of its effects, exposes the nihilistic void that guided Sebeok and the like. The Atomic Priesthood is a top-down product engineered by a technophilic elite who, when confronted with the negative consequences
of technological progress, double down with a potentially more harmful invention. Thus, the Promethean gap drives humanity to more outlandish and extreme measures.

3. Discussion

The ethical foundation of the idea of the Atomic Priesthood is shaky, to say the least, and the practicability of the endeavor remains unclear. The development of the Atomic Priesthood is not foreseeable, and unexpected events could derail its intended purpose. Following Jonas’s heuristics of fear shows that the whole premise does not square with our responsibilities toward future generations. In addition, the notion of the Atomic Priesthood is based on the deception of future generations, i.e., lying to them about the purpose of nuclear-waste storage sites and feeding them false information.

Following Jonas’s heuristics of fear shows that the whole premise does not square with our responsibilities toward future generations. The development of the Atomic Priesthood is not foreseeable, and unexpected events could derail its intended purpose. The status of religion has little to no bearing on an assessment along the lines developed by Jonas. Since Jonas concentrated on technological advancement, the effects of a new, constructed religion are not explicitly discussed in his oeuvre. However, if we understand the founding of the Atomic Priesthood as the engineering of a new religion, the applicability of Jonas’ insight becomes more apparent. Focusing on the fact that the Atomic Priesthood is engineered is not just a semantic shift but rather an expression of the unique circumstances under which, and the historical context in which, the Atomic Priesthood was conceived. Understanding the Atomic Priesthood as a religion and as a technological product sheds light on its inherent hubris, especially if said understanding is combined with Anders’s concepts of the Promethean gap and nihilistic syndrome. When the underlying philosophical and ideological foundation that gave birth to the notion of the Atomic Priesthood is exposed, the destructive potential of the nuclear age (i.e., the post-Hiroshima age) that can wreak instantaneous havoc becomes apparent. It involves a blindness that is all-encompassing and even subsumes religion.

The political philosopher Avner de-Shalit has argued that questions relating to policies of storing nuclear waste are not a matter of (transgenerational) justice but rather of “humanity” (De-Shalit 1994, p. 63). The whole argument surrounding the Atomic Priesthood is tied to such a long timeframe that it does not address what de-Shalit called the “transgenerational community”, to which we belong and toward which we have obligations of justice (De-Shalit 1994, p. 31). De-Shalit argued further that we have fewer obligations toward generations more remote in the future—such as those aimed at by post-closure marking of nuclear-waste storage sites—but are bound to them by our common humanity. In short, this means that while we have an obligation to protect them, this obligation is limited by the sheer impossibility of predicting all future scenarios—all the practical issues concerning the Atomic Priesthood make this very clear—but, crucially, we should do all we can to refrain from doing harm. How this would play out practically remains unexplored and the current operations of nuclear-waste storage sites seem to have adopted an agnostic approach. They either have postponed any decision to the future or as, e.g., the Finnish Company Posiva Oy at their Onkalo spent nuclear fuel repository, decided to forego the problem of post-closure, marking it as unsolvable (Posiva 2012, 458ff). However, this fire-and-forget policy speaks volumes, and ultimately the vacillation between solutions of a religious and agnostic character lays bare the unsolved ethical issues at stake. The simultaneous belief in almightiness and innocence, as Jonas outlined in *The Imperative of Responsibility*, and which has—as this article has shown—guided the notion of the Atomic Priesthood, still seems to govern every approach to nuclear-waste storage.

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Notes

1 “Handle so, daß die Wirkungen deiner Handlung verträglich sind mit der Permanenz echten menschlichen Lebens auf Erden.” Jonas offers here a number of other phrasings as well, among them, “Handle so, daß die Wirkung deiner Handlung nicht
zerstörerisch sind für die zukünftige Möglichkeit solchen Lebens,” und, “Gefährde nicht die Bedingungen für den indefiniten Fortbestand der Menschheit auf Erden” (Jonas 1979, p. 36).

2 “Die schon praktizierte Kernspaltung unterliegt dem leidenschaftlich diskutierten Problemen radioaktiver Umweltbedrohungen, besonders der vieltausendjährigen durch ihren Müll–eine noch nie dagewesene Folge menschlichen Tuns, wofür noch keine befriedigende technische Lösung in Sicht ist” (Jonas 1979, p. 335).

