Traces of a Spatial Relic:
Encountering the Observation Bunker of Heuqueville

By
Petros Philippos Kapetanakis

A thesis submitted to the Faculty of Graduate and Postdoctoral Affairs in partial fulfilment of the requirements for the degree of
Master of Architecture

In
Azrieli School of Architecture and Urbanism
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This thesis aims to exemplify how the immaterial qualities of a site and space can be communicated through the medium of virtual storytelling. The project emerged from the realization that architectural remnants or “Spatial Relics” of the Second World War are left largely unprotected and under documented. At the end of the military conflict, action was taken to extract all movable artifacts in order to avoid the possibility of theft or redeployment. In most cases, following this extraction, the physical space was abandoned, and left to the mercy of either the elements or to the discretion of the local public and private landowners. From this seeming disregard for the “Spatial Relic,” came the desire to demonstrate that the original sites are as valuable as the artifacts themselves.

To address this condition, this paper focuses on a chain of bunkers lining the Atlantic beaches of Normandy, France; specifically, an Observation Bunker located at the outermost edge of the town of Heuqueville. To valorize this endangered place — now closed to the public because of structural concerns — I propose a digital experience that celebrates discovery, exploration, and dwelling. To that end, I have created a digital model of the bunker in its current state using Unreal Engine 5.1.

Thank you to my professor Stephen Fai, for providing the opportunities throughout my education that have allowed me to become the person I am today, and for introducing me to the world of heritage architecture.

This thesis is dedicated to my loving parents, who chose a life away from their family to provide me with the education that they did not have the opportunity to pursue. To my roommates Yana, Alexis, and Mia for helping me at every point through the journey, and to my best friend Faelan, for staying up with me each night to work.

Lastly, I would like to thank those who have, and continue to document that Atlantic Wall with the goal of its retention in history. Without these efforts, the research completed in this thesis would not have been possible.
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Introduction

For governments, municipalities, and architectural historians alike, German-built World War II bunkers seen across Europe are problematic built forms. The productions of wartime strategic thinking, bunkers as specific constructions do not attract the attention of research and design analysis and evade architectural histories. Paul Virilio’s Bunker Archaeology notwithstanding. On the other hand, these imposing concrete residues of the Second World War profoundly mark and transform the territories and human landscapes in which they are located. It is not surprising that these structures fascinate the public and that information about them – while scarce in official documents – are abundant on the internet. This thesis interacts with public web sources of knowledge about specific bunkers, the Heuqueville Observation Bunker in Normandy, with the intention of creating a digital model and virtual experience thereof. The idea is to invite visitors into this bunker remotely, and this, with a fourfold aim: (1) to remember its origins and inscription within the European Theatre of World War II; (2) to track its evolution, changing meaning, and associated stories, through the decades since its construction; (3) to understand it as a physical entity, serving as the grounds for the user to explore the space; and (4) to orchestrate a digital recreation of the site to act as the grounds for these narratives to be told. The thesis probes this specific outcome of “building strength” (Baustärke) for answers regarding how to live alongside residues of war, and how to remember them as architectural heritage.

Due to the sheer number of these bunkers, to physically preserve them would be impossible, and to selectively pick apart which of these to preserve would only become a continuation of their current conservational paradigm. This thesis aims to make the experience of discovering the Heuqueville Observation Bunker possible. To this end, the thesis constructs a virtual model of the latter. The research phase did not include travel to the site. The thesis therefore relied entirely on external, existing documentation, and more specifically, on websites and blogs produced by persons who nurture an interest in documenting the Atlantic Wall. Through the extended use of forty-four images which depict the bunker’s surroundings and interior, a place was recreated - serving as the grounds for the user to explore the space.

In the stead of any municipal or governmental action discoursing the physical state and role of similarly positioned fortifications, it is the local and touristic efforts that have emerged over the course of recent decades to record these scattered German fortifications. In the absence of any municipal or governmental action discussing the physical state and role of similarly positioned fortifications, locals and tourists, and lastly (4) to orchestrate a digital recreation of the site to act as the grounds for these narratives to be told. The thesis probes this specific outcome of "building strength" (Baustärke) for answers regarding how to live alongside residues of war, and how to remember them as architectural heritage.

As architectural practice grasps the art of communication, the methods selected to do so have a direct influence on the type of information being conveyed. Within this endeavor to expose the truths of the Heuqueville Observation Bunker, the methods chosen to do so directly affect the narratives conveyed. In this sense, the medium is perceived as a tool. The means in which the Heuqueville Observation Bunker has been documented, with the exception of writing, do not directly convey the immaterial, or ethereal nature of the site. By studying digital photographs of the fortification as an example, one can passively create an understanding of these to preserve would only become a continuation of their current conservational paradigm. This thesis aims to make the experience of discovering the Heuqueville Observation Bunker possible. To this end, the thesis constructs a virtual model of the latter. The research phase did not include travel to the site. The thesis therefore relied entirely on external, existing documentation, and more specifically, on websites and blogs produced by persons who nurture an interest in documenting the Atlantic Wall. Through the extended use of forty-four images which depict the bunker’s surroundings and interior, a place was recreated - serving as the grounds for the user to explore the space.

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To unpack the story of the Heuqueville Observation Bunker, the factors that led to its creation along with those that have affected the space over the last 80 years must be recorded and analyzed. Though identifying traces of the past is commonly an observational practice that investigates human activity and natural deterioration, it is also crucial to recognize the indirect influence of societal, economic, and political climates to understand the logic behind the bunker’s design. The events that prompted the redefinition of what a fortification is, allowed for the reevaluation of their form by means of programmatic diversification. The response to aggressive political stances, paired with rapid developments in technology during the 1930s and 1940s, facilitated “why” these buildings were constructed, whereas understanding their form and means of construction gives an indication to “how.” However, this study answers half the question; the remainder lies in analyzing the events that happened after their construction, as explained in Chapter 2, Tensions. By following the same methods, tracing their conditions will reveal what influenced a shift in the bunker’s physical form from the moment of its construction to today.

This analysis acknowledges that the fortifications being studied are a direct product of absolute war committed by the Third Reich. Countless heinous acts of aggression targeted civilian populations, aiming toward the militant establishment of the Nazi regime. Those who survived its calamity have been forever scarred by these events both through the memories of a time rather forgotten, and physical remnants that stand as reminders of tyrannic oppression. It is important to note for the remainder of the thesis, that although the bunkers discussed are seen in a new light which advocates for their place in history and architecture, these buildings continue to exist as a painful – permanent sight for many of those who reside alongside them involuntarily.

Though throughout this investigation the political parties associated with the bunker’s existence are not referenced to directly, focus is drawn to the specific series of events that cumulatively depict why and how the bunkers were created. This analysis views these structures as part of a larger historical narrative, separate from the intentions of their original designers. As such, this chapter does not serve as a political commentary, but rather invokes past events, attitudes, and intentions to give reason to the physical manifestations of war.
The style of fortifications contained within the Regelbau are based on the principles set by the Bastion fort, or “trace italienne.” Strategically, this style of defensive architecture hosted wide, low walls whose positions eliminated blind spots, and created opportunities of overlapping coverage during an attack. Through the years of 1937 to 1938, as translated from Dieter Bettinger and Martin Büren’s, Der Westwall, “fortress engineers” or “fortress pioneers” made a series of improvements and modifications to the form and functionality of each construction. During the two years following the outbreak of World War II in September of 1939, a multitude of programs under the supervision of the Todt Organization saw the reexamination of bunkers through simplifying their design and increasing proportional width. As the years progressed, the design and formal qualities of the Regelbau changed according to feedback provided from the field to allow for the continual updating of the system. Acting as the primary methodology adopted for the design and construction of the Atlantic Wall, the final attempt at the system’s use was seen in 1945. The Wetterau-Main-Tauber and Neckar-Enz Position were defense lines created as a final resort in response to advancing Allied forces from the west. (Figure 2)

World War II saw the sprawl of numerous infrastructural networks that were constructed both prior to, and during the War. Following the succession of World War I, a component of the Treaty of Versailles outlined that Germany dismantle its defensive borders with France to the west. As with the coming of the 1930s and the rise of the Nazi party, these previously disarmed borders became re-fortified with the construction of the Siegfried Line - a 630 km wall composed of bunkers, tank barriers, traps, and tunnels. (Figure 1) In the attempt to efficiently develop infrastructure of this scale, an organization of bunker types and prefabricated elements spawned the first instance of the Regelbau system. This method of mass standardization outlined the formal components of a bunker to allow for an unskilled workforce, ease of manufacturing, a reduction of material costs, and time-effective construction.
Although both powers strategically operated in the same manner, their economic and social realities highlight the intentions of the fortified beaches’ design, and explain the methods that constructed them. Across the channel, the airborne events of 1940 had set the tone to make the entry of occupied France an unfeasible task. In fear of invasions, Directive 40 was signed by the Führer in 1942 as fear of invasion became an overwhelming precedent. The directive initiated the construction of a 5,200 kilometer long defensive network of isolated fortifications, belonging to the Regelbauten categorization. Stretching from the western-most borders of France, onto the north-eastern point of occupied Norway, this structure of interconnected and systematically categorized bunkers aimed at prohibiting the entry of a foreign invasion.13

The role of the bunker in question, becomes revealed through understanding the causes and effects of the tensions between Germany and Britain throughout the progression of World War II. As the geographical conditions of these opposing forces meant for their separation by the English Channel, an advanced approach to defense logic and planning was upheld by both sides. With the fall of Belgium, Denmark, Norway, and the Netherlands in the spring of 1940, German advances within mainland Europe aimed toward the dismantling of all remaining French forces and the creation of a unified border opposing Britain. Following the defeat of French forces and the signing of surrender terms to the Third Reich on June 21st 1940, the country was split into two portions, wherein the southern population lived free of German rule and was coined the ‘Free zone,’ the northern majority became fully mobilized, flooding around the western shores and onto its borders with Spain.14 As forces ravaged through cities, towns, and swaths of farmland, both German and British forces recognized the need to develop a defensive barrier capable of resisting an ocean-bound invasion.8

From September 1940 until May of 1941, Britain was subjected to numerous bombings from German forces that became known as the Blitz. Though this series of attacks incessantly devastated civilian populations, it did not mean the defeat of morale felt across the British population. As the determination to rise against the opposing powers in Europe grew, victories of the Royal Air Force sustained the country’s survival and created a stalemate amongst opposing sides.16 Operation Overlord outlines the assault launched by the Allied forces against the German occupied beaches of northern France. It was this event in which the Atlantic Wall was built in preparation for, leading to the events of D-Day of June 1944.15

The approach required to invade the occupied territories of France required entry by air or by sea. As such, a reevaluation of fortification approaches, defensive, and offensive strategies were necessary. Britain’s focus on offensive measures led to the development of a fortified beachfront, which contained a variety of structures, obstacles, and supporting infrastructure. Built constructions included a diverse selection of pillbox configurations, observational bunkers, manned posts, and fortified city (or town) buildings.

Though there existed a catalog of fortifications types, many dissimilarities in bunker design, apart from their general categorization, meant a large discrepancy in the levels of protection they offered. Regardless of the roles certain fortifications were expected to perform, tests found that even the largest sectional wall component could not withstand a standard, 25mm tank shell. Yet categorized as shellproof, wall thicknesses varied from 12 to 36 inches, where those that were constructed under these provisions were considered bullet proof.17

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The beaches and dunes along the entire coast were declared prohibited areas (Sperrgebiet) in April 1942. A general building prohibition was in place from 1 July 1942, because a large part of the building capacity was needed for the construction of the Atlantic Wall. The original plans provided for the construction of 15,000 bunkers on the Dutch, Belgian and French coast. However, due to lack of manpower, material and fuel, only 6,000 bunkers had been completed by the deadline of 1 May 1943.\(^14\)

One of the primary requirements to construct these structures on such an ambitious scale was the recruitment of a sufficient workforce within such a limited timeline. Though the state of the Wall’s construction was dependent on local resources and workforce, the project saw the unified effort of 500,000 individuals at its peak production. \(^{15}\) (Figure 4 & 5) In certain cases such as that in the Netherlands, the local populace was oftentimes well compensated for their efforts in aiding construction, hosting workers camps dedicated to the development of this structure. However, the shortage of workers seen in France or Norway, meant the exploitation of locals with forced labor, oftentimes alongside German soldiers and prisoners of war.\(^16\) The method of constructing the fortifications was relatively simple. With the time consuming excavation of the appropriately proportioned hole, steel reinforcements were built in-situ and placed within the framework of the projected building’s walls, around which a wooden formwork was installed.\(^16\) Following the pouring of concrete, the formwork was removed, and furnishings such as doors, escape hatches, ventilation systems, and furnaces were installed. Still, when it comes to the means of constructing the fortifications, one question remains: where were these materials sourced from during the height of war, and simultaneously, at the height of the shortage?\(^17\)

Though dwindling, essential materials at this time were wood and raw steel. Mass deforestation was one method of acquiring timber to construct the necessary formwork, while forces who were positioned near towns or cities were able to utilize the infrastructure located nearby. By enforced reuse of fences, sections of buildings, or general infrastructure made of wood, these local fragments became physically ingrained in the constructions of their invaders by being used as formwork in many cases.\(^18\) In the case of steel, many constructions late in the War were built with the lack thereof. Due to the decreasing amount and availability of steel and steel reinforcements, many bunkers’ structural stability lacked integrity at the event of a large impact, and the space itself contained fewer commodities to offer its residents since most were predominantly manufactured with steel.\(^19\) Specifically in the site of Heuquville, the availability of information regarding its situation during wartime is bleak. However, observing well documented instances of nearby areas helps to create a sense of how the strategic actions undertaken by Germany affected local infrastructure and allowed for a mass exploitation of resources and labor. Though many aspects are missed through hypothesis and generalization, the tactics involving forced labor and use of local materials becomes evident in the formal composition of the studied Observation Bunker - a topic further developed in Chapter 3: Manifestations.

