

Resurrection from Bunkers and Data Centers

Adam Fish and Bradley L. Garrett

Abstract

Bunkers are imposing physical objects that reveal surprising insights into how humans attempt to control time. This brief article investigates how concepts of time are structured through the architectural form by comparing two types: bunkers built to preserve human life and bunkers built to preserve data, or data centers. Though these two bunkers differ in what they seek to protect, each hinges on resurrection. In other words, the success of the bunker requires the emergence of its contents (people and/or data) at some point in the future. Where emergence is premature or never takes place, the temporality of the bunker is interrupted, rendering its materiality moot; unplanned interruptions may have serious consequences for life and death.

Introduction: Materiality → Temporality

‘If our planet remains a self-sustaining environment, how nice for everyone and how bloody unlikely,’ she said. ‘Either way, the subterranean is where the advanced model realizes itself. This is not submission to a set of difficult circumstances. This is simply where the human endeavor has found what it needs.’ -Don DeLillo (2016: 339)

The bunker is a securitized storage space that bodies, objects, and materialized information enter in defense against anticipated threat. The mountain or cliff cave was humanity’s prehistoric bunker - a geological gift of sanctuary - where our ancestors lived, stored food, and buried their dead. Bunker development, from excavation and underground construction, co-evolved with agricultural sedentarism to protect grain, living people, and stored riches, with these bunkers always outliving their harboured artifacts, and the people who built them. Conceptualisation of these spaces thus lies at the intersection between the materiality of the bunker and temporality of its contents, though scholarly attention has been drastically weighted toward the former.

As two archaeologists interested in time’s interplay with material remains, we seek here to veer from focusing on the bunker’s dense form, where it has been described as ‘a pure representation of function in poured concrete’ (Vanderbilt 2002: 36) or as a kind of architectural ‘concrete blankness’ (Beck 2011: 81). Instead, we focus on the temporal rhythms of emergence from the bunker. Its vital temporality makes the bunker an existential place: a socially and culturally constituted womb from which objects, people, and information are meant to be recovered - and a tomb when recovery becomes impossible. As we examine below through several case studies,

the temporality of the bunker is binal: in some instances, the securitized space functions as intended and at other times that process is disturbed, radically or subtly. Data decay, memory loss, and death result.

We term the failure to recover the contents of a bunker on time - whether early, late, temporarily, or permanent - an interruption. While the bunker is designed and imagined as a preservation architecture, it is also always only a semi-closed system; entropy remains inevitable. As greater importance has been assigned to protection over the course of human history, the bunker has become increasingly ubiquitous and its temporal rhythms more variable. The temporality of bunkers, and their potential interruptions, are defined by the (im)mobility of their contents as well as externalities linked to geography, the geopolitics of human crisis, and the human geology of the Anthropocene, these three horizons of time and transformation being linked. Thus, the bunker is not only an architectural form but a historiography, a way of ordering things in time. Time is primary in bunkers and architectural forms follow this temporal necessity.

Utilizing current fieldwork in two types of bunkers - the 'body bunker', as examined through doomsday 'prepper' compounds in the United States and the 'byte bunker', refracted through information infrastructure such as data centers in Iceland and undersea cables in Denmark - we highlight the important shared practices of time and recovery. Our examination and fieldwork reveals that the body bunker is created in anticipation of future catastrophe and the byte bunker made for perpetual withdrawal. With an emphasis on the relationship between media systems, materiality, and temporality, we link the body bunker and byte bunker, showing how time is factored by systems of hard power.

In comparing body and byte bunkers, German media theory has been a valuable resource. This framework is archaeological, in that it emphasises the relationships between technological materiality and social processes. The most enigmatic and indicative theorist in this vein is Friedrich Kittler, who expanded upon Foucault's (1969) archaeology of knowledge. Foucault foregrounded the role of the archive - and the rules, laws, and forms of soft power articulated within - in governing both subjective and objective social realities. Kittler's oeuvre, however, went further and included technologies as systems that pre-determine social action.

Kittler also highlighted temporality. He lambasts philosophers for not understanding 'media as media' (Kittler 2009: 23), that is, as technical mediators through time and across distance. We follow Kittler in surmising that materiality and temporality are deeply interlinked. Kittler's insight comes from meditation on the work of Martin Heidegger but also the Canadian media theorist Harold Adam Innis, who made major contributions to understanding the relationship between media materiality and temporality.

