

# *Nuclear Waste, Conspiracies, and E-Meters: Remarkable Religion and Technology*

with Sebastian Musch, “The Atomic Priesthood and Nuclear Waste Management: Religion, Sci-Fi Literature, and the End of Our Civilization”; S. Jonathon O’Donnell, “Secularizing Demons: Fundamentalist Navigations in Religion and Secularity”; and Stefano Bigliardi, “New Religious Movements, Technology, and Science: The Conceptualization of the E-Meter in Scientology Teachings.”

## THE ATOMIC PRIESTHOOD AND NUCLEAR WASTE MANAGEMENT: RELIGION, SCI-FI LITERATURE, AND THE END OF OUR CIVILIZATION

*by Sebastian Musch*

*Abstract.* This article discusses the idea of an “Atomic Priesthood,” a religious caste that would preserve and transmit the knowledge of nuclear waste management for future generations. In 1981, the US Department of Energy commissioned a “Human Interference Task Force” (HITF) that would examine the possibilities of how to maintain the security of nuclear waste storage sites for 10,000 years, a period during which our civilization would likely perish, but the dangerous nature of nuclear waste would persist. One option that was discussed was the establishment of an “atomic priesthood,” an idea that science fiction writers like Isaac Asimov and Arsen Darney had already toyed with. Reading the HITF report alongside sci-fi novels, my article will shed light on the question of how the sheer force of nuclear power (and the longevity of nuclear waste) lends itself to religious interpretations and how the idea of the atomic priesthood is connected with the utopian/dystopian aspects of nuclear power.

*Keywords:* ecology; environment; eternity; God; nuclear energy; nuclear waste repositories; religion; science fiction

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In 1980, the Bechtel Group, the conglomerate then and now in charge of maintaining and securing several of the nuclear facilities on American soil, commissioned a “Human Interference Task Force” (HITF), which would “investigate problems connected with the postclosure, final

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marking of a filled nuclear waste repository” (Sebeok 1984, III/IV). The task of this report, which was later submitted to the U.S. Nuclear Regulatory Commission via the U.S. Department of Energy, was “to devise a method of warning future generations not to mine or drill at that site unless they are aware of the consequences of their actions” (Sebeok 1984, 149). As future civilizations might not be able to understand any of the human languages used today, or to decipher mathematical equations, nor to be perceptive to any other of our signs, the task boiled down to communicating danger beyond the confines of our own cognitive framework. Among the specialists involved was Thomas Sebeok, a noted semiotician, who proposed a disquieting idea: the foundation of a new religion that would ensure the transmission of the relevant information pertaining to the nuclear waste repositories. This so-called “Atomic Priesthood” would be accompanied by a set of artificial legends and myths, whose central message would be to make it taboo to approach certain “impure” sites where our civilization had buried nuclear waste. This new religion would also possess an accompanying scripture, which would subsequently be translated into the new languages that would arise over the next 10,000 years and thus assure the transmission of relevant knowledge.

Even though several of the other ideas that Sebeok had expounded upon in his own separate HITF report, entitled *Communication Measures to Bridge Ten Millennia*, ended up in the final report, the idea of engineering a new religion to protect nuclear waste repositories was apparently left out. It is easy to see why: Besides the deeply antidemocratic nature of the endeavor to create a religious caste that deceives the public (even a hypothetical future one) into believing in the supernatural power of nuclear energy, the plan also lacks feasibility, as Sebeok himself notes (Sebeok 1984, 24). The uncontrollability of future developments of the Atomic Priesthood also poses a further major obstacle. Every religion has its potential heretics and schisms. These possible developments and the subsequent calamities were already expounded upon by sci-fi writers who first introduced the notion of an “Atomic Priesthood” into the discourse on a nuclear future: Isaac Asimov, Arsen Darnay, and, with reservations, also Walter M. Miller, Jr. We find in their writings fictional executions of the idea of an Atomic Priesthood, which are not only rich in (sometimes outlandish) details, but also so clairvoyant that they actually illuminate Sebeok’s later report for the HITF.