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CHAPTER 1

Form and Design

Section 4

Zooming into the sight of Heuqueville, the Observation Bunker being discussed belongs both to a greater system of fortification groupings, but operates with its local bunkers simultaneously. This two fold programmatic approach allows for both its organized operation in unison with the fortifications whose program is dependent on the role of the Observation bunker, but also extends a line of communication to nearby groupings belonging to the Atlantic Wall. Serving as an artillery battery within the range of key cities located across the German occupied French shoreline, the Heuqueville position was designed to provide supporting fire at range in the case of invasion. 22 The chalk cliffside that the Observation bunker sits upon extends for miles across the coast, making it impossible for external forces to reach the coast from an oceanbound assault. As such, the design of these bunkers was intended to protect their inhabitants primarily from airborne, naval, and light infantry threats.

During World War I the role of fortifications was limited to providing cover for fixed weaponry positions and emplacements that sheltered troops from primarily airborne artillery and mortars. To combat the modern strategic advancements of the capable Allied powers during World War II, it became crucial to diversify the role of a “bunker,” particularly at the ambitious scale of the Atlantic Wall. In the greater scale of military infrastructure in occupied France, the Heuqueville position belonged to a network of munition depots. Similarly to 62 other depots in occupied France, the site was strategically constructed alongside a forested area (specifically, the Mont geon forest), as a means of direct resource extraction. Although abutting a large pool of material resources at the height of wartime, the construction of these fortifications saw the full effects of material depletion, also seen across all neighboring groupings. 23

It is important at this point in the investigation to establish a means of categorizing the bunkers form. The nature of World War II saw approaches of assault targeting fortifications from above in vertical engagement, and from its sides as horizontal engagement, in the forms of airborne attacks and artillery shelling respectively. As the severity and magnitude of attacks rose with the progression of the war, the aforementioned material shortages, workforce requirements, and time constraints all led to the need to organize and test a range of construction types for durability. “Baustärke,” translating to “structural strength” or “building strength” at the time of its conception, was the term indicating a typology that identifies key features of the bunkers form that relate in turn to its expected ability to withstand impact(s). (Figure 6). 24

After the determination of the fortifications’ location for construction, there remained a multitude of factors that contributed to the typology in which they were to be constructed. These looked primarily into the role of each bunker, placing them along a scale of “importance” in relation to their local counterparts. By setting an expected “survival rate” aimed at limiting the requirements for construction, their role in the greater system of groupings was key in determining their form. 25 Depending on the necessity for cover from enemy forces paired with an understanding of the era’s modern military weaponry, one of the following typologies was deployed:

<table>
<thead>
<tr>
<th>Typology Name</th>
<th>Construction Details</th>
<th>Ceiling Thickness</th>
<th>Wall Thickness</th>
<th>Floor Thickness</th>
<th>Ceiling Height</th>
<th>Stopping Force</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST - A Ständig Baustärke (Strengthened Permanent constructions)</td>
<td>Reinforced concrete, special cases had prefabricated blocks placed alongside reinforced concrete. Two means of entering with pressure valves in each room. These included air filtration systems, electrical lighting, heating, radio and telephone equipment.</td>
<td>350 cm</td>
<td>350 cm</td>
<td>80 cm</td>
<td>220 cm</td>
<td>≥ 150 kg aerial bomb (roof impact)</td>
</tr>
<tr>
<td>ST - B Ständig Baustärke (Strengthened Permanent constructions)</td>
<td>Simplified full concrete construction, or concrete with steel rebar. Categorized by types in the Regelbau Bauform catalog.</td>
<td>150 cm - 200 cm</td>
<td>50 cm - 200 cm</td>
<td>80 cm - 200 cm</td>
<td>220 cm</td>
<td>≥ 50 kg aerial bomb (roof impact)</td>
</tr>
<tr>
<td>VF Variant Feldmaßgebung (Reinforced field-type constructions)</td>
<td>Simplified full concrete construction or concrete with steel rebar. Categorized by types in the Regelbau Bauform catalog.</td>
<td>100 cm - 150 cm</td>
<td>100 cm - 150 cm</td>
<td>40 cm - 400 cm</td>
<td>210 cm</td>
<td>≥ 50 kg aerial bomb (roof impact)</td>
</tr>
<tr>
<td>FA Feldmaßgebung Ausbau (Field type constructions)</td>
<td>Made of local materials, lumber, rocks, ground, sand, and gravel. Compound lumber walls with gravel or rock interiors were a common construction method.</td>
<td>40 - 60 cm</td>
<td>20 cm - 200 cm</td>
<td>20 cm - 190 cm</td>
<td>190 cm</td>
<td>Small arms fire, shrapnel, light debris</td>
</tr>
<tr>
<td>SK Sonderkonstruktion (Special constructions)</td>
<td>Unique cases where one-off designs were created often due to landscape limitations, or unique program requirements. Maximum dimensions matched Vf type.</td>
<td>≥ 150 cm</td>
<td>≥ 150 cm</td>
<td>≥ 40 cm</td>
<td>≥ 150 cm</td>
<td>Vf specification or greater</td>
</tr>
<tr>
<td>OB Oben-Setzkonstruktion</td>
<td>Fortifications designed to house large weapons. Utilized to protect the weapons, their emplacement, and their crew from returning fire.</td>
<td><em>special cases</em></td>
<td><em>special cases</em></td>
<td><em>special cases</em></td>
<td><em>special cases</em></td>
<td><em>special cases</em></td>
</tr>
</tbody>
</table>

Figure 6:
The site being analyzed contains bunkers that are primarily designed under the VF typology, and includes constructions built under the guidelines of the FA category. This classification was commonly named, “Reinforced Field Type Construction,” or, “Field Reinforcement” when translated from its German terminology, Verstärkt Feldmaßig (Feldmassig). Primarily used in beachfront applications of the Atlantic Wall, these fortification types were not expected to withstand large impacts unlike their more robust counterparts belonging in the ST typology. Their allocations were estimated to be, for the most part, remote from Allied presence as they served roles that did not require direct engagement. Though these positions were expected to serve supporting roles to the chain of positions it served alongside with, they are designed in preparation for external fire equivalent to that capable of being carried out. As the primary concern of the Rebelbau was the efficient, systematized mass construction of these fortifications, it fulfilled a requirement for consistency across each instance of the Wall.

As seen from the site map in Figure 7, starting from the town and looking towards the ocean, the easternmost fortifications visible today as it was during the time of their construction, are embedded in the town’s fabric. Hidden in the homes and local buildings surrounding the invading structures, they become seemingly invisible from an aerial perspective, a tactic used during wartime to conceal their existence in the event of Allied aerial monitoring of French beaches. Further out from the town, the supporting structures to the unit’s weaponry is found looking outward to the fields, and to the artillery and flak positions located within them.

The termination of the site is located at the termination of the landmass itself. With the progressively receding cliffside, the border separating the ocean from the town above has, and will continue to move eastwards from the position of Heuqueville. Currently looming over a ~100 meter tall void, the observation post is the furthest structure from the town core. It was used as an outlook peering out over the English Channel’s horizon in search for Allied ships or aerial presence, while also acting as the battery’s primary command center. The following bunkers are in the order beginning from the emplacement in the west to the east, or from the cliffside to the town of Heuqueville.

Battery of Heuqueville

Section 5
VF Observation / Shnabelstand

Facing outward towards the English Channel, the observation post nicknamed “Shnabelstand” (translated from German to “beak stand”) is located the closest in proximity to the termination of land in the west, and has a primary function of monitoring for Allied ships and aircraft. Serving as the primary communication point for the battery, it extended to the local bunkers and to further groupings or isolated fortifications. It housed a persistent group of personnel that occupied it and was considered the lead bunker, since it was the only bunker in the battery given the ability to observe closely over the coastline. The formal qualities of the observatory’s window indicates a mounting point for the intended use of a machine-gun (or MG).

OB 20mm Flak (Flakstand)

A Flak emplacement situated directly between the VF Observation post and the rest of the local grouping and town. Situated at the northernmost position of the battery, the 20mm Open Bedding (OB) flak position’s primary function was to defend against aerial presence through bursting charges with fuses set up to 2800m. The octagonal shape of the fortification allowed for the panoramic rotation of the weapon to be used in full, while providing protection for the crew operating it and acting as a storage space for ammunition, used shells, and acted as a source of protection for its crew. Although coastal protection installations of the 105mm usually have a circular rail system that allows it to rotate from its center, the position in Heuqueville does not contain the central concrete mound. Instead it resorts to a simpler design, in which the weapon is rolled onto the position and operated on flat ground. This leads to the identification of the weapon utilized as the M2A1 Howitzer, a cheaper and less efficient, yet effective alternative for coastal defense.

VF HWB (Personnel/Unterstand) x2

Within the borders of the town and directly above the Artillery position, the two VF personnel bunkers are located perpendicular to one another, burrowed into the landscape similar to their lead Observation post. Each fortification contains one entrance or exit, placed in a staggered manner, in relation to one bunker and the other. These housed the forces that oversaw the operation and maintenance of the battery’s weaponry, and was placed directly next to the artillery position, precisely between the farmland in the west and the town in the east.

OB 105mm Artillery (Geschütz)

The largest weapon of the battery, this position offered omnidirectional protection of the north-eastern and southwestern neighboring shores. Similarly to the Flak emplacement, its circular walls allowed for the storage of ammunition, used shells, and acted as a source of protection for its crew. Although coastal protection installations of the 105mm usually have a circular rail system that allows it to rotate from its center, the position in Heuqueville does not contain the central concrete mound. Instead it resorts to a simpler design, in which the weapon is rolled onto the position and operated on flat ground. This leads to the identification of the weapon utilized as the M2A1 Howitzer, a cheaper and less efficient, yet effective alternative for coastal defense.

Figure 8.
Figure 9.
Figure 10.
Figure 11.
VF Observation (ii)

Strategically placed on the right hand side of the two personnel bunkers, a second observation post oversees their entrances and the farmland beyond. Its significantly smaller size when compared to the primary Observation post, is due to the simplification of its role with the absence of sleeping quarters and control rooms. As seen in current photos of the bunker’s observatory window, the lack of markings in the concrete construction directly below the horizontal opening indicate the lack of MG utility. It is important to note that this point stood as the single observation point for the west, south, and north, though its orientation speaks to the protection of its immediate buildings and lead VF bunker.

VF MG

Placed closest to the town center, a construction similar to the VF HWB bunkers contains an MG position overseeing a primary road extending towards the south, and to the farmlands on either side. The relatively flat and wavy landscape gave the position a considerable vantage point in overseeing potential opposing advances. The bunker contains one singular room hosting the MG emplacement at the southern wall along with its singular entrance exiting to the local road it was built adjacent to. Unlike the VF Observation, its placement allows for the direct overseeing and protection of the battery’s extension, and acts as the primary guard position.

FA HWB (Munition depot - Wellblech) x5

These five constructions contain the ammunition necessary to arm the battery and resources to supply the soldiers that were positioned at its location. These contained shells for Flak and Artillery, infantry weapons, explosives, anti-vehicle devices, along with a variety of handheld equipment, attire, first aid supplies, and rations. Constructed in the FA typology, these buildings were of the cheapest construction, and offered the least amount of protection from large-scale fire. The first of the five depots is located directly next to the two VF HWB, and secondary VF Observation post. Its position completes a planned symmetry amongst the three HWB fortifications and their overseeing “tower.” The remaining four of the bunkers were constructed along the main road, protected by the aforementioned VF MG. These are predicted to have contained high explosives utilized by the battery’s weaponry, due to their visible distance from the grouping of positions ~175 meters to the northwest, indicating the protection of the remaining unit in the event that their contents are compromised.
At the scale of the cliff-bound Observation bunker in the west, its composition speaks to the strategic approach taken at the scale of the building. Traces of the Regelbau standard designs can be seen in the compositions of each room, but it is the program of each that speaks to the uniqueness of this bunker in particular. The physical approach to this site involves crossing a ~500 meter long trail from the town and toward the cliffside in the west, between the farms owned by the local townspeople. As its intended means of arrival and point of entry at the building’s right side, its containing rooms will be analyzed in the same manner to preserve the planned procession of spaces.

The observation bunker of Heuqueville is a long building, extending across 30 meters and housing functions that permit its consistent operation and upkeep. Due to its specifications being of the VF typology of the Regelbau, the majority of its constructed walls, ceiling, and floor thicknesses follow the guidelines observed in Figure 7. While maintaining a relatively low profile, in respect to the land it is placed into, the portions that protrude above the ground plane containing an abundance of flora, are the observation room itself to peer over the cliffside, and two entrances. This allowed the body of the bunker to be covered in earth, visually embedding with its landscape with the help of fast-growing foliage.26

During the construction of the fortification, the separation of its programmatic roles became the leading catalyst in its composition. The building can be visibly separated into two portions; Zone A contains the vital functions for its inhabitants, including bedrooms, living quarters, and indications of latrines or water reservoirs. Zone B is designated to the functional nature of the bunker. (Figure 18) Containing the monitoring room, control room, and observation post, these tightly grouped rooms give reason to the purpose behind the position’s construction. Each means of egress is connected to one of the two sections, while the placement of spaces in the plan allows for personnel to transition from room to room without impeding on the bunker’s vital functions.
Figure 16. Blue arrows indicate the intended means of access to the bunker, and black arrow display routes of emergency exit. Entry is made possible only from the bunker’s north wall, while escape hatch locations face away from the ocean.