3 “Die Tatsache der täglich wachsenden A-synchronisiertheit des Menschen mit seiner Produktewelt, die Tatsache des von Tag zu Tag breiter werdenden Abstandes, nennen wir, das prometheische Gefälle”. (Anders 1987a, p. 16)

References

Alexander, Jennifer Karns. 2020. Introduction: The entanglement of technology and religion. History and Technology 36: 165–86. [CrossRef]

Anders, Günther. 1987a. Die Antiquiertheit des Menschen. Vol. I: Über Die Seele im Zeitalter der Zweiten Industriellen Revolution. München: C. H. Beck.

Anders, Günther. 1987b. Die Antiquiertheit des Menschen Vol. II: Über Die Zerstörung Des Lebens im Zeitalter der Dritten Industriellen Revolution. München: C. H. Beck.

Bastidi, Francoise, and Paoli Fabbri. 1990. Lebende Detektoren und komplementäre Zeichen: Strahlenkatze, brechendes Auge und Atomsirene. In Warnungen an Die Ferne Zukunft. Atommüll als Kommunikationsproblem. Edited by Roland Posner. München: Raben Verlag.

Bellah, Robert N. 1964. Religious Evolution. American Sociological Review 29: 358–74. [CrossRef]

De-Shalit, Arnon. 1994. Why Posterity Matters: Environmental Policies and Future Generations. London: Routledge.

Dürrenmatt, Friedrich. 1962. Die Physiker. Zürich: Arche.

Elm, Ralf. 2021. Heidegger. In Hans Jonas-Handbuch. Leben–Werk–Wirkung. Edited by Michael Bongardt, Holger Burckhart, John-Stewart Gordon und Jürgen Nielsen-Sikora. Berlin: J. B. Metzler.

Girard, Rene. 1977. Violence and the Sacred. Baltimore: Johns Hopkins University Press.

Hahnemann, Andy. 2013. Einleitung. Handbuch Nachkriegskultur. Literatur, Sachbuch und Film (1945–1962). Edited by Elena Agazzì and Erhard Schütz. Berlin: De Gruyter.

Hirsch Hadorn, Gertrude. 2000. Verantwortungsbegriff und kategorischer Imperativ der Zukunftsethik von Hans Jonas. Zeitschrift für Philosophische Forschung 54: 218–37.

Hotam, Yotam. 2008. Nationalized Judaism and Diasporic Existence. Jakob Klatzkin and Hans Jonas. Behemoth. A Journal on History and Technology 51: 626–39. [CrossRef]

Human Interference Task Force (HITF). 1984. Reducing the Likelihood of Future Human Activities That Could Affect Geological High-Level Waste Repositories. Columbus: Battelle Memorial Institute, Office of Nuclear Waste Isolation.

Jacob, Erich. 1996. Martin Heidegger and Hans Jonas. Die Metaphysik der Subjektivität und Die Krise der Technologischen Zivilisation. Tübingen: Francke Verlag.

Jaspers, Karl. 1957. Die Atombombe und die Zukunft des Menschen. Politisches Bewußtsein in Unserer Zeit. München: Pieyer.

Jonas, Hans. 1979. Das Prinzip Verantwortung, Versuch Einer Ethik für Die Technologische Zivilisation. Frankfurt. a.M.: Insel Verlag.

Jonas, Hans. 1984. The Imperative of Responsibility. In Search of an Ethics for the Technological Age. Chicago: Chicago University Press.

Jonas, Hans. 2003. Erinnerungen. Nach Gesprächen mit Rachel Salamander. Edited by Christian Wiese. Frankfurt am Main: Insel Verlag.

Kokorin, Ginger Isabelle. 2021. Günther Anders. In Hans Jonas-Handbuch. Leben–Werk–Wirkung. Edited by Michael Bongardt, Holger Burckhart, John-Stewart Gordon und Jürgen Nielsen-Sikora. Berlin: J. B. Metzler.

Lem, Stanislaw. 1990. Mathematische Kodierung auf lebendem Trägermaterial. In Warnungen an Die Ferne Zukunft. Atommüll als Kommunikationsproblem. Edited by Roland Posner. München: Raben Verlag.

Löfqquist, Lars. 2008. Ethics Beyond Finitude. Responsibility towards Future Generations and Nuclear Waste Management. Uppsala: Acta Universitatis Upsaliensis.

Madsen, Michael. 2010. Into Eternity: A Film for the Future. Magic Hours Films in Co-Production with Mouka Films. Finland: DVD.