Innis's (1951) theory of the relationship between media technologies, time, and space is helpful in positioning objects of gross durability such as data centres and body bunkers in light of their temporal achievements and aspirations. Simply put, Innis wrote that media technologies are vehicles for transmission across either time or space. Hard, physical media - pictographs, stone etchings, books, architecture, as well as memorized oral traditions - are time-biased media, they communicate into the future. Here we would be wise to recall Bruno Latour's aphorism that 'technology is society made durable' (1990).

Ephemeral media on the other hand - radio and television, for instance - are space-biased according to Innis, designed to unify dialogue across geography. Kittlerian media archaeology, of course, would challenge Innis's hard/time, ephemeral/space duality by refusing to disconnect media effects from media technologies and would hold that while some media are better at eclipsing space than others, those very same media consist of hard, durable forms. In this article, we are influenced by Innis and Kittler, positioning the body/byte bunker as a material object whose effect is temporal. Emergence in time determines the material form of the bunker, not the other way around. Within this framework of time mediating different forms of materiality we compare temporality and interruption in two archival spaces, one for temporarily preserving bodies and another for saving and transmitting data.

Body Bunkers

Bunkers have always been socio-political spaces in which temporality is defined by the imagination of a potential crisis or catastrophe. In Cappadocia, in what is now central Turkey, humans have lived in carved-out caverns for over 5,000 years. These spaces, some of which stretched to 113 meters deep, served as shelter from both climate and attack and, later, acted as spaces for the protection of Christian clergy and the symbolic artifacts they carried. By the Middle Ages, the bunker - and often adjoining escape tunnels - increasingly served to protect the bodies of the elite. In the politics of this period, the sovereign held the most important 'data' within and near them - their genes and ritual objects - so the weathering of crisis and reemergence of the body sovereign from the bunker was paramount to the preservation of social and political order.

During World War II, as aerial warfare drove people deeper underground (Graham 2016) the bunker was democratized from a space of monarchical sanctity to a public infrastructure where, for instance, in London the underground (Tube) network became sanctuaries from aerial bombardment. Here, in the context of global war, the protection on the body of the public was the critical function (Tube stations also protected public artefacts - cultural data - relocated from the British Museum). Equally, during the Cold War, the protection of the 'nuclear family' in small kin-based backyard bunkers during an Intercontinental Ballistic Missile (ICBM) exchange, was key to the recovery of liberalism. Democracy, it was imagined, would be reformed by the

practiced and prepared who would re-emerge into the post-apocalyptic milieu, communism having vanished in a toxic cloud. Clearly, emergence on time is of central importance to the body bunker.

Today, we are turning to a new model of the body bunker, where citizens anticipating large-scale social, environmental, and political collapse purchase bunker space with groups of 'like-minded' individuals. In South Dakota, in the Midwestern United States, a 6,000-acre expanse of property containing 575 bunkers has been acquired by the Vivos Group. Built by the Army Corps of Engineers in 1942, the site was originally an ordnance depot, where munitions were stored in semi-subterranean reinforced concrete 'igloo' shelters. The remoteness of the site, and the material resilience of the igloos, makes it ideal for repurposing as a bolthole. Vivos frames the site as the *xPoint*: the point from which humanity will be reborn, describing the real estate venture as an 'epic humanitarian project' in which .01% of the world's population will survive the next great extinction event. As the CEO explained to us, 'this is not a story about concrete or steel... it's a story about the people and the community that is going to arise in the aftermath.' (Figure 1).

In visiting almost a dozen bunkers on site, it was clear there was a range of debate amongst residents over how long they would need to stay in their igloos during the cataclysm so as to be able to safely 'cross' into the new world. One resident, who was laying a floor as we interviewed him, told us that he had a year's worth of food on hand, stored in 25-year cans, and that he would have solar panels and a wind turbine in place feeding a battery backup system so that he and his wife would not need to adjust their lifestyle during the 'crossing time'.

'And look at this', he said, moving aside some tools to reveal a black 50-gallon drum. 'If something knocks out the solar and wind, I'll have enough diesel in here to run a generator six hours a day for the whole year.' When asked why he expected to be sealed in his bunker for a year, he said 'well I hope it's not a year, I'd like to come out earlier, but you just don't know until you open that blast door, and opening it early could be the worst mistake you ever made.' Clearly, the igloo was being kitted out with time in mind. (Figure 2).

