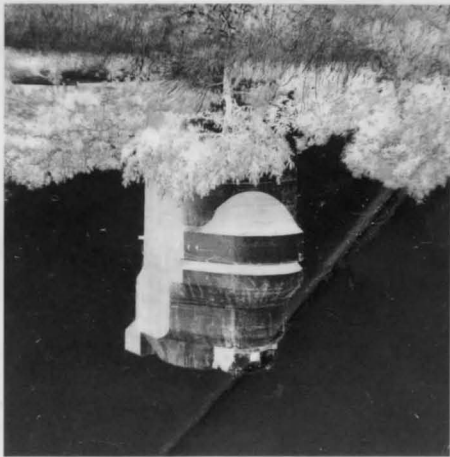




PAUL VIRILIO
BUNKER
ARCHEOLOGY



PRINCETON ARCHITECTURAL PRESS

To Captain Jean Gruault

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Bunker Archeology
Paul Virilio
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PREFACE	9
MILITARY SPACE	17
THE FORTRESS	27
THE MONOLITH	37
TYPOLGY	49
ALBERT SPEER	55
CARTOGRAPHY	62
CHRONOLOGY	67
WAR LANDSCAPE	75
ANTHROPOMORPHY AND ZOOMORPHY	89
THE MONUMENTS OF PERIL	121
SERIES AND TRANSFORMATIONS	139
AN AESTHETICS OF DISAPPEARANCE	167
DIRECTIVES OF WAR	181
AFTERWORD	197
INDEX	209
BIBLIOGRAPHY	212
BIOGRAPHY	213



One of the essential characteristics of the bunker is that it is one of the rare modern monolithic architectures.

While most buildings are embanked in the terrain by their foundations, the casemate is devoid of any, aside from its center of gravity, which explains its possibility for limited movement when the surrounding ground undergoes the impact of projectiles. This is also the reason for our frequent discovery of certain upturned or tilted works, without serious damage. This homogeneity, this monolithic character, is useful for us in being able to reveal several factors at work in modern warfare.

Since the arming of the jet, and especially since the arrival of artillery on the scene, warfare has not only created a landscape by defensive constructions, by the organization of fronts and frontiers, but it has also competed successfully with natural forces; firearms, explosives, smoke screens, and gasses have contributed to the creation of an artificial climate, reserved to the battleground or, more precisely, to the moment of combat. This discovery itself deserves to be closely studied, for it is the origin of what we are now—though not for that long—used to calling pollution, saturation, and biological disequilibrium. The art of warfare aims at the constitution of an unhealthy, improper place for man just where he used to dwell—first by the rain of arrows and lances on the adversary, then by the catapulted impact of heavy boulders and cascades of burning material falling onto the assailants. But, apart from the arson ravaging huge forest expanses and the conquered cities, the comparison with atmospheric forces was weak until the development of the cannon, which allowed for a beginning in the saturation of space by canister shot, the firing plans of batteries and counter-batteries.

This is evidenced moreover in the arrangement of bastions and fortified places in the classical period, where the materialization in stone of potential artillery trajectories permitted the elaboration of the general form of the rampart for the fortified city. As Errard de Bar-le-Duc stated, "The art of fortification is but the art of setting up or spreading out the lines on which the foundations for the shape and circuit of a place will be built, so that from whatever side the enemy attacks, he should be frontally or laterally in sight and under attack." It was nevertheless not until the advent of rifled artillery and the First World War that there was the creation of steel-vaulted heavens, of a sky of fire by the very density of projectiles, shells, torpedoes, bombs, etc.

The advent of chemical warfare would complete this neo-atmospheric work with smoke producers and asphyxiating gas clouds.

Aviation, at once projectile and vehicle, had just invented a new type of atmospheric machine with the overflight of the warring landscape, with the first flying squadrons of bombers and fighters; in fact, aviation would extend considerably the effects of long-range artillery. It is in this context that Second World War military architecture must be considered.