Maloney, Michael T., Abdulkadir Civan, and Mary Frances Maloney. 2010. Model of Religious Schism with Application to Islam. American Sociological Review 75: 441–60. [CrossRef]

Müller, Wolfgang Erich. 2016. Hans Jonas. Philosoph der Verantwortung. Darmstadt: Wissenschaftliche Buchgesellschaft.

Musch, Sebastian. 2016. The Atomic Priesthood and Nuclear Waste Management: Religion, Sci-Fi Literature and the End of Our Civilization. Zygon: Journal of Religion and Science 51: 626–39. [CrossRef]

Nielsen-Sikora, Jürgen. 2021. Intellektuelle Biographie. In Hans Jonas-Handbuch. Leben–Werk–Wirkung. Edited by Michael Bongardt, Holger Burckhart, John-Stewart Gordon und Jürgen Nielsen-Sikora. Berlin: J. B. Metzler.

Niggemeier, Frank. 2002. Pflicht zur Behutsamkeit? Hans Jonas’ Naturphilosophische Ethik für Die Technologische Zivilisation. Würzburg: Königshausen & Neumann.

Nikulin, Dmitri. 2001. Reconsidering Responsibility. Hans Jonas’ Imperative for a New Ethics. Graduate Faculty Philosophy Journal 23: 99–118. [CrossRef]

Posiva, Oy. 2012. Safety Case for the Disposal of Spent Nuclear Fuel at Olkiluoto: Features, Events and Processes 2012. Eurajoki: Posiva.

Posner, Roland, ed. 1990. Warnungen an Die Ferne Zukunft. Atommüll als Kommunikationsproblem. München: Raben Verlag.
Sebeok, Thomas. 1984a. Communication Measures to Bridge Ten Millennia. Columbus: Battelle Memorial Institute, Office of Nuclear Waste Isolation.

Sebeok, Thomas. 1984b. Die Büchse der Pandora und ihre Sicherung: Ein Relaissystem in der Obhut einer Atompriesterschaft. Zeitschrift für Semiotik Und in alle Ewigkeit: Kommunikation über 10 000 Jahre: Wie sagen wir unsern Kindeskindsn wo der Atommüll liegt? 6: 229–52.

Sonntag, Philipp. 1990. Künstlicher Mond am Himmel und Datenbank im Keller. In Warnungen an Die Ferne Zukunft. Atommüll als Kommunikationsproblem. Edited by Roland Posner. München: Raben Verlag.

Steiner, Uwe C. 2013. Günther Anders: Die Antiquiertheit des Menschen (Bd. I, 1956). In Handbuch Nachkriegskultur. Edited by Elena Agazzi and Erhard Schütz. Berlin: De Gruyter.

Stölken-Fitschen, Ilona. 1995. Atombombe und Geistesgeschichte. Eine Studie der fünfziger Jahre aus Deutscher Sicht. Baden-Baden: Nomos.

Tibaldeo, Roberto Franzini. 2015. The Heuristics of Fear: Can the Ambivalence of Fear Teach Us Anything in the Technological Age? Ethics in Progress 6: 225–38. [CrossRef]

Trauth, Kathleen M. T., Stephen C. Hora, and Robert V. Guzowski. 1993. Expert Judgment on Markers to Deter Inadvertent Human Intrusion into the Waste Isolation Pilot Plant. Albuquerque: Department of Energy, Sandia National Laboratories.

Voigt, Vilmos. 1990. Konzentratisch angeordnete Warnsfeltern in zunehmend neurer Sprachform. In Warnungen an Die Ferne Zukunft. Atommüll als Kommunikationsproblem. Edited by Roland Posner. München: Raben Verlag.

Waste Isolation Pilot Plant. 2004. Permanent Markers Implementation Plan for the Waste Isolation Pilot Plant Carlsbad. Carlsbad: United States Department of Energy, Carlsbad Field Office.

Wies, Christian. 2007. The Life and Thought of Hans Jonas: Jewish Dimensions. Waltham: Brandeis University Press.

Wolin, Richard. 2015. Heidegger’s Children. Hannah Arendt, Karl Löwith, Hans Jonas, and Herbert Marcuse. Princeton: Princeton University Press.

Zeitschrift für Semiotik. 1984. Special Issue: Und in alle Ewigkeit: Kommunikation über 10,000 Jahre: Wie sagen wir unsern Kindeskindsn wo der Atommüll liegt? Available online: https://www.semiotik.tu-berlin.de/menue/zeitschrift_fuer_semiotik/zs-hefte/bd_6_hft_3/ (accessed on 30 August 2021).