What is shared across this two-thousand-year timespan and varying socio-political catalysts is this: if the bodies - valued for the data within them or not - do not emerge from the bunker at the correct time, the body bunker has failed its purpose. There is an anticipated temporality in each case; an expectation of how long shelter must be sought before the danger has passed and re-emergence is possible. This temporal rhythm, from the archaic cave to contemporary doomsday boltholes, must outlast the length of a siege. The body bunker thus is defined not by its form but by its function, which is resurrection, as philosopher Paul Virilio (1994: 46) makes clear:

The function of this very special structure is to assure survival, to be a shelter for man [sic] in a critical period, the place where he buries himself to subsist. If it thus belongs to the crypt that prefigures the resurrection, the bunker belongs too to the ark that saves, to the vehicle that puts one out of danger by crossing over mortal hazards.

Virilio suggests that the bunkers materiality hinges upon its contents, not its construction, and the bunker is defined by the temporality of those contents - to the extent that its materiality is subsidiary to its temporality. An 'ark that saves' is pointless if left empty or if the promised 'crossing over' never takes place.

Returning to the South Dakota igloo a year later, the resident we had spoken to told us that the bunker field had flooded over the winter season. 'Water was halfway up the blast door and got inside, so we had to put on a new door seal'. We suggested that since he imagined he would not be able to emerge from the bunker during the speculative crisis he was building for, an external threat such as a flood or an assailant clogging the ventilation shaft might pose a serious problem, since he would need to interrupt his interment to address the danger. 'I know, I know' he lamented, 'we've really got to figure out how to stay inside until the time is right'. If we follow Latour's previously mentioned suggestion that 'technology is society made durable', then the durability of this bunker lies in its ability to transmit the resident and his wife into the future, including the data it contained in their heads (knowledge) and bodies (DNA). Our point is that just as bunkers are temporal technologies, contents are always also data. Virilio's imagination of the bunker's contents never extends beyond the corporeal, despite his eschatological training, he did not foresee situations where the 'data' being protected by bunkers no longer requires the container of the body. Or, more to the point, we ask, what is the resurrection temporality of a bunkered data body? To further explore this question we look towards the temporality of byte bunkers, more commonly known as data centers.

Byte Bunkers

A trend in critical media studies emphasizes the materiality of information systems, affordances, platforms, networks, and infrastructure (Parks and Starosielski 2015). This approach takes as its goal a rejection of data immateriality and the attendant logics of utopianism of 'friction-free capitalism' - a digital capitalism unfettered by geology, geography, ecology, and geopolitics. Following this line of reasoning, we show how the temporality of the byte bunker - the data center or server farm - is conceptualized in terms of geographical isolation. The temporality of these spaces can be seen in both the securitization of space but also during transmission and interruption.

Byte bunkers are repositories for information, the central archives for our digital lives. The proposed goal of the byte bunker is perpetual and private personal access and preservation limited only by personal desire. At impressive costs, energy demand, and environmental impacts, these vast warehouses consisting of few workers and stacks upon stacks of networked computers, are unceasingly functioning to keep bytes alive and constantly available to remote clients anywhere in the world. The promise is permanent data storage, capable of weathering crises of natural and human nature. Consider the Verne Global data center in Iceland, a site we toured under the watchful eye of the Chief Technology Officer.

Our access was prescribed by time. Scheduling a visit took months of preparation and had a pre-ordained duration. We were confronted by distinct ‘challenge points’ during our movement to the stacks: both physical barriers such as man-traps and rigorous authentication procedures. Security here is not only architectural but also informational with multi-terabyte, multi-redundant connections linking Verne Global to other locations where redundancy in infrastructure and duplication of files (or ‘mirroring’), we were told, would avert untimely interruption and also assure the data could be retrieved ‘on time’, in perpetuity - by the right people with the correct clearance. In this manner, the data center stubbornly denies time, suggesting, like the doomsday bunker, a negentropic fantasy where decay, unplanned loss and death are stalled until called back into play. The bunker is, in many ways, the terminus of anthropocentric hubris.