The possibilities of weapons had become so great that the mineral element became a part of the fluidity of fluid; with the exception of rock, all the earth is a part of the movement of the ocean, a mutation of physical territory, in fact the first type of "disintegration" before the arrival of nuclear arms. In truth, the principle of arms has always been aimed at this deconstruction, first of man's body, of armor, then of the rampart built for his protection. Afterwards, the very conditions of the human habitat became the primary objectives of this destruction/destructuration. Scientific arms aim at the volatilization of all environmental conditions; what biological warfare accomplished for animal life, ecological warfare did for flora, and nuclear warfare, with its radiation, for the atmosphere. In these new conditions, military architecture—which up to then was simply the geometric organization of the landscape with its trenches, embankments, towers, zig-zag trenches—no longer suited its purpose. The artificial climate of the new arms required that military construction correspond exclusively to artifice. The value of positioning changed; one saw a general movement underground in high contrast to the elevation of ancient walls. Between the first and the second world wars a totally buried fortification was "erected"—the Maginot line. Tightness became the key word of fortress builders; this was the era of the submarine, and the underground structure could efficiently protect you for a considerable depth from the omnipotence of the new arms. It was no longer in distance but rather in burial that the man of war found the parry to the onslaught of his adversary; retreat was now into the very thickness of the planet and no longer along its surface.

The ground and its equipment would then be offered up to nuclear dispersion; this would be the strategy of urbanism, brinkmanship, all the way up to combat in contaminated zones, which would renew the virtues of the submariner's diving suit. There is an affiliation between armor and the diving suit; the field of warfare extends to the totality of space, and natural landscape is replaced by a more original one in which everything is volatile, indeed flammable. Creating another planet perfectly inhabitable for man and not only for the soldier, that is the accomplishment of modern war: transforming the earth into a pseudo-sun, through a momentary return to a gaseous state ...

All of the above is present in the meaning of the concrete mass built to hold up under shelling and bombing, asphyxiating gasses and flame-throwers. Just as the eighteenth century bastion materialized the ballistic systems of rudimentary artillery, the bunker was built in relationship to this new climate; its restrained volume, its rounded or flattened angles, the thickness of its walls, the embrasure systems, the various types of concealment for its rare openings; its armor plating, iron doors, and air filters—all this depicts another military space, a new climactic reality.

Anachronistic in normal periods, in peacetime, the bunker appears as a survival machine, as a shipwrecked submarine on a beach. It speaks to us of other elements, of terrific atmospheric pressure, of an unusual world in which science and technology have developed the possibility of final disintegration. If the bunker can be compared to a milestone, to a stele, it is not so much for its system of inscriptions as it is for its position, its configuration of materials and accessories: periscopes, screens, filters, etc. The monolith does not aim to survive down through the centuries; the thickness of its walls translates only the probable power of impact in the instant of assault. The cohesion of the material corresponds here to the immateriality of the new war environment; in fact, matter only survives with difficulty in a world of continuous upheaval. The landscape of contemporary war is that of a hurricane projecting and dispersing, dissipating and disintegrating through fusion and fission as it goes along. With the passage from molecular arms to nuclear arms, what happened in test tubes at the microscopic level of chemical and biological reactions is happening from now on in the macroscopic universe of human territory. A world of moving particles—that is the inscription of these concrete steles.

In fact, the conditions of naval strategy spread from 1940 to all combat methods. The conquest of the third dimension by the aerial forces and the extension of the submarine offensive gave to the Second World War its "volume." What was only yesterday the privilege of sea powers became the privilege of the entire military establishment: the control of the sky completed the control of the sea's depths.

With the new possibilities of not only horizontal but vertical destruction and invasion, a metamorphosis in the game of war took place once again. The ramparts which, in preceding centuries, moved from the limits of the city to the limits of the nation-state moved once again to the limits of emergent land. The Fortress Europe is the sign of that moment in history when the surface of the world exposed itself to aggression.

The Todt Organization not only constructed the casemates of the Atlantic Wall, but also innumerable urban shelters for the civilian population; a whole society went underground to survive beneath an uninhabitable surface. A double movement started to take shape: the major industrial areas exploded, dissipated into European space in an effort to escape fragmentary destruction, a more extreme dissolution, while the civilian population, exposed to the annihilation of aerial bombings, gathered in these concrete towers that mark off urban space; these *Luftschutzraum*, with the subway, became the ultimate refuge of the city-dwellers. The world was nothing more than a marine and aerial littoral, and the Atlantic Wall could not be dissociated from this industrial and civilian defense complex: the assault on Fortress Europe came in the third dimension, the last military space.