Sebeok’s report and the mentioned sci-fi literature share a few implicit assumptions: both sides depict a certain affinity between the sheer force of nuclear power (and the longevity of nuclear waste) and new religious institutions. This, however, as needs to be pointed out, does not constitute an intrinsic causality (besides the obvious one that only the development of nuclear weapons in the 1940s and commercial nuclear power in the 1950s caused this to be a topic a sci-fi writer might consider interesting enough to

write about), but rather tells a story of two fitting phenomena existing in parallel in a certain period, which tend to gravitate toward each other. While their affinity is contingent on their simultaneous existence, it is, however, also a catalyst for the further development of both phenomena, as the amalgamation of religion and nuclear energy into the figure of the Atomic Priesthood bears witness to. My paper will thus discuss why nuclear power (and waste, because one cannot think of the former without the latter) lends itself to this connection drawn by Sebeok, Asimov, Darnay and Miller, and how the idea of religiously engineering an Atomic Priesthood is linked to the utopian/dystopian aspects of nuclear power.

#### SEBEOK'S IDEA OF THE ATOMIC PRIESTHOOD

Written messages, may they be in our contemporary languages, as mathematical equations, or in a technical language, are under the risk of incomprehensibility to future generations. The task of marking nuclear waste repositories thus faces the extreme difficulties of transmitting information over a long time period. The HITF assumed a time frame of 10,000 years, even though, as Sebeok readily admits, this time span is of course quite arbitrary and most probably also too short given that many radioactive substances have a much longer half-life (Sebeok 1986, 150; cf. Hauser 1984, 328 and Posner 1984, 203). Due to the increasing decay of information over time, Sebeok proposes a "relay system," which allows updating of the relevant information every three generations (Sebeok 1984, 26). Written warnings shall therefore be translated and adjusted to the changing linguistic and cultural realm roughly every 100 years. Yet, this measure alone was not deemed sufficient.

This message, however, would have to be supplemented by a meta-message—coded in the same combination of familiar verbal/verbal signs—incorporating a plea and a warning that the object-message at the site be renewed by whatever coding devices seem to be maximally efficient, roughly, 250 years hence. That future object-messages should, in turn, incorporate a similar meta-message for the generation 500 years from now to act comparably, and so on, and on, up to 10,000 years ahead. (Sebeok 1984, 26)

Since, as Sebeok notes, there is no way of knowing if the warnings from the relay system are heeded and would not actually attract intruders, for example misguided tomb raiders, he proposes the addition of "moral reasons" for avoiding these sites, "with perhaps the veiled threat that to ignore the mandate would be tantamount to inviting some sort of supernatural retribution" (Sebeok 1984, 27). This is where the Atomic Priesthood comes into play. It is a "built-in enforcement mechanism, . . . self-selective in membership, using whatever devices for enforcement are at its disposal, including those of folkloristic character," such as rituals and legends (Sebeok 1984, 28). It is thus a safety net to accompany other measures

in case they fail. As the “moral” dimension of the communication measures, the Atomic Priesthood provides a popular addendum to the rational reasoning of an elitist religious caste in charge of the relay system. At the same time, it involuntarily gives witness to the egregious hubris inherent in the very same idea that presumes the mastery of an elitist scientific caste and the seduction of the masses. Sebeok gives no further indication about the hierarchical structure, doctrines, or policies of the envisioned priesthood and therefore we have to rely on the imagination of sci-fi writers for discussing the possible implementations and consequences of Sebeok’s sweeping idea. Depending on how much influence nuclear power will have in our future (including both positive and negative scenarios), the effective power of an Atomic Priesthood could, in fact, be far-ranging. Before turning to sci-fi literature, it is, however, pertinent to illuminate further the relation between nuclear power and society.

#### NUCLEAR POWER AND SOCIETY—A FAUSTIAN BARGAIN

In the idea of establishing a religious yet scientific caste that guards the power and secrets of nuclear energy, utopian and dystopian aspects of nuclear power coalesce. On the one hand, nuclear power has regularly been viewed as a utopian instrument of infinite energy that presumably can provide prosperity for all. On the other hand, its inherent destructive potential gave rise to dystopian visions of nuclear war and eternal wastelands. Preserving the knowledge to implement the first and prevent the second was mostly thought of as the basic religious tenet of the Atomic Priesthood, besides the more practical goal of guarding the nuclear waste repositories. In the idea of the Priesthood we thus find a familiar feature of descriptions of our nuclear age (and future ones), namely the oscillation between a utopia and a dystopia. Apparently the sheer force of nuclear energy, its supposed endlessness, the potential havoc through nuclear weapons and the longevity of its fallout, triggers an existential response, a longing for an adequate rejoinder to the larger-than-life forces of nuclear energy.