Highlighted in black are the rooms whose functions pertain to the inhabitants of the fortification, while blue spaces indicate the purely functional nature of the building in relation to its wartime roles. Significant in this observation is the use of a hallway as a transition space.

At the base of both stairwells are identified water reserves. Though the function of these spaces is unknown, commonly seen in similar fortifications is the use of water tanks for inhabitant use, or locations of latrines. The compartmental room to the left stairwell, shows sign of its relation to the erosion of land below the bunker.

Through photos of the bunker’s interior, indications on both walls and the ceiling reveal the existence of partition walls throughout. These may be used to separate functions of individual rooms, offer opportunities for storage, or privacy in locations for interior latrines.

Areas identified in black show the coverage from enthusiastic documentation of the bunker, along with the position of the camera shot as shows in blue. There exists much overlap at the east side of the bunker, while certain rooms remain largely undocumented.
Stairwell 7B

The two entry points on the North side of the fortification are in the form of staircases, with similarly constructed partial concrete coverings. These coverings are of a small thickness, and were constructed using metal rebar as seen in their deconstructed version today, but offered shelter from light incoming fire or from the elements. Starting with Staircase 7B, its entry point is protected by two window hatches. Due to their proximity to the ground plane, they allowed the inhabitants of the building to use these openings as an exit in case of the building’s destruction, and served as a means of monitoring enemy presence, as well as points for the infantry to fire weaponry or explosives from. Being the shortest of the two staircases due to its landing being at a higher level than its counterpart, at its base exists a small cutout that allows for the speculated placement of a water reservoir tank, or small latrine. This recess has been painted in tones of yellow and red, similar to other resembling spaces in the bunker.

Living Quarters [5A - 5B]

The first landing point to the bunker’s spaces are two living spaces, separated by the wall parallel to the building’s orientation. These spaces were used by the operating personnel, and stand as evidence of the building’s need for persistent inhabitation and utility. Though the exact program of each room is unknown and up to speculation based on similar remaining constructions, the existence of a brick partition wall separating the room into two indicates the potential use of the room as storage space. Especially when considering the distance from this position and the depots located at the town’s fringe. As a result of the living quarters’ placement being furthest from the beachfront, these rooms contain seven exit hatches. They can be interpreted as the primary means of emergency egress from contact in the West, or may act as the defensive viewsheds overseeing the open fields in each other direction.

Bedrooms [4A - 4B]

By following a succession of door openings that lead from Living Quarter [5A] and its west, two perpendicularly positioned Bedrooms are located at the center of the fortification. Each contains two exit hatches at the end of each room, and culminate at a wall whose sectional diameter matches that of the bunker exterior. In VF-style bedrooms, rectangular voids in the walls are used for the planned installation of bunk-beds. The lack of any indentations in the bunker in question indicates the use of a non-permanent alternative, as steel frame bed frames were common in other Atlantic Wall applications. A remaining portion of plaster reveals the use of yellow and red paint, while indications in the ceiling and wall immediately to the plastered area show the existence of a small room, or partitioned area.


The following hallway connects the previous living grounds, with the main programmatic rooms of the bunker. Similarly positioned to Starwell [7B], this second egress point’s proximity to its adjacent rooms denote its intended use by the unit of soldiers operating them specifically, rather than the bunker’s inhabitants at the eastern quarter. Hallway [6] and Stairwell [7A]’s programmatic use as a secondary entrance to the fortification helps clarify the two Regelbauten typologies used to compose it. A concealed concrete room utilized for the location of a water reservoir can be found at the staircase landing. The hallway’s placement separating the bedrooms from the control rooms directly adjacent, separates circulation from program. Recognizing this, it is speculated that the role of the water reservoir abutting Stairwell [7A] was to provide drinkable water, considering the only means to access the water reservoir is a rectangular hole between its location and the stair.

This pair of rooms served as the beating heart of the fortification. Their roles work in conjunction with one another, where the order of their operation is dependent on whether a threat is identified within the battery’s site, or in an external location. In the first case, the monitoring room will be used for the immediate deliberation of plans, following the use of the communications room to transmit orders within the local grouping, or to external command. In the latter case, the communications room will be contacted, permitting the use of the monitoring room to gather information and congregate. When considering the Observatory’s location, the means in which information is passed along is denoted in the positioning of the three rooms. Varying methods of communication during this era created a need to house the large equipment that was being used, involving the support of radio, telephone, and telegraph. As seen in the formwork of room [3], the existence of a partition wall signifies the separation of the room into two halves.

Observatory [1]

Sitting furthest from the town and closest to the ocean, this room is the culminating point of the bunker and the battery. To access it, a narrow staircase leading from the Monitoring Room [2] leads upwards towards the elongated room. While the horizontal observatory window was positioned closely to the ground plane, the bunker was purposely built ~20 meters from the cliffside. These two factors allow the post to be brought as closely as possible to the ground, while being placed in the most advantageous position in accomplishing coastline surveillance. In a different light, the concealment of the room meant to some degree the concealment of the local grouping of bunkers, as it sat closest to possible Allied presence. The interior or walls of the room have been painted in hues of green and brown, so as to conceal it further from the exterior view.
Notes

Chapter 1


2. Regelbau – Bunkers as Standardised Structures.” Regelbau – bunkers as standardised structures | Atlantvolden.dk. https://atlantvolden.dk/atlantvolden/atlantvolden-bunkers-as-standardised-structures#:~:text=Regelbau%20was%20the%20name%20of%20work%20of%20the%20degree.


15. Ibid.

16. Ibid.


18. Ibid.


23. Ibid.


With the succession of World War II, the fortifications created during the chaotic sprawl of wartime stood unoccupied, and purposeless on the French coastline. Previously members of an active strategic scheme, they now remain as ghosts of past events that have lost their purpose, quietly decaying over the years. Many of the bunkers created during this era of accelerated production were in areas inaccessible and unobtrusive to the local populace. The remaining majority of fortifications, however, had and continue to affect the residents living nearby. Though they exist on private property where they were built without given consent, it is not only the physical remains of war that have affected their surroundings. Rather, they are silent reminders of a time in which oppression of external rule was utilized as a means to occupy space.

Even though these bunkers’ presence overwhelmed the population for decades following the war, there emerged a new stance regarding the Atlantic Wall, as did with many spatial relics throughout Europe that survived World War II. Seen under a new light during a time when they existed as reminders of a history that many wanted to forget, by the 1960s a more nuanced approach to record their physical properties finally emerged. Primarily achieved through documenting the experiential effect of the building while traversing through it in an expressive manner, the concrete bunkers drew interest from locals and visiting enthusiasts or tourists. Today, many of the fortifications stand in their initial locations, while the fascination surrounding them has grown through recent decades.

This chapter will review the responses to the Battery and Observation Bunker [1] in the endeavor to trace the transition of attitudes surrounding them from disregard, to intrigue and acceptance. By taking on a neutral position throughout this research, opposing views are to be considered to display the polarizing truth of the site. These opposing positions are represented equally and given the same weight in regard to their effect on the fortifications themselves. The subjects that will be analyzed in this examination are the inhabitants of Heuqueville, tourists to the site, enthusiast archivists and documentors, administrative powers, and those of academic intentions.

Tensions

Chapter 2
The perspective held by those who were jaded by the symbolism of the Atlantic Wall set the tone for decades to come, but for the majority of the mainland French population the visitation of their country’s coast became impossible for years during wartime. As such, a romanticization of the ocean in anticipation of visiting the northern beaches was strongly felt following the war’s end.

Amongst the first who understood these fortifications as something beyond their darkened historical association, was Paul Virilio, as expressed in his writing named “Bunker Archeology” where the fortified landscape of La Baule, France is reasoned with, described, and discussed in an experiential manner. Paul Virilio was a French philosopher, cultural theorist, architect, and political theologian whose firsthand experience with the rule of the Third Reich during his childhood in France, premeditated his life’s work into the relationship between speed, power, fear, and technology. Having witnessed firsthand the construction of the Atlantic Wall with the mass militarization of Germany during World War II, a desire emerged to interpret the role architecture held in the establishment and monitoring of power.

Initially, Virilio’s approach to this research was purely phenomenological; concerned with obtaining an objective understanding of spatial organization to create a true sense of the site, separated from emotion, predisposed notions, or judgements. By exposing physical realities through experiential recordings, the studies conducted in this manner during the late 1950s led to further theoretical studies concerned with the “hidden” factors that contribute to the relationship of power and space. His development of the topics Accidentology and Dromology signify the departure of his work from that of observational nature, to the realms of political theorization, and frame his examination of postmodern urbanism.

For the purpose of this investigation, it is important to note that the methods implored to communicate the physical reality of the Heuqueville Observation Bunker, follows closely to the phenomenological studies conducted during Paul Virilio’s early work. Rather than being concerned with political and military conceptualization, the approach taken by Virilio during his recording of La Baule is revived.

Virilio’s encounter with the bunkers divulged into the further analysis of those in the local vicinity of Saint Nazaire. The documentation was carried out through a series of photographs of each fortification spotted, alongside illustrative text narrating the bunkers’ identification along the landscape, exploration, and afterthoughts surrounding the encounter. In many cases, plans and/or sections were prepared for the fortifications that permitted safe entry, and whose interior could be accessed in full. By expressing the emotions felt while traversing through the spaces provided by these fortifications, his encounter with them required him to reduce the buildings to their mere form and ethereal qualities. While momentarily disregarding historical associations, the absence of a program and function enables individuals inspecting them to surrender to their interiority and presence through a sequence of events that characterize the event.

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Wandering

“Advancing in the midst of houses with gaping windows, I was anxious to be done with the obstacles between myself and the Atlantic horizon, in fact I was anxious to set foot on my first beach. As I approached Ocean Boulevard, the water level began to rise between the pines and the villas; the ocean was getting larger, taking up more and more space in my angle of vision. Finally, while crossing the avenue parallel to the shore, the earth line seemed to have plunged into the undertow, leaving everything smooth, no waves and little noise. Yet another element was here before me: the hydrosphere.”

Encounter

“So I turned around for an instant to look at what my field of vision onto the sea had not offered up: the heavy gray mass where traces of planks lined up along the inclined ramp like a tiny staircase. I got up and decided to have a look around this fortification as if I had seen it for the first time, with its embrasures flush with the sand, behind the protective screen, looking out onto the Breton port, aiming today at insensible bathers, its real defense with a staggered entrance and its dark interior in the blinding light of the gun’s opening toward the sea.”

Concession

“I was most impressed by a feeling, internal and external, of being immediately crushed. The battered walls sunk into the ground gave this small blockhouse a solid base; a dune had invaded the interior space, and the thick layer of sand over the wooden floor made the place ever narrower. Some clothes and bicycles had been hidden here; the object no longer made the same sense, though there was still protection here.”

Dwelling

“A long history was curled up here. These concrete blocks were in fact the final throw-offs of the history of frontiers, from the Roman limes to the Great Wall of China; the bunkers, as ultimate military surface architecture, had shipwrecked at lands’ limits, at the precise moment of the sky’s arrival in war; they marked off the horizontal littoral, the continental limit. History had changed course one final time before jumping into the immensity of aerial space.”

Twenty years following world war two, these curiosities went against the common - local perception. Seen as eyesores across a celebrated landscape, many that belonged to common-held beachland or those hidden eroded amongst the dune-like landscape had been abandoned and dismissed, but remained largely intact. While historical acknowledgements to the wall had been made immediately following conflict, Virilio’s method of documentation seeks to reveal the experiential narrative given by the bunkers in question. The impact on the urban environment in which they were placed in, had not been monitored nor had their effect on the local infrastructure, people, and fabric been considered. As the dissemination of his work in the 1970s gave the academic world a glimpse into the bunkers’ value as spatial artifacts, the continual pursuit of their documentation was a result of the curiosities that grew over time.”
Local Reception

It is vital throughout this investigation to remind oneself that these bunkers remain as representations of a time left to be forgotten for many who witnessed the calamity of war firsthand. Although the enthusiastic world-views of culturalists, skeptics, and historians become a subsequent product of World War II, these outlooks are the staggering minority.35 The immediate goal for the common populace across Europe was to move past these events, and erase all possible evidence of occupation from plain sight.

The availability of information pertaining to the town of Heuqueville is sparse; however, the overwhelming emotion of the French public following their liberation was that of rejection. Because of the Atlantic Wall’s sheer scale, the coastline in its entirety was littered with bunkers, each built on private properties, municipal land, or farmland. Though today evidence of the artifacts created by the Axis powers is ever-present, there existed a multitude of constructions that were removed or destroyed after their withdrawal as well. Noted by Paul Virilio during his encounter with the fortifications’ conditions, “My vision appeared to be countered by that of my contemporaries, and the semi-religious character of the beach altars, left for children’s play, was counteracted by resentment. What was the nature of this criticism?”36 As with the nature of the Regelbau fortifications, their destruction was made to become a difficult, if not near-impossible task to do so. Most societies were unable to rid themselves of these foreign and unsettling monoliths that disrupted both their physical environment and emotional wellbeing, and so people in close proximity to the bunkers were involuntarily subjected to their continued presence.