The orientation facing the ocean, facing its void, the mythic character of this watchman's wake before the immensity of the oceanic horizon were not distinct from the anguished waiting of populations for the arrival of bomber squadrons in the darkness of the sky at night. From then on, there was no more protective expanse or distance, all territory was totally accessible, everything was immediately exposed to the gaze and to destruction. This marked the disappearance of the battleground and of peripheral combat; the Fortress Europe was three dimensional, the casemates on the beaches complemented the antiaircraft shelters of the cities, the submarine bases were but the counterparts of industry's subterranean bases.

Space was at last homogenized, absolute war had become a reality, and the monolith was its monument.

A new geography was created with the concrete shelters as its markers. From one end of Europe to the other a new synectics saw the light.

If the Nazi state wished to organize the interior colonization of European peoples, it was, above all, the power of arms that led it to a new arrangement of equipment. The necessities of territorial dispersion increased the importance of communications but also highlighted their vulnerability. Indeed, after burying factories and warehouses underground, the railroads, roads, and airports represented the last surface equipment. This fixedness of the infrastructure, its permanent arrangement of the landscape, was called into question and mobile modular structures were adopted: the motorized bridges of the engineers' battalion, airfields made of prefabricated sheets, artificial ports of the "Mulberry" type, temporary runways in rolls, etc. The

double feature—all terrain and amphibious at once—of certain combat vehicles spread to all other means of transport. The independence and autonomy of material on wheels with respect to infrastructures increased, mobility and autonomy became key words—being rooted, held down, had become too big a risk—everything had to be moveable so as to avoid destruction. At the end of the First World War, the new assault tanks were called "land battleships"; their form evoked fairly well a ship's hull. At the end of the Second World War, almost all vehicles tended to resemble means of transport by sea. This generalized ambivalence of the instruments of modern warfare was a signal of the dematerialization of the ground; the earth was no longer the good lodging, but a pernicious and random expanse belonging to the oceanic horizons that it extended. Faced with this morphological ambiguity, defense installations were extremely difficult to implement because anything could happen, from any and all directions.

The monolithic character of the bunker could not be otherwise explained. Linked to the other elements in the line of defense by its firing capability, the casemate had to be able to assure its own protection (this is the fortress theory that the Führer applied after the Allied landing).

The fortification, once an object, tended to become a "subject"; moreover, was not the tank a fortification on wheels? With its tens of tons, the tank could be identified as an iron casemate ...

The light artillery turret that pivoted on its tracks could also pivot on the concrete base of its support points: the "Tobrouk" were more often than not equipped with the turrets of disarmed tanks ...

Moreover, General Theo Habicht erected in 1944 in the north of France the prototype of a mobile bunker, the epitome of this frenzied hybridization, while at the same time German engineers were working in their arsenals on a mock-up of a giant combat tank, a real colossus the size of a building ...

The "survival machine" of reinforced concrete—similar in closeness to the submarine, similar in its mass and artillery to the tank, flown over by flying fortresses—borrowed many of its elements and its accessories from these machines. Hydrodynamics, aerodynamics—this interpenetration of elements, up to then radically differentiated, constituted the most recent confusion of the animate with the inanimate: aerostatic architecture.

If man has no need for the machine to live in his natural environment, he needs the machine to survive in a hostile one. Now, during combat, the surface of the earth became uninhabitable and the simplest of gestures became impossible.

This constraint modified the clothing—the uniform—and the habitat—the casemate. There was the advent of the helmet, the shield, the armor, and the recent shrapnel-proof vests. The clothing made of cloth designed to

protect the body from weather extremes was then coupled to supplementary thicknesses: steel mail, metallic sheets designed for protection against the impact of projectiles. There was moreover, from the advent of armor, an analogy with fortification: one would speak of the "shirt" of a rampart, meaning the hard rock covering of the slope, and of a "bastion," meaning the knight's coat of mail. The relationship between clothing and dwelling is extremely tight during wartime, and the identification of body armor with rock armor leads us to draw other analogies between French terms for forms of the territorial body and those of animal bodies: *gorge* (meaning both neck and gorge), *épaulement* (epaulet and retaining wall), *mamelon* (nipple and hillock), etc., the last examples of local soil assimilated to Mother Earth, to the chthonic powers.