Alvin M. Weinberg, one of the fathers of nuclear energy in the United States and the person credited with coining the term Atomic Priesthood, famously described in his article *Social Institutions and Nuclear Energy* the relationship between society and nuclear energy as a Faustian Bargain (Krause 2007).<sup>1</sup>

We nuclear people have made a Faustian bargain with society. On the one hand, we offer—in the catalytic nuclear burner—an inexhaustible source of energy. Even in the short range, when we use ordinary reactors, we offer energy that is cheaper than energy from fossil fuel. . . . But the price that we demand of society for this magical energy source is both a vigilance and a longevity of our social institutions that we are quite unaccustomed to. (Weinberg 1972, 33)

Weinberg further displays an almost limitless optimism regarding the environmental amenity and security of nuclear power, which seems nowadays incongruous in a post-Chernobyl, post-Fukushima, post-a-lot-of-other-instances age. His remarks are nevertheless illuminating, inadvertently so. Besides his unshakable dogmatic belief in the benefits of nuclear energy, he acknowledges the general problem of nuclear waste storage and the probable inadequacy of human societies to provide a satisfying solution.

We have relatively little problem dealing with wastes if we can assume always that there will be intelligent people around to cope with eventualities we have not thought of. If the nuclear parks . . . are permanent features of our civilization, then we presumably have the social apparatus, and possibly the sites, for dealing with our wastes indefinitely. But even our salt mine may require some small measure of surveillance if only to prevent men in the future from drilling holes into the burial grounds. (Weinberg 1972, 34)

According to Weinberg, nuclear waste therefore constitutes an almost eternal commitment, which can only be dealt with if we presume the succession of a perpetual social apparatus. He implicitly acknowledges the unlikelihood of this when he suggests (and by now we should not be surprised by this suggestion) the establishment of a hitherto-unknown social institution, namely a “military priesthood which guards against inadvertent use of nuclear weapons” (Weinberg 1972, 34). Apparently again and again a religious institution is seen as the only solution to the problem of the longevity of nuclear waste. Not by chance: from a long-term historical point of view, the social apparatus is prone to change and rather fugacious. In fact, our longest living aspects of the social apparatus are institutes of higher learning, that is, universities and schools and religious institutions, from which the former are an offspring. Universities, bearers of sciences, which might be considered the adequate place for ensuring “indefinite” custody of nuclear power and waste, are highly subject to their societal surroundings, which they also claim to serve. Religious institutions, on the other hand, appeal to an otherworldly or supernatural authority and, even though always societally charged, are obliged to contain a doctrinal kernel that provides a counterpoise to societal change. Following this argument, religious institutions are therefore more fitting than institutes of higher learning for providing long-term custody over doctrine, rituals, and, also, nuclear waste. Therefore, besides the underlying utopian/dystopian facets of nuclear power, the practical reason behind the idea of an Atomic Priesthood is that religious institutions have a proven record of longevity and have routinely outlived political entities, dynasties, and even civilizations. For an undertaking for which long-term survival is a prerequisite and long-term radiation the benchmark, religious institutions seem thus the most natural fit of all human inventions.

Alvin Weinberg makes no further explicit reference to the longevity of religion as pertaining to the longevity of radiation when discussing nuclear waste and the social apparatus, but his language is also charged with religious content. Faust, after all, sells his soul to the devil. Through the practical reason shimmers religiously enriched content. By describing the relation between society and nuclear energy as a “Faustian bargain,” Weinberg points toward an existential feature of scientific progress. As Neil Postman points out in his famous speech *Informing Ourselves To Death*:

After all, anyone who has studied the history of technology knows that technological change is always a Faustian bargain: Technology giveth and technology taketh away, and not always in equal measure. A new technology sometimes creates more than it destroys. Sometimes, it destroys more than it creates. But it is never one-sided. (Postman 2015)

This applies especially to nuclear energy, in such a way that humanity entered the Faustian bargain of worldly gains (prosperity and supposedly endless energy supply) against the backdrop of nightmarish devastation (nuclear wastelands or even the complete uninhabitability of the Earth). The inseparability of nuclear energy from nuclear weapons makes the Faustian aspect of this bargain even more conspicuous. The possibility of the doomsday scenario of the erasure of civilization as we know it turns this bargain into a vabanque game, a wager with humanity’s survival at stake, which goes against the imperative responsibility of humanity, as Hans Jonas argued: “Care for the future of mankind is the overruling duty of collective human action in the age of a technical civilization that has become ‘almighty’, if not in its productive then at least in its destructive potential”<sup>2</sup> (Jonas 1976, 77; see also Jonas 1984, 38).