As years progressed, the reality of their permanence began to set in. Due to their construction methods reflecting a need for durability, rather than attempting the destruction and removal of these bunkers, in many cases they were simply repurposed and inhabited. Immediately following the liberation of the coastline in the summer of 1944, all small-scale infrastructure, weaponry, and equipment that existed was cleared away, which rendered these vacant structures devoid of occupation and program.37 Existing on private properties, their land owners hold authority over the fortifications in any desired manner unless otherwise specified by the municipality. In Heuqueville, there exists no oversight; those with forms that created an interior space offered consistent protection from the elements, and were utilized as storage spaces. The following list describes the conditions of the bunkers in their current state; the sources used to ascertain the below conclusions are in accordance with enthusiast historians’ online documentation of the bunkers, in addition to satellite imagery.

VF Observation / Shnabelstand

Although the observation post hosts a variety of interior spaces, its position over the cliffside made the inhabitation and later visitation of the fortification unsafe. While it is not located directly on private property due to how close it is to the cliffside, there is no proof to signify its use as storage. The building remains intact, and the rooms are still accessible. A large amount of erosion flooded the western rooms, allowing for a ceiling height of ~1 meter in some areas of Living Quarters [5A] and [5B]. Due to the silt and chalk cliffside, many tour groups are attracted to the site and building. As such, many locals and passing visitors are drawn to the suspended spectacle, and follow the pathways used by farmers between crops to reach its site even if it is ill advised. The suspended state of the building and easy rooftop access made it a popular subject for photographic and video recordings. Photos show evidence of inhabitation in the form of visible pathways created by continual use, footsteps, as well as plastic and metal waste. On the exterior of the bunker, the observation post’s base depicts graffiti from the year 2016, while photos as early as 2020 show no visible markings.38

Figure 28. It is vital throughout this investigation to remind oneself that these bunkers remain as representations of a time left to be forgotten for many who witnessed the calamity of war firsthand. Although the enthusiastic world-views of culturalists, skeptics, and historians become a subsequent product of World War II, these outlooks are the staggering minority. The immediate goal for the common populace across Europe was to move past these events, and erase all possible evidence of occupation from plain sight.

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CHAPTER 2

OB 20mm Flak (Flakstand)

Located within the confines of a field, the flak emplacement was left to the elements and has been, in its majority, covered in earth. Due to the nature of the constructions being that of an “open bedding,” the spaces which housed personnel were directly exposed to the elements. The structure remains fully intact, while the weaponry that once existed on the site no longer exists. Based on satellite imagery, no signs indicate the visitation of this fortification. Seen by the crop lines in satellite imagery of the plots of land on which it is located and as mentioned by the farmers who own the crops, the post is identified largely as an obstacle, as also seen by the crop lines disrupted by its presence.18

OB 105mm Artillery (Geschütz)

Similarly to the OB 20mm Flak position, this emplacement is located within farmed crops, and is mostly eroded. Though it is also obstructing the path of farming equipment similarly to the Flak emplacement, photographs of the fortifications from 2005 identify its potential use as an enclosure by the owner of the farmland. Utilizing metal poled and wire to create a fence surrounding the position, a different crop type appears at the interior of its form.19

VF HWB (Personnel/Unterstand) x2

Located in private property, the two bunkers appear from satellite imagery to be unoccupied, and have been covered with shrubbery in their entirety. Using historical satellite imagery, the concrete fortifications can be seen clearly during the fall season, showing no signs of entry. The interior spaces remain clear of debris and erosion, their entrances are enclosed with dirt, and plastic sheets line the interior, presumably placed by the land owners to conserve the interior and block entry from passersbyers, as well as wildlife that commonly gets trapped within.41

VF Observation (ii)

On the property east to that of the two VF HWB fortifications, the secondary VF Observation post was inhabited by presumably its land owners. The interior of the bunker remains very close to its initial appearance, as the white paint commonly seen in these spaces is visible in most rooms. Photographic evidence depicts these spaces being used as storage areas, and a cellar for red wine. Its walls were outfitted with wooden and metal shelving units, while due to the convenient placement of the post allowing it to peer over the property fences and oversee the neighboring property, and its observation window was blocked off with wood boards for privacy.42
Similar to the two VF HWB emplacements, the VF MG at the town’s south entry has been overgrown with flora, but is easily accessible from the bunker’s guard post. The interior space was kept well intact, and all wooden formwork remains in its initial position, along with the wooden door at the fortification’s entrance that is seemingly borrowed from the local infrastructure and fitted to the bunker during wartime. The window from which the MG was meant to be placed onto was blocked with wooden planks and metal mesh.

The FA bunker overseen by the secondary Observation post, along with the northernmost fortification belonging to the grouping at the town’s south side, are overgrown and uninhabited. The remaining three munition depots are located in close proximity to the property owner’s home. As seen in satellite imagery, their relation to the architectural composition of the house constructed over them implies their extensive inhabitation and use by the property owners. These spaces have not been documented by the referenced sources in the following section, and thus their conditions and uses are unknown apart from speculation.

The existence of these alien structures could only become known through historical documents, academic writings, and documentative photographs immediately following the war. Leading to the 1990s with public accessibility to the internet, the emergence of forum websites allowed for their communication amongst individuals who were captivated by the wall; further expanding attitudes of interest and curiosity. Though the emergence of their romanticization and documentation became popularized during the 1970s, the relationship between the approach taken by Paul Virilio and the actions taken by enthusiasts to document these war sites decades later, remains unrecognized.

Though it is impossible to recognize the intentions of each individual who chooses to visit these sites of war, “Enthusiasts” throughout this thesis, are to be recognized as those who actively pursue the sites’ historical documentation, recognize their value as academic subjects, or act to fill the conservational void left by governing powers. The sources whose photographs enabled the site analysis, belong to the category of individuals whose objective is purely documentative and objective in nature, while negating any association to the political history interlaced with the structures being studied. As the attitudes surrounding these bunkers were everpresently clear following wartime, the emotions of disregard and hatred toward their presence has seen a shift toward a need for resolution with a dark history, prompting their existence as topics for education and learning for younger generations.

Groups who continue to document the emplacements are particularly niche and small in size. Information regarding not only the Atlantic Wall, but other sites across Europe continues to be gathered through organized site visits by those who live nearby, and by others who chose to visit them. Similar forums serve as the grounds in which the discoveries, stories, personal encounters, and recordings of their distinct features have continuously been shared in the form of online posts and topics, organized for communal use. A similar sense of initiative can be inferred from Virilio’s writing: “My objective was solely archeological. I would hunt these gray forms until they would transmit to me a part of their mystery, a part of the secret a few phrases could sum up: why would these extraordinary constructions, compared to the seaside villas, not be perceived or even recognized? Why this analogy between the funeral archetype and military architecture? Why this insane situation looking out over the ocean? This waiting before the infinite oceanic expanse?”

The existence of these alien structures could only become known through historical documents, academic writings, and documentative photographs immediately following the war. Leading to the 1990s with public accessibility to the internet, the emergence of forum websites allowed for their communication amongst individuals who were captivated by the wall; further expanding attitudes of interest and curiosity. Though the emergence of their romanticization and documentation became popularized during the 1970s, the relationship between the approach taken by Paul Virilio and the actions taken by enthusiasts to document these war sites decades later, remains unrecognized.

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As with the exponential progression of technology during the past 30 years, the mediums used to record and disseminate findings progressed alongside it. Though writing remains the most common method of communication within these sites, digital photography, historical images, and satellite data appear more frequently as cameras, smart phones, and the web itself has become increasingly more accessible. Upon the identification of a fortification or wartime construction, those enacting the site visit make note of its prominent features, state the position’s relation to the area it is located in, as well as seek any historical information, hearsay, or images that may exist from wartime.

Though many bunkers across the northern shores have been identified and discussed extensively within these forums, their descriptions remain simplistic and oftentimes lack depth. Sites that act as virtual libraries created and updated by similar groups, exist to fill the void in historical background, terminology, and typological descriptions associated with the bunkers. The sources utilized to develop these public archives consist of the aforementioned forums, public blogs, as well as an extensive list of academic resources and writings belonging to each country affected by the Atlantic Wall’s presence. Academic writings relating to Heuqueville’s position were written primarily by French authors, culturalists, and military historians, and describe the typological and formally analytical qualities of these fortifications. By organizing the extracted contextual history, terminology, and definitions, they are made communal so that the public may access the information.

With the objective of rediscovering the wall and making the public aware of its magnitude and relevance to recent history, the authors of these websites bridge the gap between access to information, and availability of information. By creating a means of bypassing the language barrier and difficulty in reference discovery, the consistent upkeep and altering of these sites reflect their goal for peer-reviewed historical accuracy. The sites below contain an extensive list of written encounters, discussion posts, research topics, references for the identification, formal classification, and recordings of current day conditions of the bunkers belonging to the Heuqueville Battery:

**Forums:**
https://forum.axishistory.com/
http://www.fortificatieforum.nl/

**Archives:**
https://www.relikte.info/AOK15-F-Heuqueville.html
https://www.war-online.nl/index.php?lang=en
https://www.relics-information.com/
http://www.somme1916.com/
https://www.bunkerinfo.nl/
http://www.deutschesatlantikwallarchiv.de/index.htm

**Blogs:**
http://fbminisworkbench.blogspot.com/
Administrative Inattention

Section 4

These active online communities serve as the primary source of documentation for the fortifications in question. Though the communities through which it traverses know its history very closely, the state of the individual bunkers and their relationship with abutting infrastructure or lack there-of, remains available through the joint effort of unfunded enthusiasts. A large factor driving the development and self-correction of these websites, stems from the lack of any administrative effort to conserve, preserve, or document the large majority of the bunkers and emplacements.47 Numerous memorials and well-preserved examples exist across the northern coast, but the sheer number of constructions being lost to time means the loss of the historical value they hold, along with the outlook they provide into the events dictating their creation.

In comparison, across the oceanic horizon exists a project to document and visualize the physical manifestations of war, constructed in fear of the tensions felt across the English Channel. The extended Defense of Britain Database, aims to create a public archive and map, identifying separate fortification types. Dialog boxes attached to each emplacement within the interactive map, contain information regarding its classification, formal qualities, designations, and conditions, along with any relative images. At the level of this departmental project, the means in which these bunkers are being discovered, along with the information that emerges regarding them remains a task largely possible due to the public’s contributions.

Oftentimes, maps preserved from wartime that dictate the construction areas of these emplacements are used for their allocation. Due to the havoc of war, these maps encompass only partial findings, and oftentimes do not exist for many of the sites. Similarly to the enthusiast websites operated for the French coast, upon the identification of a fortification, one can clarify its existence in forums within the database, to flag their implementation. It is important to note, that the modern attitudes surrounding these physical sites in England, are that of retention and preservation. They are seen as historical elements which carry historical prowess, and are thus upkept by the locals and by official efforts. Though these buildings remain unfit for the urban fabric they are dropped into, their value is oftentimes conjectured from this juxtaposition they create.49

Seeing the mirrored existence of a funded project concerned with the documentation of war relics, calls for the question: why is there no such effort emerging from French departments of heritage and conservation? As noted in a news article by BBC UK in 2011, the tensions amongst administrative powers and local enthusiasts have become clear. Through a series of interviews with archeologists who were concerned about the fortifications on France's shores, the overwhelming stance calls for their guardianship, or partial overview. “The blockhouses that are on the beaches, […] are already disappearing into the sands, or in some cases are already under water. […] Nowadays we wouldn’t for a minute consider destroying our medieval castles. But that is what is exactly happening to the Atlantic Wall, which is just as much part of our history.”50

Furthermore, the outlook of Rene-Georges Lubat, a Frenchman who had worked on the construction of the Atlantic Wall explained, ‘But I do think the wall should be preserved now. It is important to remember what happened - the ignominy of it all, the catastrophe that we had to endure.’51

Instances along the French coast exist in which bunkers were repurposed for educational means, converted to museums, or cleaned and restored through the help of volunteer work. The geological conditions of these beaches often means the eventual collapse of many bunkers due to their proximity to the cliff edge. While the staggering majority remain left to nature, as noted in the aforementioned interviews regarding those in greater urban centers, “The ones that are slightly inland we can preserve. But there the problem is encroaching urbanization. Town authorities are under pressure to open up more and more land for building.”52

Efforts from neighboring countries have proven the local response to the historical value of the emplacements, and their significance in the realm of education.53 Following the rapid development of urban centers in which these war sites exist, their inevitable demise calls for the retention of their existence. Even at its simplest form through the identification of the building classification and coordinates, their strategic design can be read from their physical position and relation to immediate surroundings. Though the responsibility to recognize the events that occurred around and within them remains felt by both locals and visitors, no large-scale effort pursuing the publication of their holistic documentation exists.
CHAPTER 2 TENSIONS

Allure of Tourism

Section 5

Upon the war’s end, the Atlantic Wall remained unseen to the majority of the world, aside from the populations who reclaimed their beachfront properties and homes across mainland Europe in 1945. To otherwise encounter the Wall during this time, one must have had prior knowledge of its existence, or would discover these fortifications naturally within the landscapes they populate. Today, although the structures have grown as a niche area of research and study within modern, mainstream media, these efforts have attracted the attention of the common populace as well. In the form of touristic activity, the visitation of the Wall has become common practice to those who travel to these oceanbound spaces.