When interruptions occur, as they do, the fallacy that time can be indefinitely governed is exposed. Hacking, exfiltration, and other forms of precise ruptures in data center security are only the most obvious. Other, more sublime and accessible forms of interruption are possible. We returned to the Verne Global data center a year after our first visit, this time armed with a unmanned aerial vehicle or drone. We conducted several aerial surveys, one across the northern face of the building, and another which peered down into the exterior center of the data center (Figure 3). This unauthorized examination from the air, we would argue, constituted a gentle interruption, not quite an illegal exfiltration; but an unplanned extraction of data nevertheless.

Now we turn to another data center in Iceland - one that did not grant us access. The Advania data center is situated, like Verne Global, between Reykjavik and the Keflavik airport in Iceland. Somewhere amongst the lava flows covered in thick green moss this data center harbours its secrets, uninterrupted by our presence and cameras, flying or otherwise. Yet, Advania was the site of a radical interruption. The Silk Road was a darknet site once accessed through anonymizing browser TOR and accepted anonymous bitcoin as payment for its myriad offers - illegal drugs being the most notorious.

In 2014, Silk Road founder Ross Ulbricht was arrested after the Silk Road server was seized from the Advania data center. Much evidence used against Ulbricht in court came from information retrieved from the server. Ulbricht and Silk Road users held the expectation that the

server holding data regarding the transactions would be privately preserved, yet Advania complied with a warrant and an FBI agent's wishes and the sanctity and longevity of the servers were disturbed. In this case, the data interruption resulted in the body bunkering of Ulbricht in a federal penitentiary for the remainder of his life (Srinivasan and Fish 2017). Where we failed as researchers to interrupt the sanctity of this data center with our cameras and questions, the FBI was successful, and the result was the radical interruption of one criminal's existence.

Other political projects, whistleblowing organization WikiLeaks and illegal torrent site Pirate Bay, have also experienced radical interruptions through police seizures of servers. Safe time, for data activists, is precarious. Their solution to this insecurity is mirroring their content around the world (Fish 2016). This approach does not work for everything, particularly not bodies. The body bunker's content is unique, irreplaceable, and non-transferable, being an individual consciousness, biological entity, or anthropomorphized icon. The stuff of byte bunkers, in contrast, is mobile and can be distributed at nearly the speed of light, at the right time - which is anytime - with the correct command by an authorized human. The everytime ideal of the data center can be interrupted in both subtle ways - through access and atmospheric fieldwork and also more profound ways, through intrusion by court-ordered police officers. By turning from a theory of materiality to temporality, we see clear differences in regard to *when* bytes or bodies are designed for exit.

Time's Consequences

Body and byte bunkers converge in surprising areas. Consider the beaches of northwest Denmark where five undersea fibre-optical cables—CANTAT-3, DANICE, Havfrue, and TAT-14 come ashore linking Europe to the United States, Iceland, and beyond. To get to the data centers and transmission houses, these five cables burrow through the sand directly under Nazi bunkers constructed near the end of World War II, the reinforced concrete offering protection to the conduits. Here a story of data transmission and storage literally cannot be told without coming into abrupt contact with body bunkers. These bunkers are weathered by sand storms, eroded by vandalism, and loaded with graffiti of mixed ages and origins. In this way, the workings of time - the stratigraphic layers of culture, history, and erosion - cannot be ignored in the engineering of the global internet. Materiality is impossible to ignore; yet attention to it is an opportunity to witness the passage of time. Interruptions are self-evident at this site. The Nazi soldiers that once stuffed themselves into this bolthole are gone, along with the Third Reich, interrupted by Allied forces. The cable that snakes under the bunker is now threatened, sailors are warned by a line of targets the exact location where not to drop anchor (Figures 4, 5). If they do so they will interrupt internet time, suspending the flow of information from location to location.

As two materialisations of time-biased media (with important space-based components), the body and byte bunker can be seen as tools for the continuity of empire. Power and knowledge are

linked, or as Innis (1951: 10) states, ‘the sword and the pen worked together’. Today’s bunkers promise to preserve the bodies of those who can afford to invest time and money into them. Likewise, while access to cloud servers is relatively democratized for individuals interested in small file storage, the use of data centres for large scale data preservation and out-of-time access is an expensive service for only the world’s most profitable companies. Just as the rich may imagine only they are prepared for impending calamity, timely retrieval from these byte bunkers is a service reserved for economic elites.