Utopian and dystopian aspects of religion, artificial or not, reflect the innermost hopes and fears of a society as projected onto the “almighty.” By deploying a preliminary, certainly incomplete, yet for our purposes quite helpful definition of religion as “a set of symbolic forms and acts which relate man to the ultimate conditions of his existence,” it becomes clearer why nuclear power is so closely related to religiously inclined speech and interpretation (Bellah 1964, 359). The nuclear capacities, either as the promise of endless energy or as the threat of mass destruction, touch upon our existence, the *conditio humana*, in which we, as a techno-capitalist society, hope or fear to live. Supplementing the above definition with the René Girard assertion 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,” the Atomic Priesthood can be seen as a defense mechanism against humanity’s tendency toward violence against its own well-being, its proclivity to inflict havoc on its own kind and on its own dwelling, planet Earth (Girard 1977, 23). It is thus quite telling that, in sci-fi literature, which so playfully

engages with religion and the idea of an Atomic Priesthood, God as a metaphysical being plays only a minor role or no role at all. The Atomic Priesthood is routinely imagined as a religion, even often supplemented with supernatural underpinnings, devoid of God, because nuclear power has already assumed this role. Its “existential condition” brings us Heaven or Hell transfigured as nuclear prosperity or nuclear Holocaust.

#### THE ATOMIC PRIESTHOOD AFTER THE END OF THE WORLD AS WE KNOW IT

With the rise of nuclear energy (and weapons) around the mid-twentieth century, this subject also entered into sci-fi literature. As this kind of literature depends on conceptualizations of the future, it often dips into the utopia/dystopia genre. Its potential to stir humanity toward either one of these outcomes (actually and maybe unsurprisingly, sci-fi literature most often foresees a dystopian outcome), turned nuclear power into a frequent plot device to explain the transformation of humanity or the Earth. The immense literature that depicts human (or earthly) life after a nuclear war (to underline its severity it is often called “nuclear holocaust”), therefore picked up quite early on the implicit religious content of nuclear energy (see Brians 1987). Melding of the religious and scientific facets into one body was first done in Isaac Asimov’s *Foundation* series. This opus classicum of sci-fi literature (the first volume, *Foundation*, was published in 1951 and the series was later expanded), appears to be the first place where the idea of an Atomic Priesthood was proposed and developed. In this century-spanning epos, itself a cautionary tale on the “religion of science,” the science of “psychohistory” allows the prediction of future developments through several ten thousands of years with a certain probability. An underlying layer of the whole plot is the intertwining between reason and deceit. Even the guardians of reason, namely the encyclopedists entrusted with collecting the entire offspring of human reason, are deceived into their ultimately useless task. Deceit becomes a tool of rational persuasion and in a dialectical move ensures the survival of humanity’s achievements. The Atomic Priesthood is born in the same spirit and subsequently also becomes a deceptive instrument of the rational forces, that is, the Foundation that was designed to gather and preserve humanity’s knowledge, to exert power over less rational, more superstitious planets (Asimov 1952, 180). Nuclear capabilities are seen by the less technologically advanced peoples of these planets as magical power or as idolatrous. The intertwining of nuclear power and political power leads to the usage of the Priesthood for imperial purposes. Even the lower ranks of the Priesthood are convinced of the magical basis of their religion and only the priests at the upper end of the hierarchy still possess knowledge of the deceitful nature of the Priesthood. The Priesthood becomes, as time progresses, a weapon of political power

to subdue recalcitrant civilizations through their superior knowledge of nuclear power. In the name of reason these civilizations are subjected to a nuclear colonialism. Later, the Priesthood completely deteriorates into an irrational faith and its rational kernel lies in oblivion. This short outline of the history of the Atomic Priesthood in Asimov's *Foundation* series also serves as a cautionary tale for the fate of a hypothetical real priesthood instigated by the U.S. state apparatus. Is the portentous possibility of the subversion of a fraudulent instrument such as the Atomic Priesthood into a political power, including deceit and abuse, implausible? Rather not, it is a somehow conceivable idea and actually presents a paramount obstacle to the practicability or desirability of this project.