Though the fortifications being studied within the Battery of Heuqueville remain largely intact, all components which compose it are seen in a variety of conditions. Due to varying factors such as natural deterioration, land erosion, purposeful destruction, or human occupation, the states in which they are found starkly contrast the environments they occupy. The alien forms seen in isolated swaths of farm and beach-land, have sparked a sphere of romanticization. Emerging from their outlandish forms, this sense of curiosity and awe felt across social media often uncovers the dark history from which they are bound to.

The estrangement between those learning of the Atlantic Wall through online platforms, is two-fold: Though the extensive physical separation from these sites remains the first component, a dissociation from the narratives they house, enables their complete alienation from the common public. As a result, their forgotten roles and grotesque forms have sparked a re-interpretation.

During the last two decades, these notions of curiosity and intrigue have set the global stage for the bunkers in question. With the exponential increase of accessibility to online resources, external actors have begun to shine light on these spatial relics to an audience beyond that of their immediate populace. Amongst the first to publicize the story of the continental-scale construction, were broadcasting websites, news pages, and magazine articles. Comparable to Virilio’s studies half a century prior, current-day artists, photographers, and videographers alike have portrayed the oceanbound structures in a nuanced manner. (Figure 39) The following articles enable the mass communication of these perspectives, and allow the bunkers to be framed as the primary subject, rather than the subsidiary. Photographs in these webpages taken by Panos Stephan Vanfleteren54 and Jonathan Andrew55 respectively, express a sense of wonder and intrigue by making evident the formal natures of their photographs’ subjects, rather than their histories. In this context, the utility of architecture is not realized; the representations of the fortifications encompass their visual attributes to draw attention to the article itself and invoke a sense of interest, but do not explore their physical characteristics at a

The written portion of these articles and others alike, encompasses a short description of the Atlantic Wall’s history, their tensions with the populace that reside near them, and speaks of the lack of action on behalf of their preservation. In an attempt to make the fortifications’ existence known while expressing their educational and historical values, these condensed posts belong to a surplus of articles that are published daily. Similar to a snippet found in a newspaper, the contents of these stories are often-times skimmed through, suppressing the overarching intent behind their creation. As the topic of the bunkers has come and gone through recent years within these forms of communication, the circulation of their stories become momentary trends. Fading shortly after the writing of these articles, the attention of readers is quickly subverted to another topic rather than dwelling on the previous story. Though this short-lived romanticization resulted in their widespread awareness, thus far there exists no cohesive or constructive action towards their rehabilitation, conservation, nor documentation apart from the isolated efforts of enthusiasts.
As a result of their wide-spread recognition, these physical sites of war have been affected through waves of touristic activity. External visitations to these areas present a viable resource for the local population, and are thus embraced by the towns of Normandy’s beaches. Museums, information booths, monuments, along with themed shops and restaurants can be seen flooding the streets of the towns of Northern France, reflecting their presence amongst their surrounding historical sites.

Driven by the search for historical introspection, individuals from across the globe visit these sites to embrace the events that had once taken place. Though the approach taken by the majority is that of general interest in the events of D-Day as well as the physical remains of the landings, the vast majority of fortifications that emerged from the same events across the coast remain unseen. A two-fold reaction to this modern exchange is evidence of today’s contrasting attitudes.

Emerging organizations such as the Atlantikwall Europe (AWE), a project “co-funded by the Creative Europe Program of the European Union,” advocate for the “importance of a united Europe, based on shared values, collective memory and mutual understanding.” These efforts are achieved through a series of projects encompassing planned educational site visits, webinars, photo contests, and youth exchange programs in pursuit of creating a network of war sites stretching across Europe.

Alternatively, the far-reaching awareness of these sites paired with the lack of restrictions dictating their use, has resulted in an alternative phenomena. Recent digital articles denote the sale of land in Giffonne containing fortifications from the Atlantic Wall. Though this occurrence is not out of the ordinary due to a multitude of these built constructions belonging to private property and farmlands. In the case of this sealed bid, the key aspect of its sale is the opportunity to own a piece of World War II history, rather than a modern property whose perimeters include a fortification. Specifically written in the original listing, it denotes the opportunity to own “7 acres of history.” As the governing powers have enabled these transactions to occur, the fate of these structures remains in the hands of their property owners.

Though the initial response to this sale may interpret the use of ‘history’ as the means to enable the sale of land as opposed to its reservation for conservatory purposes, the truth behind its enlistment lies in the reality of the seller. According to the posting, the site has been entirely maintained and remained open to the public for visitation, but due to ill health, the owner of the decidedly-public educational oriented grounds has resorted to its sale. Executive director of Bell & Co (the real estate company who took on the listing) Andrew Eggleston, declared, “It would be a terrible shame if someone were to buy it and then start padlocking it. They’ve done so much work to it, it’s quite amazing.” With the absence of departmental authority pertaining to the constructive use of these historical monuments, the stead of these who took on the responsibility of the upkeep of these sites remain responsible for much of the conservational contribution to the Atlantic Wall. In this condition of property owner vigilance, the search for conservationally-inclined individuals relies entirely on the hope that current efforts will be continued.
Heuqueville itself belongs to the locations that remain largely unhindered by the external world. The aforementioned documentative sources analyzing each bunker belonging to the battery, remain the only sources displaying local disruption from external visits aside from Google Street View vehicles. In stark contrast, the culminating point to this formation of fortifications has been documented with great detail by a plethora of separate authors. The Observation Bunker has piqued the interest of many who became aware of the Wall, presumably due to its position over the chalk cliffside. The spectacle of the suspended and timeworn concrete mass surveying the Atlantic horizon remains the main reason behind the oblatulous reactions it prompts. Its formal qualities and interior can be extracted through the multitude of video recordings and digital photography depicting the bunker. Through the perspective of these documenters, the firsthand experience of discovering and exploring the fortifications is made public. It is important to note in this case, that the visitation to these fortifications, as noted by the majority of mentioned sources, is unadvised and declared dangerous.59

Cumulatively, the current touristic activity introduced to these French coasts resulted in the widespread knowledge of the Atlantic Wall’s existence and historical value. Through a chain of perceived events, the advent of the web opened their future to an international stage, which resulted in a variety of cases affecting the bunkers. However, the ability to coordinate the historically charged efforts to conserve the fortifications and document them in currently-feasible means, must be acknowledged.
Notes

Chapter 2

28. Ibid.
30. Ibid.
31. Ibid, 10.
32. Ibid, 11.
33. Ibid, 11.
34. Ibid, 12.
36. Ibid, 14.
49. Ibid.
51. Ibid.
52. Ibid.
58. Ibid.
In this stage of the investigation, there are several variables that stand uncategorized. Upon developing an argument that questions the bunkers’ current physical conditions and surrounding views, it became evident very early that the categorization of individual structures was vital. Through the clarification of their types in an empirical approach is appropriate to understand their physical natures, applying external factors to further distinguish groupings will broaden the scope of subject comprehension. The similarities that are discovered through this categorization, aid to reveal the non-physical factors which have affected these fortifications over time. As a result, this study of trends and patterns across typologies aid to identify and strengthen both the connections which dictate a bunker’s type, but also attach a sense of individuality and narrative to each component. However, the questions that still stand are how to categorize the fortifications; what are the factors from which these categorizations emerge from? This chapter places the Heuqueville Observation Bunker within the context of nearby emplacements as a means of re-examination. This analysis will be conducted with respect to the capacities of the “Subject,” “Historian,” and the “Judge,” with the subject in this case being the fortification itself, and how it compares to other bunkers discovered in its respective typologies. By placing the subject against its counterparts, its external influence prior to, and following its inception will be revealed.
Proof in Persuasion

In this pursuit to define groups in which the individuality of the Observation Bunker becomes apparent, the question of how typologies should be established remains unanswered. Establishing these parameters requires a framework of analysis to occupy the role of the Judge in its greater definition. As discussed by Carlo Ginzburg in his text, "The Judge and the Historian," tracing the emergence and development of the Historian, one can create a heightened understanding of the role in the judge. The primordial role of the Historian in Ancient Greece, was of a medicinal background where verbal aptitude pertained to the act of persuasion and storytelling was highly regarded. A redefinition of the ‘historian’ by work of Edward Gibbon and Jesuit Henri Gréffet during the mid-18th century, expressed the necessity for truth and collection of proof to become vital factors in the procedure of recording history. Prior to this, the definition of truth enabled the use of world building in a narrative sense, and allowed for a convincing sense of reality to listeners or readers. “Within the classical tradition, historical writing (and poetry as well) had to display a feature the Greeks called energeia, and the Romans, ‘evidencia in narratione:’ the ability to convey a vivid representation of characters and situations.”

Though current definitions enable this role as that associated with accuracy and fact-based truth, the ability to orchestrate a cohesive experience for the recipient of information, has been in many ways lost. With the sole requirements for a story to become history lying in proof, immersion to the narrative was no longer a requirement with the elimination of persuasion lost. The catalyst to this differentiation is found upon cross-analysis with the values pursued by the Judge. Focused primarily on the assessment of factual information and witness accounts, a broad application of widespread truth became the reality “reinforced by the prevailing positivist atmosphere,” of the early 19th century regarding the intellectual development of “truth.”

Within the realm of historical documentation, one must take into account the significance of the work being conducted in regards to the utility of history. Modern analysis of chronology seeks to accurately recollect the past by facilitating indisputable evidence. Though the importance of accuracy and factuality remains the only current approach as signified by the role of the Judge, recounting events and folklore in a narrative and expressive manner lay as the role of the Storyteller. The dichotomy of these responsibilities expresses a new interpretation of historical narration. A Historian, in this case, focused primarily on the assessment of factual information and witness accounts, a broad application of widespread truth became the reality “reinforced by the prevailing positivist atmosphere,” of the early 19th century regarding the intellectual development of “truth.”

Butterfly Collector

A significant toolset to aid the role of the historian, is that of typology. Concerned with the venture of systematized categorization, the aforementioned acts of gathering, assessing, as well as grouping, lead to greater discoveries for each subject, and the singular use of one typology may partially reveal certain characteristics. It is upon the holistic view of the subject amongst multiple types that its individuality can be perceived, each revealing separate features. In an architectural sense of the role, the document is similar to a butterfly collector, accumulating a group of similar subjects who stand out against the observed norms of their background. This method was highly adopted in 19th century and emerged as a framework of interpretation for these observations to be derived from. In recognition of the need to expose both analytical and experiential realities of the site, Anthony Vidler’s “The Third Typology reveals the role of an architectural typologist throughout time.”

Vidler’s typological approach encompasses the shifting theoretical backgrounds of architecture leading to his lifetime. Beginning with the intellectual origins of the “Primitive Hut” during the Enlightenment, to the acceleration of architectural production during the Industrial Revolution, and then the introspective reflection of the city. Like Marc-Antoine Laugier’s concept of the Primitive Hut in his Essay on Architecture in 1775, the first type in Vidler’s writing focuses on the primordial abstraction of form, into identifiable and intrinsically interconnected elements: the column, entablature, and pediment. As Laugier identifies in the core argument of his writing, the departure from traditional approaches to design during the 18th century is replaced with the embrasure of architecture’s intrinsic nature, and the layout of its core elements. Through this physical analysis, the clarity in intentional compositions related to the simplicity of nature, following its digestion from traditional methodologies, became identified as Vidler’s first type.

The second typology is a response to the everpresent effects of industrialization during the 19th century. Fixedated with the evidence of technological advancements, mass production, and industrial efficiency in architecture, this grouping reveals the methods in which selected subjects were created. These technological advancements became identified through observable physical traces, and reveal not only the machines that manufactured individual elements of their composition, but also the strategic approach to their creation. The overwhelming functionalist attitude towards architectural developments at the time, is reflected in the perceivable fabric that emerges in this typology. With the efficiency of program, came the simplification of form. Reflected in the removal of any ornamentation, the visual composition of these groupings differed from those of their traditional environment.
The third typology set out by Vidler, was to embrace the reality of the architectural realm within the city. Not restrained by movements, and theories, this approach was introspective, and meant to discover the manifestations of those movements separate from their context. The city was perceived as a site in which a diverse range of programs coexist, and contains a complex composition of borders, an element fully accepted as a means of human habitation during the mid-20th century. As described in The Third Typology, “The city is considered as a whole, its past and present revealed in its physical structure. It is in itself and of itself a new typology. This typology is not built up out of separate elements, nor assembled out of objects classified according to use, social ideology, or technical characteristics.”

(Figure 44 - 45)

The tensions discussed in Chapter 2 are reminiscent of the subjects of a typological study of the city; by observing the boundaries of functions, the ethereal realities of architectural sites can be discovered. Opinions of locals and effects of external forces are discovered by encompassing actors that sit outside of the immediate site, or in this case, bunker. Similarly to the last two types, by analyzing the physical nature of the subject, the narratives associated with the perceived traces become detectable.