The privatization of living or archived life - in the form of well-equipped bunkers or for-profit data centers - and the ability to come and go as desired, follows the privatization of public space, the centralization and commodification of the networked public sphere, and other conscriptions of environs of living flows attendant with the neoliberal turn in Western societies over the past four decades. The temporal fixing of space we see in our examples are not unique in this regard. Above ground, the atmosphere is threatened with privatization for the benefit of technology companies and their delivery drones (and the prohibition of our data center drone experiment), the terrestrial environs are fenced, locked, and securitized in now obvious ways, and the subsurface is penetrated, reordered, and enclosed into exclusive domains (Garrett and Fish 2016, Garrett 2018).

But while privatization continues unabated, and the archive and its record of rules and morals for indoctrination can be a tool for the continuity of subjugation (Foucault 1969), the archive also harbours within it the informational heritage of humanity and data about the ecological and biological richness of the planet (imagine, for instance, global seed vaults *as* data centers). The bytes and bodies are everyone’s; we have a right to preserve and access this information. Its interruption - like its secluded privatization - threatens global heritage. The question is: who will we trust to build these bunkers for our inheritance, where will they be, who will have access to them, and, most importantly, when will access be given and when will it be taken away? These are matters of life and death, of resurrection and interruption.

Regardless of its geographical context or contents, the fundamental point of the bunker - when and how to emerge from it - remains paramount. This imagined resurrection is coordinated with the end of crisis in the body bunker or perpetual and planned extraction in the case of the byte bunker. Interruption - the antithesis of expectant continuity - is inexorable in all cases and girds the capacities for life and death harboured within them. Our considerations here complicate the notion that the bunker is primarily defined by its materiality and make clear, instead, that the bunker’s primary attribute is in fact its temporality - its space in time.

References

Beck J. (2011) 'Concrete ambivalence: Inside the bunker complex', *Cultural Politics* 7: 79-102.

Delillo, D. (2016) *Zero K*. NY: Scribner.

Fish, A. R. (2016) 'Mirroring the videos of Anonymous: cloud activism, living networks, and political mimesis'. *The Fibreculture Journal*, 26.191: 85-107.

Fish, A. R. (2016). **Mirror**. In B. Peters (Ed.), *Digital keywords: a vocabulary of information society and culture* (pp. 217-226). (Princeton Studies in Culture and Technology). Princeton: Princeton University Press.

Foucault, M. (1969) *The Archaeology of Knowledge*. A. M. Sheridan Smith (Trans). London: Routledge, 2002.

Garrett, B. (2018) 'Who owns the space under cities? The attempt to map the earth beneath us, *Guardian Cities*, available at: <https://www.theguardian.com/cities/2018/jul/10/who-owns-the-space-under-cities-the-attempt-to-map-the-ground-beneath-our-feet>

Garrett, B. and A.R. Fish. (2016) 'Attack on the drones: the creeping privatisation of our urban airspace', *Guardian Cities*, available at: <https://www.theguardian.com/cities/2016/dec/12/attack-drones-privatisation-urban-airspace>

Graham, S. (2016) *Vertical: The City from Satellites to Bunkers*. London: Verso Books.

Innis, H. (1951) *The Bias of Communication*. Toronto: University of Toronto Press.

Kittler, F. (2009) Toward an Ontology of Media, *Theory, Culture, and Society*. Vol. 26(2–3): 23–31.

Mattern, S. (2013) 'Infrastructural Tourism', *Places Journal*, available at: <https://placesjournal.org/article/infrastructural-tourism/>

Parks, L. (2009) 'Around the Antenna Tree: The Politics of Infrastructural Visibility', *Flow*, available at: <http://www.flowjournal.org/2009/03/around-the-antenna-tree-the-politics-of-infrastructural-visibilitylisa-parks-uc-santa-barbara/>

Parks, L., & N. Starosielski (2015) *Signal Traffic: Critical Studies of Media Infrastructures*. Urbana: University of Illinois Press.

Srinivasan, R. and A.R. Fish (2017) *After the Internet*. Cambridge: Polity Press.

Vanderbilt, T. (2002) *Survival city: adventures among the ruins of atomic America*. New York: Princeton Architectural Press.

Virilio P. (1994) *Bunker Archaeology*. New York: Princeton Architectural Press.