The variegated paths as depicted in the sci-fi novel that will be discussed in the following pages underline the necessities to think beyond the mere inception of the Atomic Priesthood and to play through possible developments in the near and distant future. These paths also include possible (but in the end unsatisfactory) answers to the question: How could the transformation of the Atomic Priesthood into an instrument of deceit and destruction be prevented?

Obviously one way to reduce the likelihood of instrumentalization of the Atomic Priesthood is to make the Priesthood actually believe in its own lies and myths. While the question of how exactly this could be deliberately accomplished must (for now) be left unanswered, Miller and Darnay have provided us different variations on this theme in their writings. The inherent hubris of the idea of deliberately establishing a deceiving religious elite is here subverted through monastery orders that protect the secret by genuine belief. Asimov answers the practicability of this ploy negatively: the inner circle must be a bearer of the secret or the secret will fall into oblivion. The consequences of this loss are acted out in the next novel, which played with the idea of an Atomic Priesthood—Walter M. Miller, Jr.'s *A Canticle for Leibowitz* ([1960]1997). In this landmark sci-fi classic in its own right, the Albertian Order of Leibowitz, a Catholic order of monks, becomes the sole preserver of the scientific knowledge in a savage world of anti-enlightenment. After a nuclear war, called by later generations "the Great Deluge," the remnants of humanity scorn all scientific knowledge and go on a rampage to destroy all scientific and technological achievements and the persons connected to them. One nuclear technician, named Isaac Edward Leibowitz, survived in hiding for the first years of the rampage known as the "Simplification" and later tried to perpetuate as much of the scientific knowledge as possible. In order to achieve this, he founded a Catholic order with the distinct goal of preserving and copying books and writings pertaining to the scientific advancement of humanity. The plot is set roughly 600 years after the "Great Deluge," when the order of Leibowitz is still preoccupied with copying the decaying books and manuscripts, even though the meaning of these writings is long forgotten.



The monks waited. It mattered not at all to them that the knowledge they saved was useless, that much of it was not really knowledge now, was as inscrutable to the monks in some instances as it would be to an illiterate wild-boy from the hills; this knowledge was empty of content, its subject matter long gone. (Miller 1997, 66).

The copying and preserving as such becomes an almost empty ritual that is only alleviated by a distant messianic hope.

Still, such knowledge had a symbolic structure that was peculiar to itself, and at least the symbolic-interplay could be observed. To observe the way a knowledge-system is knit together is to learn at least a minimum knowledge-of-knowledge, until some day—some day, or some century—an Integrator would come, and things would be fitted together again. (Miller 1997, 66)

*A Canticle for Leibowitz* exemplifies very well the stumbling blocks of religious engineering; Brother Francis, who in the first book (entitled *Fiat Homo*) discovers a “fallout survival shelter,” is anguished by what the shelter might harbor, for example the dreaded “fallout” (Miller 1997, 22f). His interpretation, as Susan Spencer points out, is entirely reasonable, as a shelter might be rightly understood as a “shelter of” instead as a “shelter from” (Spencer 1991, 336f). The problem Francis encounters in trying to decipher the sign FALLOUT SURVIVAL SHELTER is based on a breakdown of the chain of signifiers, which leaves Francis with an understanding of the singular words but causes a crass misinterpretation of the original content of the sign (Spencer 1991, 336f.). He reads the sign as pertaining to his own context, whereas the original meaning has been buried under the weight of time. After 600 years the pristine message of reason and science has been trumped by obscurity and superstition. This aspect cuts deep into the notion of religious engineering underlying the plot. A Jewish scientist converts to Catholicism (we are not told about his motives for conversion) and founds a religious order to preserve scientific knowledge, which is only later sanctioned by the Holy See (Miller 1997, 65). Unlike the founding of the “Church of Science” in Asimov’s *Foundation*, which involves a deliberate instrument of deceit, the Albertian Order of Leibowitz soon enough buys into its own legends.

In his report for the HITE, Thomas Sebeok recommends “that information 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 1984, 24). Sebeok goes further to argue that a set of artificial folk tales and legends would lay a “‘false trail’ meaning that the uninitiated will be steered away from hazardous sites 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 1984, 24). *A Canticle for Leibowitz* convincingly makes

the case that a scientific kernel so deeply buried inside religious wrappings might lose its meaningfulness and even the knowledgeable religious caste might believe its own “false trail,” with all the dire consequences that would entail.