In the case of the Observation Bunker’s [1] analysis, Anthony Vidler’s three typologies are used as a primary framework, in which the discoveries aimed to emerge from each grouping are reconsidered. The second typology assessing the ripples of industrialization, though visually identifiable in The Anatomy, has been re-interpreted to encompass the historical upbringing of the bunker’s role in history. “The Family” therefore firstly analyzes the physical effects of program evolution in bunkers from their emergence in war history, to their extrapolation in architectural expression. To now identify the formal characteristics of the bunker, the first typology of the Primitive Hut is translated to “The Anatomy,” in which traces of Regelbau systematization of form can be found in the design of the observation post. Finally, tensions caused by the coexistence of functions are revealed to attain the bunker’s relation to its immediate surroundings. Although not a city, the immediacy of neighboring borders to the site in question begs for the clarification of its altered physical state.
Following this analytical structure, the bunkers are given a place in the grander scheme of both their place in the timeline of fortification evolution, and also of architectural movements. The second typology, as identified in Vidler’s writing, was formulated as a response to the rapid developments in technology and industry near the end of the nineteenth century. Placing the bunker amongst those that came before and after it, gives insight to the progression of the architectural elements that composed them. This grouping allows for differences in the bunker building type to become more visible through a diachronic means, as it changes in response to the development of war. As with the succession of each war, the physicality of each fortification is redesigned to fit the needs of their program.

Rather than looking at the entire timeline of fortifications, this method takes a slice of the timeline to analyze, specifically during the events of World War II. By cumulatively visualizing groups of drawings containing building elements associated with a particular task, a consistency in their forms is revealed. By dissecting architecture into identifiable parts, this approach aims to focus on the subject itself, and explores the fabric of interiority created by the utility of the Regelbau systematization. The consistency of formal qualities between programs reveals the logic behind their design, as well as the limits to their diversity within each grouping. While the Heuqueville Battery’s fortifications are identifiable in the Regelbau ‘catalog,’ Observation Post [1] remains a special construction, created on the basis of its combined programmatic need and unique relation to the landscape. Within the groupings created in this typology, traces of plans and sections, as identified, aim to reveal spaces reminiscent of the subject’s. At a smaller scale, the comparison of individual components remains the secondary grouping in this type.
The Witness

CHAPTER 3

In more detail, Type 1 speaks to the bunkers that have been destroyed due to land erosion over time, or from efforts of local towns- ships to break them down. The purposeful destruction of the structures was conducted directly following the end of the war, in an attempt to rid the coastlines of the “eyesore” that had been left behind. This destruction continued in the following decades, in order to make room for urban development or to rid farmers of these obstacles to their crops, since most bunkers are now located on pri- vately owned farmland. Type 2A bunkers are those that have been left to nature, and that are not considered a local attraction, but will inevitably convert to Type 1 from the lack of conservational efforts. Type 2B bunkers are those who have no official conservation efforts put in place but have human interaction or are considered an attraction by locals and tourists. In a few cases, Type 2B bun- kers are primary candidates for conservational efforts, as they are commonly known to the public. Type 3 speaks to those that have “official” conservational efforts put into place and are protected. Type 4 and Type 5 are rare but exist in areas of high population; the conversion into art can result from Type 1, Type 2A, and rarely from Type 2B, but both Type 4 and 5 are the result of programmatic alteration, where one rejects history, while the other embraces it.

Type 1: Destruction (purposeful or by nature)
Type 2A: Ignorance following abandonment
Type 2B: Celebration following abandonment
Type 3: Celebration following conservation
Type 4: Repurposing into art
Type 5: Habitation / programmatic change
Type 0: Unknown location
The deep mapping exercise was an investigative process where 103 bunkers were pinpointed geographically along the French shorelines facing the English Channel (the Atlantic Wall) and categorized based on the cases described above. Utilizing the typology of "The Martyr," each fortification was analyzed based on its physical conditions and immediate surroundings. The following statistics were gathered from the investigative research:

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>20%</td>
</tr>
<tr>
<td>Type 2A</td>
<td>32%</td>
</tr>
<tr>
<td>Type 2B</td>
<td>28%</td>
</tr>
<tr>
<td>Type 3</td>
<td>15%</td>
</tr>
<tr>
<td>Type 4</td>
<td>~1%</td>
</tr>
<tr>
<td>Type 5</td>
<td>~5%</td>
</tr>
<tr>
<td>Type 0</td>
<td>(?)%</td>
</tr>
</tbody>
</table>

The findings concluded that 80% of bunkers analyzed were abandoned, destroyed, while a fraction of that percentage are currently being locally acknowledged and celebrated. Approximately 20% of the bunkers along the French shores are being properly conserved or have been repurposed. The deep-map overlays diagrams, a boundary mapping, and identifies the major cities and towns in close proximity to the bunker groupings. The boundary mapping correlates to the progress of the Allied Forces within France following D-Day June 6th to July 24th, 1944. It is observable on the map, that the bunkers that were apart of the battle of D-Day, although not all fully conserved, are part of Type 2B, 3, 4, and 5, with less bunkers being part of Type 1, and Type 2A when compared to those on the eastern shores. Although all bunkers pinned on the map have been components of a beach raid, those on the beaches of D-Day (Utah, Omaha, Gold, Juno, and Sword) are significantly in better condition, and intact.

The two smaller scale maps located in the center of the mapping, speak to this discrepancy of current conditions. The lower map is that of Sword beach, whereas the top is located in Dieppe. The series of aerial photos at the top of the deep-map depict a visual transition (left to right) from Type 1 to Type 5, where the bunkers located on Dieppe sit of the leftmost side of the gradient, and the bunkers located on Sword Beach sit on the right-most side, indicating the bunkers’ polarizing physical conditions.
Notes

Chapter 3


61. Ibid.

62. Ibid., 80.

63. Ibid., 81.


67. Ibid., 14.

68. Ibid., 14.
It is within this section of research that the conclusions drawn from previous chapters will be elaborate upon. The physical tracings of the environment affecting the space’s exterior and interior, appear in the form of natural deterioration of existing components, signs of human habitation, and structural deterioration.\textsuperscript{69} Though easily identifiable, to ascertain why, how, and perhaps when these influences were made requires their continued evaluation. In search of the narratives that enabled its current conditions, these physical defects are identified in detail, extracted from the background upon which they are found and analyzed as isolated fragments. Through informed judgment, these explorations remain hypothetical as a result of the scarcity of recorded information. As web-based enthusiast sources remain the only photo evidence of the fortification’s interior and exterior spaces, these, as well as written accounts will be primarily used for the following explorations from an observational standpoint.

Through interpretative means, the intellectual approaches to the Wall, as well as the observations made during the typological assessments of its components, are used as the point of departure. In the venture of communicating the experiential qualities that the Heuqueville Observation Bunker has to offer, a new approach must be taken on how these stories are “told.” An overview of the mediums utilized thus far to explore these fortifications or war sites as a greater category reveals that there already is an abundance of written and visual material available on the subject. The written materials contain both descriptive and narrative works, while the visual materials consist of recordings such as photographic evidence, illustrations, or architectural drawings. There exists a small number of recreations of their tangible presence or physical models which enable a close resemblance to their presence.\textsuperscript{70} Even though they are publicly available in museums or exhibitions, access to them is generally restricted to those who reside nearby, or who have the ability to visit them in person. To communicate and fully realize the fortification as a “Spatial Relic,” this chapter seeks to fill a gap in current methods of historical documentation, and dissemination.
In Observation

Section 1

To fabricate this re-creation of the bunker’s spatial qualities, its form must be understood through architectural means. By posing the building in this method, the nature of its spaces, along with their resulting psychological influence on its inhabitants can be ascertained. As previously discussed, plans and diagrams reveal the logic applied to the fortification’s composition. Therefore, the following representations aim to create an understanding of the unrecordable, or the existential narratives its spaces have to offer, through an empirical depiction. A fruitful investigation of the bunker’s experiential narratives by analyzing its drawings, reveals the presence and importance of its immediate and extended environment. ‘Environment,’ in this sense, speaks to the immediate spatial tensions with bordering sites, and its relationship to the landscape it is embedded within. With the utility of scale, its position amongst its greater neighbors is revealed, whether this be at the scale of the battery, the northern coast of France, or the entirety of the Atlantic Wall.

The written descriptions succeeding each drawing, engage in the act of reading into their architectural qualities through descriptive analysis. A view of their proportional nature compared to that of its inhabitants, creates a clear view into how each space in the bunker may “feel” to reside in. The way the ceiling, floor, and wall conditions are paired with the introduction of erosion, how material qualities are affected by the temperature, and in this case how audio reverberates in each room, all these details cumulatively inform the felt character of the bunker’s interiority. In this observational means, these conjectures only aid to inform its imagined presence.

If one were to see the walls of the Observation Bunker as canvases, what discoveries can be made from the traces seen on them? Piece by piece, the visual identifiers seen painted onto them provide a window into how spaces have been influenced. Either from natural causes, or from external influence, these tracings once again require the implied understanding of the building’s conditions to create informed descriptions pertaining to the influence of time on its physical presence. Even though the question of when each tracing appears remains largely unanswered, the question of by whom or from what cause, remains an area of research that becomes clearer with these investigations.71

The first form of deterioration to be understood in greater detail, is the growing amounts of erosion found within the bunker. Starting from the eastern–southeastern most point of the bunker, earth has entered the bunker from Living Quarter rooms [5A], [5B], and their adjacent stairwell, [7B].72 Due to the three easternmost escape hatches, two southernmost escape hatches, two stairwell firing windows, and doorless staircase, the sunken nature of the bunker allowed for the entry of earth, rubble, waste, and plantlife. As seen below, following the 1–2 meter thickness of earth situated in the living quarters, the tight entry and lower level of the doorway separating [5B] and [4B] creates a buffer zone that decreases the amount of dirt and the size of rubble that accumulated throughout the rest of the bunker. Ultimately terminating at monitoring room [1].73 The lack of erosion entering the western stairwell [7A] is predicted to have been caused by the large piece of furniture blocking 70% of the entry, allowing only fine dirt to accumulate along the stairs, while gathering mostly towards the staircase’s left wall. The remaining spaces, with the exception of the observatory [1], have accumulated a consistent bedding of dirt and rubble on their ground plane. It is assumed that the observation post’s elevated position relative to the remainder of the bunker, along with its opening’s disconnect with the landscape, has rendered the space empty of rubble or erosion.

Figure 51.
To explore the manifestations of external influences on the bunker’s walls, a similar diagrammatic approach to their portrayal is taken. Exploded wall elevations of the ten rooms located in the Heuqueville Observation Bunker will be utilized to diagrammatically visualize the locations and variations of damage that has accumulated on the walls of each room respectively. In this search, remnants of spatial elements that once existed within these spaces are also identified in these “hieroglyphs.” As mentioned previously, the use of documentative photographs taken of the bunker’s interior allow for the below assertions. By considering these descriptions to be that of hypothesis rather than proof, room for error is implied throughout the investigations. The order in which the rooms will be analyzed will be from east to west, and to clarify what is being studied in this endeavor, the following legend (Figure 53) will be used to describe each exploded wall elevation:

The following depth map displays how the erosion entering the east side spills throughout the bunker, in relation to the distance of the every rising interior ground plane and concrete floor-plate beneath it. This diagram was created to help clarify the exact depth of erosion relative to the form of the bunker, rather than basing its depiction purely on its relation to the ground plane. For example, in areas such as Stairwell [7A] the depth of visible erosion is understood to be less detrimental to the interior of the bunker, when compared to its appearance in Figure 51.

Figure 52.

Figure 53.
Chapter 4

Figure 54, Figure 55.
At this stage, exactly what medium is to be utilized to convey the specific bunker’s narratives, is determined based on the comparison of existing methods. While physical and spoken truths surrounding the fortifications exist, no sources speak of the existential reality felt while walking through them. An understanding of the subject, seen amongst its physical surroundings, is lost with the utility of current dissemination methods. In the case of the Heuqueville Observation Bunker, its large-spread photographic documentation allows for a visual understanding of the site’s conditions, environment, and formal features through its mass attraction as a historical spectacle. Though these photos reveal the immediate environment quite clearly, the inconsistency of the fortification poses to its nearby urban fabric or farmland landscape, remains at the standpoint of the observer. Similarly, the factual written accounts of its functions and present day reality, do not entice the reader beyond what is being described, but rely rather on factual descriptions.

Coordinates, type identifications, typologies, nor drawings can solely convey the physical act of confronting the fortification, but its with in this realm of imaginative exploration where its incorporeal truths are studied. In the sense of investigating the effects of space on oneself, descriptions of the felt rather than the seen, as conducted by Paul Virilio, remains the only perceivable evidence of an architectural approach to the buildings. Following suit to this methodology, are the recordings of enthusiasts in the form of digital photographs, and public videos of the fortification’s exterior, interior spaces, and surrounding site. Framing the bunker as the primary subject to these recordings relays a new ‘type’ amongst the existence of its common portrayal. Seemingly inviting the viewer to read further into the subject matter of these sources, the subconscious wandering necessary for this case is dependent on the viewer’s participation.

Though the manifestation of these romanticized perceptions can be applied to any of these photographs, it is the attempt to compose the bunker in a manner that solicits an internal surrender to what is being viewed that enables the discovery of these hidden narratives.

What is, or was contained inside the bunker? When will the cliffside erode alongside its concrete blockhaus? Who resided inside the fortification during the war? Why has it been left to decay?