In Arsen Darnay’s novel *Karma*, a rather obscure work of secondary literary quality, an Atomic Priesthood, already started secretly in the 1970s, still inhabits the remnants of a nuclear waste repository in 2159 (Darnay 1978, 192). After a nuclear war at the beginning of the twenty-first century, most civilizatory achievements have vanished and much of humanity has transformed into mutants. The Atomic Priesthood, having lost an understanding of the original meaning, lingers on as a “cargo cult,” which mimics the practices of the distant Golden Age when the repository was run by actual scientists. Their rituals include, for example, sitting on an office chair and placing their feet on the right corner of their desk, an imitation of a posture from an old photograph (Darnay 1978, 302). The original message of the Priesthood, namely to shield humanity from nuclear waste, is converted into the Priests’ desire to expose themselves to radiation as much as possible. The initial task is forgotten and their struggle for survival causes them to spread the message of “plutonium.”

In a stunning parallel with Girard’s notion of the mimetic double bind, the desire to disseminate the message of nuclear power, while staying close to it, in Darnay’s novel is rooted in a contradictory message, or rather reading thereof (Girard 1977, 147). To build a community around nuclear power, to become a secret’s keeper and to bury it deep in the ground is antithetical to the desire to preserve the nuclear energy and its relevance to humanity and spread the message among the people. In an otherwise disheveled plot, which features many dingy and questionable aspects, the scenes depicting the efforts of the monks, “the managers” as they are called, imitating the behavior of the twentieth century scientists as a religious ritual, are among the strongest (see Darnay 1978, 302). Its dubious literary quality, however, should not deter us from acknowledging that Darnay’s dystopian novel sharply points out an important facet of the future of any engineered religion such as the Atomic Priesthood, namely the unpredictability of the development of its doctrines. This versatility contravenes the original idea of planting a message to secure its unaltered transmission. The longevity of a religion only partly depends on the transmission of an inner ideological kernel; it also depends on the malleability of its surrounding aspects. The religious institution might persist, but religiosity could evolve up to that point where a complete reversal of the original doctrine prevails. Old habits are then read (and transformed) in the light of new religious inclinations. In Darnay’s short story “Aspic’s Mystery,” which belongs to the same fictional future as the plot of the *Karma* novel, an internal schism has occurred among the “Plutonium Priests” about the role of the priesthood pertaining to the radioactive material known as “Godbod” (Darnay 1976). As the

narrator, an elderly monk of the so-called Priesthood of Plutonium, relates in a jeremiad: “Today the Priesthood tells the people that it exists to serve *them*. The Abbot hasn’t said it in so many words (perhaps in deference to old men like myself), but he has implied that the brotherhood exists to *protect* the people *from* Godbod! Blasphemies are piled on blasphemies” (Darnay 1976, 62). The narrator even recovers old records from the “Golden Age,” which instruct the creation of a “new kind of ‘priesthood’ to watch over the waste, much as medieval monks watched over mankind’s written history” (Darnay 1976, 50). The narrator deduces that “waste” must be a code word to conceal the real task of the priesthood (Darnay 1976, 51). Here again the chain of signifiers is broken and the narrator’s struggle to extract the meaning from one of the “ancient” lab reports remains futile. The ramifications of the impermeability of the original meaning then has severe and even fatal consequences: just as the bodily reactions to radiation are read through religious lenses, the “Holy Sickness” is read as “Godbod’s [i.e., Plutonium’s] love” (Darnay 1976, 54f). A relay system, similar to that envisioned by Sebeok, has not only failed to assure the right interpretation of the scriptural remnants, but has inverted their meaning up to the point of a total confusion of signifiers. Darnay’s works can be read anachronistically as cautionary tales against the idea of an Atomic Priesthood, but they readily provide us a dystopian scenario not only of a nuclear future but of a religious future as well. The dissemination of a religious nuclear doctrine has not diminished the danger to humanity but further added to the nightmarish havoc wreaked upon mankind. Consequently, Darnay’s *Karma* ends with the explosion of a nuclear bomb, known as “The Prophet” to the monks. This explosion, eagerly awaited by the monks in their messianic zeal, wipes out the priesthood and inverts its original function *ad absurdum*. It is a pungent and terminal endpoint to the project of the Atomic Priesthood, highlighting again its unpredictability and absurdity (see Garfield 1994, 15).

#### WHAT WILL BE LEFT OF US?

Sebeok’s Atomic Priesthood was left out of the final HITF report (HITF 1984) and in fact few steps seem to have been taken to address the problem of “postclosure, final marking of a filled nuclear waste repository,” most likely because even the durability of most repositories has been put into doubt (Whipple 1996; cf. Hauser 1984, 328). In fact, although other solutions, such as constructing repositories under the ocean floor or shooting the nuclear waste into space, have been brought up, most of them, however, not feasible because of serious safety issues (Whipple 1996, 74). Nevertheless, a permanent repository in Finland is currently under construction. The operating company, Posiva Oy, assumes it to be safe up to a mind-boggling one million years (Posiva Oy 2012a, 7). The first batch

of nuclear waste is scheduled to be planted in the ONKALO repository in the 2020s and, according to their projections, the site's capacity will be exhausted in 2120, after which the repository will be sealed off (Posiva Oy 2016). As a safety assessment regarding inadvertent human intrusion, Posiva Oy bluntly states: "The probability of inadvertent human intrusion occurring is impossible to define" and that "it cannot be ruled out that future civilizations might undertake some drilling or tunneling for their own purposes which we cannot anticipate" (Posiva Oy 2012b, 459). As Michael Madsen's excellent documentary *Into Eternity: A Film for the Future* on the ONKALO repository and its philosophical implications highlights, two competing schools of thought exist—whether the sealed repository should be hidden from future generations or whether a warning system of some kind should be installed (Madsen 2010, 00:48:00-00:50:00). The first school argues that a warning system might actually rather draw attention to the site and that leaving no evidence of the repository would minimize the chance of human intrusion. There are compelling reasons for this argument and installing an Atomic Priesthood would certainly make the road more unpredictable and more dangerous. Unlike Asimov's psychohistory, in which every step is predictable with an absolute certitude, after an engineered religion and its centrifugal forces have been set in motion, its future path is uncontrollable. Heresy, basically inherent to every religious doctrine, poses a special challenge to an engineered religion such as the Atomic Priesthood, whose sole *raison d'être* is the protection of the nuclear secret (or of the location of nuclear waste repositories). The development that an engineered religion might take is out of the hands of its creators and, as Arsen Darnay illustrates, might even result in a completely different reversal of its original designated aim—not only can we find grave obstacles to the implementation of the Atomic Priesthood but, given that, if the plan would succeed, an actual Atomic Priesthood might be one of the last remaining legacies of our age, obviously besides the nuclear waste, one should be especially careful. We do have, especially in a nuclear age, as Hans Jonas argues, an ethical responsibility for future generations (Jonas 1984, 40)—not only for their future existence but also toward their condition, that is, their quality of life. The question persists whether an Atomic Priesthood can make a successful contribution to this condition, a claim which, however, seems rather doubtful. Envisioned by Sebeok as a safety net, the Atomic Priesthood might actually turn out to be a security loophole. However, as I would argue, the mere necessity of thinking in these terms points toward a more dire question: if we cannot guarantee a positive outcome, it might be unethical to wager on the future of others. This not only pertains to the notion of an Atomic Priesthood, but also to nuclear power in general. The proximity of utopia and dystopia is an indication of risk and also a sign of caution. The repercussions of our current behavior are undoubtedly tangible far into the future, and maybe

future archaeologists will categorize our civilization by its last remnants, nuclear waste and (as may be the case) the Atomic Priesthood.

Much as Brother Francis in *A Canticle for Leibowitz* stumbles upon an old forgotten fallout survival shelter, a future civilization might be unfortunate enough to find the last remnants of our civilization. Long after our civilization has seen its own demise, when our greatest deeds and thoughts are forgotten and our greatest monuments are crumbled into dust, nuclear waste repositories and their content will be the last witnesses to our time. That nothing ever achieved in our times will have the persistence of our nuclear waste is a vision dystopian to its core and yet sadly true.

## NOTES

1. Weinberg at a different occasion also called for “a cadre that from now on can be counted upon to understand nuclear technology, to control it” (Grossman 2011, 259).

2. Karl Grossman speaks of a “Faustian Fission.” Grossman’s article also uses the terms “Nuclear Cult” and “Nuclear Priesthood”; however, by these he refers rather to coeval religiously feverish nuclear scientists than to the idea of a priesthood for future generations. He also gives a good account of many other instances in which scientific discourse on nuclear power is conflated with religiously inspired language (Grossman 2012).

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