As fact-based research of the site can be completed through existing methods, the communication of its non-material realities remains an area that is largely unrealized. Framing an interaction with the fortification that involves the physical, participation of the observer, or in this new case, the user, is realized through the use of game engines. By orchestrating a Virtual Experience to supplement passive approaches for studying the bunker, a game creates the opportunity for the eluded internal narratives to manifest from the exploration of the bunker in its intended sense. Rather than implying a sense of space from architectural drawings, photographs, or written descriptions, this comprehension is achieved within the ability to navigate its interior spaces in the professional order in which they were designed.

From the standpoint of heritage architecture, enabling a virtual experience in which user agency becomes the integral mechanic to communicate information, enables a sense of realism that embraces the essence of the site, rather than the information pertaining to it per se. The effects of “authenticity” therefore should be considered, what remains consistent throughout current methods is how the recipient may only examine the information provided through detached observation. Unable to interact with the subject matter of these mediums in a physical sense, the truth of the site, as interpreted by each viewer, is created from the combined use of an empirical comprehension of its history and form, and through the subliminally revealed narratives.

Similarly put, “cool authenticity” and “hot authenticity,” are described as ‘knowledge,’ and ‘feeling’ respectively, and are required in order to create a holistic understanding of the bunker itself. Identified by Tom Selwyn, the defined “cold” authenticity is embedded in the responsibility of representing the bunker’s form, both tangible and intangible, along with presenting its historical attributes accurately. Additionally, “hot” refers directly to the user’s existential authenticity, and it highlights the intersections between the presence of the subject, in this case the bunker, and the user’s sense of self. Seen from the perspective of a tool amongst others, the medium of virtual storytelling allows for this imaginative transition to occur in order to magnify both the significance of empirical realities, but also the effects of the space on the “self.” In this case, the state of perceived, or imagined authenticity, becomes curated at a degree in which the formal qualities of the object being displayed works in unison with the knowledge being passed along with it.76

Section 2

In Experience
With the establishment of a virtual experience as the medium for this research, a systematized approach to the narrative structure of the experience is taken. In order to accurately frame a recreation of an encounter with the fortification, the significance of the storyteller’s interpretation of the site’s ‘truth’ becomes realized. In Walter Benjamin’s essay, “The Storyteller,” he explains that, “The more natural the process by which the storyteller forgoes psychological shading, the greater becomes the story’s claim to a place in the memory of the listener, the more completely is it integrated into his own experience, the greater will be his inclination to repeat it to someone else someday, sooner or later. This process of assimilation, which takes place in depth, requires a state of relaxation which is becoming rarer and rarer.”

Benjamin’s definition of ‘shading’ refers to the psychological effect of external actors on an individual. This foregoing of physical experiences not only reinforces the authenticity of the event, but allows for the communications of the emotional, human-centric side of the discovery. To realize the importance of this perspective, the narrative structure of the virtual experience created for the Observation Bunker uses Paul Virilio’s description of his discoveries as ‘truth.’ The four stages ascertained from this confrontation noted in Chapter 2, “In Search of the Liquid Continent” (Wandering, Encounter, Concession, and Dwelling), are explored in order to structure the sequence of events that occur during the constructed experience. In this sense, the utility of agency within this chosen method of communication allows for both the experiential weight of the bunker to be contemplated, and contains the ability to convey the perspectives of those who have experienced the sites firsthand. In its orchestration, the written components of Paul Virilio’s text recreating an imagined visitation of these bunkers are paired with the aforementioned photographic captures of its physical presence.

To create a virtual experience through the use of Unreal Engine 5.1 specifically, the digital recreation of the bunker’s physical form, along with the representation of its surroundings was necessary. The setting of this story will be that of the observation bunker, its cliffsides, the beaches directly below and the farms framing passageways leading towards it, all approximately within a 100 meters radius of its current location. Information extracted from discussed sources allowed for the duplication of the spatial relict’s formal qualities, in conjunction with historical documents and drawings empirically depicting the architectural composition of bunkers similar to that of the Hauquerville Observation Bunker.

Though there exists an opportunity in these methods to depict the site through a stylized manner, the attempt to frame a sequence of events that lead the user through the experience was conducted in a realistic means. This decision was made to allow for the narrative structure to be conveyed solely through a perceived sequence of spaces created by the fortification. Silent storytelling is the primary method in which the bunker is communicated to the user. Without the presence of a spoken, written, or explicitly visual narrative, the user is guided purely by the effect of spatial order and design. Relying therefore on the user to read into the spatial qualities of the site, the location’s design dictates the methods in which its contents are discovered and explored, all while exposing the reality of their circumstances. The following sections identify the intended direction of the user in the scene, while the intents of each section of the storyboard, are described below:
Wandering
The primary position of the user is selected through the user of a title screen, allowing the se-
lection from five predetermined positions amongst the outskirts of the map. The locations at the
level of the bunker, are located either at the pathways utilized by farmers at the fringes of their
crops, or at the leftover space between the borders of western crops, and the immediate cliff-
side. These locations are intended to place the user far enough from the fortification, so that an
act of simply walking can take place, unbeknownst to its presence. An alternative location that
does not allow physical access to the bunker, but rather a view from its exposed underside can
be achieved from the ocean level spawn location.

Encounter
As a result of the aimless wandering around the site, the direction of the pathways lead to in-
evitable discovery of the observation bunker. The “encounter” seeks to frame the emotions felt
at this moment, where the purpose behind the experience itself is subconsciously understood.
Urging the user to pursue the investigation of the foreign form amongst the grassy landscape,
paints this section of the narrative as the moment of internal surrender, that is, to the moment
of encounter and unfamiliarity with the building.

Concession
In accordance with the site’s current conditions, its visitation has resulted in its accessibility, in
the form of a makeshift entrance to its interior. Though the surfacing entrances of its stairwells
have been blocked off either by erosion, or assumed human intervention, the entrance located
in Living Quarter [5B] allows entry parallel to the landing of Stairwell [7B]. Here, the succes-
sion of spaces and physicality carry truth to the subject that is being discovered. Weight in the
walls, heaviness of a claustrophobic roof, cold and disconnected interiors, disconnect from the
environment above, aim to “shade” the user by framing them as witness to the bunker’s physi-
cal composition.

Dwelling
Following this succession of spaces, will result in the eventual termination at the bunker’s
spatial climax, the observatory. Fixed directly over the sheer cliffside from which it is freely
suspended, it offers a clear view through its decisive horizontal opening, over the English Chan-
nel into the “liquid continent,” as Virilio refers to it. The internalization of the bunker’s purpose,
alongside the experience of discovering its interior spaces, paints a depiction of the building in
the mind of the user. The return to the exterior of the bunker, provides the user with the ability
to alter its interior spaces, revealing the identification of damage types, information regarding
the fortification’s functions, room programs, and potential furniture layout.
Technical Analysis
Section 4

Though there exists no current accurate digital model of the fortification, nor data containing the landscape it sits upon, a collection of recordings in the form of images and video that explore the site found online, are used in their stead. Within aforementioned enthusiast websites, photographs of the bunker’s exterior and interior spaces have been documented, as well as a video walkthrough depicting the building, followed by a prolonged site exploration with the use of a drone. The approach taken to recreate the physical site with the exclusion of a site visit, meant the reliance on these mediums. Below, is the collection of images that enabled the recreation of the Heuqueville Observation Bunker.

In the endeavor to create this virtual experience in Unreal Engine 5.1, the primary areas that require development are identified in pages 79 and 80.
Serving as the base for all other models contained within the level, the sky, sun, and their effects on actors placed within the engine must behave in a natural manner and cast light onto the scene accurately. A piece of technology prioritized in this virtual experience is ‘Lumen’, the environmental lighting system introduced with the engine’s 5th version. As opposed to managing light sources, environment and sky actors, or baked lighting altogether, the real-time volumetric approach allows for both an accurate representation of Earth’s atmosphere, but also complete control over the conditions of the sky in real time. Through controlled manipulation of the tool’s system’s parameters, weather events particular to the area can be introduced to the experience. High volumes of dense fog, contrasted by clear atmospheres during particular days further reveals conditions that the site often appears in.

Environment

This category pertains to the physical actors that populate the experience. Though the bunker is the central point of the scene, the proposed narrative structure which allows the user to approach the bunker from its exterior, requires the recreation of its immediate, and far surroundings. Therefore, the cliffside landscape, beachfront, and farmland are developed alongside the bunker to create a holistic representation of the site. In addition, megascans data created by Quixel, was utilized to introduce visual complexity that, due to the lifelike geometries, offers a sense of realism and detail to the overall scene that would not have been achieved at this scale through a manual modeling process. These megascans are placed through the scene to complete the appearance of the cliffside, farmland, overgrowth, and building erosion, as these are the areas interacted with by the end-user.

Materials

Following the placement of the scene’s physical actors, the materiality of each is painted onto the developed meshes. With the exception of megascans data, the modeled landscape and bunker require the application of textures to allow for the likeness to their real-world counterparts. Texture sets provided by Quixel, were manipulated and painted onto the surfaces of the fortification’s visible exterior and interior, and were applied to the overall landscape through a master material whose purpose is to allow for subsequent textures to be manually applied. During this stage, documentative material of the bunker is referenced in detail to replicate the conditions, palette, tones, and textural quality of the site.

Gameplay

Following the holistic recreation of the landscape and fortification within the projected scope, this section considers how the user will be interacting with the digital environment. By extracting Virilio’s approach to the site, being that of a natural stroll interrupted by the presence of these bunkers, the method developed for the experience replicates just this. Providing the user with a basic set of controls to allow walk throughout the level, crouch and prone positions to enter the fortification, along with a flashlight to illuminate the interior, all areas of the level can be explored in full, without the need for external guidance.
Rhino 7 was the software utilized for the modeling of the bunker, its interior erosion, and immediate external landscape. This process of creating the models that populate the virtual experience, began with the creation of the bunker to guide the development of its subsequent landscape. Beginning with satellite imagery and photographs of the fortification’s exterior, its form was traced to scale in plan, allowing for the extrusion of its footprint within the modeling software. Closely following all details recorded from these photographs, the intentionally designed aspects of the bunker were recreated. Where applicable, external sources have been referenced throughout the modeling process, in the search for similar features found in other fortifications of the Regelbau. Aspects of the bunker’s form that are researched externally, include the design of monitoring and communication rooms, ventilation systems, and exit hatch designs, as these features have been affected most by natural deterioration. To model the interior spaces in their correct positions, the dimensions of wall thicknesses designated to the VF typology identified in Figure _ were prioritized to then dictate the dimensions of each room.

Though the geometry created thus far contains clean edges, flat faces and perfectly intact forms, it only serves as a canvas for the remainder of the bunker’s reconstruction. In anticipation of the manual application of materials to the bunker’s geometry, each room is isolated from the model as an open polysurface. The UV maps of each are edited, joining all geometry in an exploded fashion, and flipping faces that may have been reversed as seen in Figure 59.

During this process, each element contained within the map is scaled uniformly to ensure the textures that will be applied over this map will remain proportionally scaled. This is repeated for each piece of complex geometry that has been modeled within Rhino 7, such as its floorplate, erosion surface, external walls, and ceiling components.

Throughout the bunker’s texturing process, Quixel Mixer was used to create the unique materials for each model, paired with Quixel Bridge to view the provided materials in a detailed manner. To begin texturing the interior walls, the damage diagrams depicted in Figure _, were mapped onto each room’s UV map, and acted as the base layer for the painting process. In the endeavor to replicate the unique tracings across these surfaces, materials were selected from the extensive catalog of surfaces, and manipulated to resemble those seen within photographs; by designating these diagrams as the guiding layers of the texturing process, the effects and patterns of each damage type become the focal point of the bunker’s appearance.

![Figure 59](image-url)

![Figure 60](image-url)
Using a set of alpha brushes, the according materials were painted onto the walls, creating a representation prioritizing the effects of time, and occupation. The above programs and workflow were used in the creation of the bunker’s remaining meshes with the exclusion of damage diagrams to base the material process. Due to the changing conditions of the bunker’s exterior appearance as seen in the collection of photographs, its materials were painted based on existing geometry to guide the placement of each texture set rather than replicating one image’s contents.

Following the application of materials, the complexity of the erosion seen inside approximately half of the fortification required the import of megascan data imported through Quixel Bridge into the Unreal project.

The materials of each new asset imported, were customized to match their real life equivalents through manipulation of material adjustments. To limit the amount of assets read by the engine during runtime, the amount of unique actors utilized to populate the scene remained low, and instances are rather made of each. While duplicating the asset within the level and placing it elsewhere aids in reducing the overall file size of the project, the assets placed must be done so in a manner that removes any resemblance between the two instances. Within the virtual experience, if two duplicate bricks appear side by side, there is a certain sense of authenticity that is lost at that moment, straying away from the explorative process. As such, the placement of these meshes required the consistent manipulation of their scale, orientation, and visual appearance through the use of subsequent material instances. These meshes play a vital role in not only the appearance of the bunker, but help convey a sense of physicality, as the wavy landscape created within Rhino does not convey the same presence alone, but rather acts as a guide to place the megascans in most areas.

To complete the presence of the bunker’s interior, a Niagara particle system was used to emulate the effect of dust particles suspended in the air. These sprites spawn at predetermined rates, and move throughout the space within a specified life-span. The material applied to this actor is two-sided, allowing the sprites to become illuminated under the flashlight held by the user. Furthermore, to highlight the area in which natural light enters the fortification, the lighting conditions set for the scene, alone, do not cast enough indirect light to indicate their presence against the dark interior. Point lights were positioned strategically to emulate the effect of light scattering that would typically occur near openings such as the following seen in Figure 62. Through temperature adjustments to each light, the illumination of these areas is altered to match the tone of the exterior skylight.

The materials of each new asset imported, were customized to match their real life equivalents through manipulation of material adjustments. To limit the amount of assets read by the engine during runtime, the amount of unique actors utilized to populate the scene remained low, and instances are rather made of each. While duplicating the asset within the level and placing it elsewhere aids in reducing the overall file size of the project, the assets placed must be done so in a manner that removes any resemblance between the two instances. Within the virtual experience, if two duplicate bricks appear side by side, there is a certain sense of authenticity that is lost at that moment, straying away from the explorative process. As such, the placement of these meshes required the consistent manipulation of their scale, orientation, and visual appearance through the use of subsequent material instances. These meshes play a vital role in not only the appearance of the bunker, but help convey a sense of physicality, as the wavy landscape created within Rhino does not convey the same presence alone, but rather acts as a guide to place the megascans in most areas.
A lack of available sources pertaining to geospatial data of the French coastline was the first roadblock encountered during the development of the exterior scene. Due to the inability to access Digital Elevation or Terrain Models (DEM & DTM), an alternative method revolving the use of height maps was taken. Utilizing public, low-resolution height map data of this location, its general shape could be formed through Unreal Engine’s ability to apply this data to a flat landscape. Though not accurate to the cliffside, this gave a sense of scale between the ocean plane, and the tallest point of the cliff above. To manipulate the landmass further, a traditional approach within game design towards landscape creation was adopted, in which alpha masks were developed and utilized as brushes within Unreal’s landscape editor, to manually push and pull the surface until the desired form was reached. To aid this process, a scaled satellite image was applied to the landscape to identify its key features, and clarify the cliff’s current edge.

Vital to the level, and similar to the bunker’s development, was the application of materials. Though Quixel materials were also used in this application, the methods taken to paint on each material type varies from previous workflows. As a result of the landscape’s sculpting being conducted within the engine, its mesh cannot be exported directly, but can only be translated through segmented heightmaps that enable its duplication in other instances of the engine and not external softwares directly. Therefore to create the material in a similar manner such as that done within Quixel Mixer, the landscape utilizes a singular master material which reads from a collection of predetermined texture-sets. Within Unreal’s Landscape Painting mode, a total of 15 separate materials are applied through similar alpha brushes as those utilized during the land’s sculpting.

The master material contains functionality that removes any visible tiling seen commonly on digital landscapes, while preserving the ability to blend between all texture sets according to brush opacity and flow settings. Throughout the development of the level, the landscape was continuously adjusted as more actors were introduced to the scene to improve the visual blending between each asset.
Similar to the erosion landscape created for the bunker’s interior, the exterior landmass requires supplementary meshes in the form of megascans 3D objects to further improve the diorama's visual complexity and likeness to reality. Due to the ability nanite mesh formats have to handle large asset-counts, draw calls and triangle counts, the scene can freely be populated with highly articulated meshes, each hosting 2K, or 4K textures.

The areas in which these assets are used, primarily include the silt terrain, chalk cliffs, and beachfront locations. A drawback of Unreal Engine’s sculpting method is the inability to create suspended elements; due to the landscape actor’s reliance on heightmap data, the steepest translation is limited to ninety degrees. The placement of these landscape actors allowed for the “suspension” of landscape elements as seen throughout its photographs seen at the western edge of the farm level.
Though the landscape’s surface and applied megascan meshes create a defined base for the scene, when placing the camera at the level of the user, the ground appears similar to that seen in the bunker’s erosion surface. Acceptable for areas far from the navigable zone, the flat surface requires the application of foliage. Seen scattered throughout the fortification’s immediate land, farmlands surrounding, cliffside and beach below, a variety of flora sways with the high winds seen at the height of the cliff’s receding edge. The master material previously created, in this case, also acts as a base for megascan foliage actors, and 3D plants developed by Quixel to be placed in their correct positions.

As with all other imported scan data, material instances for each actor are created and manipulated, allowing for the resemblance of dried grass atop the bunker, the formation of a visible pathway seen leading towards it, along with the expression of lively overgrowth seen throughout. The movement of these assets bring life to the scene that could not have been accomplished with the static landscape meshes alone; similarly completed with the replication of dust within the interior spaces, the presence of movement without any input from the user further develops the world-building of the virtual experience. Update 5.1 of Unreal Engine allows for foliage actors with masked faces to receive the nanite mesh format, allowing for their application across a broad area with limited performance drawbacks for the amount of meshes being produced within one level.
To complete the environment, the atmosphere above, and oceanic plane below are the two components missing from this equation. As the narrative invites the user to peer into the horizon of the English Channel, its composition must be articulated. Unreal Engine 5’s native Ocean actor provides preset controls that adjust the shape of the water’s surface. Affecting wave amplitude, shape, direction, or speed, the commonly calm waters seen on these French shores were recreated. Above, to simulate the hazy atmosphere often seen in these cliff-bound sites, Exponential Height Fog actors create the base layer of visible haze to both recreate the real conditions but also to blend the border between the modeled landscape’s end, and the sky beyond. To develop this effect, a directional - moving fog was created through the use of a custom material applied to a collection of two-sided planes scattered in strategic locations through the level’s borders. These ‘fog plains’ emulate the patches of mist layered over the visible landscape and replicate the movement seen amongst foliage, within the atmosphere.

The final scene contains a total of 957 unique assets, with a total resulting 65,634 Hardware instances. A cumulative triangle count of all unique assets existing within the project amounts to 1,383,914 triangles, while accounting all instances results in 193,260,528 triangles. Though these numbers would not run in consumer hardware within previous versions of Unreal Engine, Nanite and Lumen have provided the freedom to focus on scene development.

The hardware utilized to demo this application resulted in a consistent 60-70 frames per second, when played from a Standalone Game within the engine Editor.

**GPU:** NVIDIA GeForce RTX 2080 Super

**CPU:** Intel Core i7-9700F @ 3.00GHz

**RAM:** 16 GB DDR4

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**Chapter 4**


72. Ibid.

73. Ibid.

74. Ibid.


76. Ibid.

77. Ibid.


79. Ibid., 5.

80. Ibid., 5.


82. Ibid.
With the dissemination of the bunker’s current physical state and collection of narratives associated with it, a self reflective approach to the project as a whole is taken to understand how current work-flows have affected the research and end-product. The circumstances of both the times in which this thesis was developed, along with the availability of accessible and above all, trustworthy sources, have imperative rippled on the depth of said research, and its accuracy in the comparison of the physical location’s digital counterparts. This paper was written during the inception of the pandemic caused by the virus COVID-19; as a result of this, a physical site visit was not a viable possibility during the time of research. Relying therefore on the discovery of the site through the exact methods that were spoken of throughout ‘Safekeeping and Documentation’ of Chapter 2, how could the ethereal nature of the site be relayed in this experience if its creator has not visited the site? Discussed in this section will be the afterthoughts around the processes taken during this project, along with how separate approaches or work-flows can accomplish the same task.

Though these fortifications stood as the face of German occupation of France, and most of mainland Europe for that matter, reading further into their forms and into the psychology of their creators gives a glimpse to the catalyst behind their inception. While being a defensive superstructure creating a wall of intimidation to invaders, they represent an architecture of fear. Architecture whose primary purpose is to protect from the exterior, permits the construction of their robust forms, in the attempt to ease the mind from assumed danger. Within Walter Benjamin’s descriptions of the people who witnessed the calamity of war firsthand, in his prelude to discussing the importance of the storyteller, he comments, “A generation that had gone to school on a horse-drawn streetcar now stood under the open sky in a countryside in which nothing remained unchanged but the clouds, and beneath these clouds, in a field of force of destructive torrents and explosions, was the tiny, fragile human body.” (Walter Benjamin, Storyteller). Posing these buildings as serving to this function, the identification of the intentions behind their creation depicts an innate understanding of a widespread impending doom, and subsequently the magnitude of war.

Reflections

Chapter 5
Current Methodology

Section 1

With the primary utility of photo evidence to construct a three-dimensional model, the semblance of spaces is accomplished, but its exact likeness to scale and proportion may relate only closely to that of the original. As discussed previously, the recreation of its form was completed through an iterative process involving the re-examination of photo and video evidence, to ensure the cohesiveness of the space from each available angle. Though there exist only a handful of these sources, its general spatial qualities, and primary elements that relate to the programmatic use of the fortification, such as exit hatches, air ducts, or recesses in the floorplate were focused on during this process. As with the material traces left on its interior and exterior faces, their recreation, or ‘painting’ in essence, was calculated through the use of the visible formwork contained within the bunker’s walls. These concrete engravings were used as guides, to allow for the correct placement, scaling, and overall shape of each damage type identified.

It is important to note at this point, that the approach being described in this thesis is that of curation, rather than purely conservation. Involving the communication of its value in realms of history, education, culture, and architecture, the goals for this endeavor aimed at revealing these natures through the use of a new medium. The overarching objectives in this communication of narratives was two fold: (i) to understand the succession of events that relate to the bunker, both in a historical, present, and proposed sense; and (ii) to embrace the psychological effect of the space through storytelling alongside a heightened appreciation as a spatial relic.

During the orchestration of the virtual experience, the method of experiencing the site in such a manner that employs the real-time use of user inputs was realized to allow for these characteristics of the bunker’s intended design to be comprehended in a spatial means. What is currently missing in heritage architecture is the dissemination of subjects with a focus on the listener, or user’s reception through the use of storytelling and immersion, rather than the sole collection of relaying of information. Accuracy does not innately translate to immersiveness, but can oftentimes take away from it. As described by Benjamin, ‘Every morning brings us the news of the globe, and yet we are poor in noteworthy stories. This is because no event any longer comes to us without already being shot through with explanation. In other words, by now almost nothing that happens benefits storytelling, almost everything benefits information. Actually, it is half the art of storytelling to keep a story free from explanation as one reproduces it.‘ 84 The side of the site that cannot be captured from these photos – the unrecorded, unrepeatable individuality of its character, is what remains the focus of this experience. Through the utility of a new medium to re-communicate these characteristics, light is brought to their reality, past that of the Google image search.

Proposed Methodology

Section 2

Had it not been for the pandemic, firsthand research would have been conducted in-person at the site of the Heuqueville Observation Bunker. A new workflow can be imagined in the stead of that currently completed. A site visit to the fortification would have given access to a multitude of sources containing empirical and ethereal truths, and revealed a firsthand impression of the subjects amongst their greater surroundings. Though a visit of the observation bunker itself remains a task too dangerous for the common enthusiast, the town of Heuqueville, along with its inhabitants, remains a fruitful source for discovery, recording, and reflection.

The thesis’ current reliance on external sources for its comprehension ties its contents to the perspectives of others. The narrative richness proffered by a physical approach cannot be replicated by virtual experiences, as in-person and virtual visits are two different things. 85 Digital models benefit from the technological advancements of photogrammetry and laser scanning technologies, allowing for the generation of geometry from these scans directly, as opposed to a traditional, manual approach to digital modelling. 86 Combined with the extraction of color data from these scans, a highly realistic model can be built. Meanwhile, the potential for Unreal Engine 5 and Nanite to handle the weight of photogrammetric meshes remains an area potent for exploration.

The digital recreation’s likeness to the concrete bunker, in all its specificity, holds further potential, and specifically, that of carrying detailed historical narratives. Though current recreations of the bunker’s likeness are presented in a directed manner to expose their realities, this proposal strives to reveal the bunker’s interior according to a choreographic sequence. This thesis envisions an alternative methodology that differs from that of enthusiasts’ photographic accounts available on the web. Though its accurate representation in the game-engine may narrow the narrative in comparison to its built physical counterpart, the sacrifice made to employ a non-physical approach to the space allows for each space to be replicated based on presence.
In future developments of bunker studies, a greater focus must be on the question of architectural conservation. Given that remnants of war are, in most cases, left unprotected and undocumented following their discovery, a comprehensive approach toward bunker ruins is called for at this time. The analysis of the Heuqueville Observation Bunker has here been completed in the context of the Heuqueville Battery, thus yielding a broader contextual understanding. Nonetheless, a stronger understanding of the interconnections of the bunker network as experienced in the present, will be achieved via a larger study pool. The greater the number of sites recorded, the further interconnections can be identified. As such, the development of a regulated, administrative database capturing the positions, types, and conditions of found or past war sites of France remains to be done. Today, the ruins, with their touristic allure, draw the uncoordinated and unofficial attention of enthusiasts. A unified effort to utilize their presence in a constructive manner remains unachieved.

To go beyond current haphazard conservation efforts, heritage architecture authorities must recognize the intangible qualities of sites like these when making decisions about designations. A digital model that supports the act of discovering these structures according to an intended spatial sequence and to related stories of its past, could fill this intellectual gap. Within this proposed database, like that seen in the eDoB, the ability to explore the spaces opens new doors for knowledge transfer to younger generations.

A final layer of this knowledge repository would be the introduction of Virtual Reality: a model that would invite users to embrace the site via a physical approach to their virtual discovery. Non-reliant on a keyboard and mouse, the way in which spaces are explored in VR is through body movements in tandem with immersive imagery. As such, VR might offer a path toward embodied understandings of the site. This said, current VR applications privilege spectatorship over historical facts and contexts. The aforementioned idea of spatial comprehension via a digital database, begs the question of how VR might be used to deepen our understanding of history and nurture collective memory.
Endnotes
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