Therefore there is no reason to be surprised to see words that ordinarily designate articles of clothing (*vêtement*) referring also to covering (*revêtement*), to mineral shelter. But there is more. The fortification is a special construction; one does not live there, one executes particular actions there, at a particular moment, during a conflict or in a troubled period. Just as you put on your armor for combat, or your raincoat in the rain, you go to the fort when the peacetime conditions of the environment yield to wartime weather conditions. What in the thickness of roof tiles was adequate to protect against hail, snow, or rain, and in the thickness of the wall to retain heat and protect from the wind, is now inadequate to protect against bullets, shells, or bombs. All construction conditions for a building are disrupted by the artifice of war. The establishment of citadels throughout the ages was the result, on the one hand, of an evolution in the value of positions—with respect to the state's policies—and, on the other hand, to the invention of new modes of combat. We have not sufficiently understood this warlike neo-climate; however, what is henceforth called "ecological warfare" existed from ancient times, and the invention of modern weapons only extends and amplifies a long generation of combat means.

Military intelligence not only established the basis for a new landscape—that of war—by organizing the social territory with its strategic routes and its forts, it also produced its own atmosphere. Just as there are two times, the time of peace and the time of declared war, there are two atmospheres and not just one.

If the rampart is thick, it is not to avoid landslides but to resist the shock of shelling, of mines, things absent from natural probabilities. The fortification answers to the accidental, the duel between arms and armor leaves its mark on the organization of the territory by progress in its means and methods, by the potentialities of its inventions—war is thus present in peacetime. A history unravels itself parallel to the history of civilian production; powers and energies develop ceaselessly in the constantly renewed

perspective of conflict, but this production, secret and surprising, is ignored. An infant is surprised over the alternation of day and night, his first storm, snow; then he gets used to the conditions and sequences of his familiar environment ... whereas only a few specialists know about the shock wave of nuclear arms, the fiery hurricane of phosphorous, the fog of phosgene. Those are the artifices of artificers, of an atmospheric work; just as there are artificial musical and theatrical works, an ecological spectacle will be devised to surprise the crowd by its vastness and sheer originality. This is what happens in every war, what happened in the Second World War with its aerial bombings, that sinister nocturnal enchantment. Military intelligence has perpetually struggled to rival with natural phenomena in terms of power and duration. Creating fire that lasts longer than shrubbery inflamed by the sun, impact more shattering than an avalanche of rock, an upheaval comparable to an earthquake—this is the industry of war. Natural elements become surpassable: the night must not mask objects or troop movements, neither must fog hamper the progression of soldiers; one must pierce through the screen of the vegetable kingdom with infrared rays or defoliants that renew, for the forest's mask, the effect of flares on nocturnal darkness. Anticipation and ubiquity are war's requirements, and distance or prominent obstacles must not impede intelligence or reconnaissance. On the one hand, one must see all and know all, and, on the other, must create masks and screens infinitely tighter than any nature offered—than any of those we have dissipated or surpassed. Nowhere else is there evidence of a more violent Promethean will; here is the place, I believe, to look for the origin of industrial civilization, the war machine as the archetype of the industrial machine. But the synthesis of combat clothing and habitat is coupled to the synthesis of the vehicle that "reduces" both space and time.

Here especially is where the new mode of production will be found most original; it should never be forgotten that the ancestor of the automobile, the log transporter of the military engineer Nicolas Joseph Cugnot, during its first trip from Paris to Vincennes, was hauling a cannon ...

Defensive architecture is therefore instrumental, existing less in itself than with a view to "doing" something: waiting, watching, then acting or, rather, reacting. To live in such a place is not so much to "dwell" there as it is to "take it on" for an act for which the casemate is the instrument.

These buildings are no longer just receptacles but binnacles, which is what distinguishes them from ordinary architecture and what gives them this anthropomorphic character. There is here a close relationship between the function of the arm and that of the eye.

The embrasure anticipates a relationship between the bunker and the limits of the firing range; the firing slit, like the squint of the eyelid, reduces the visual field to a strict minimum, to the target, with the aim of

protecting the inner organ—in this case the man aiming at the target—but this protection amounts to a gain in accuracy. Indeed, with the narrowing of the technological pupil, you eliminate the risks of shock that would destroy the human organ while eliminating in the same stroke the unvital sideshow of the landscape. There is synesthetics here; protection accomplishes accuracy and accuracy in turn protects.

The bunker is the fruit of these lines of force. It is spun from a network under tension with the landscape and, through the landscape, with the region in its expanse. It is an invisible and immaterial network that escapes our gaze and enables the bunker to hide from view and to avoid shocks.

Its aerostatic form also has a double effect: immersed in the terrain, having a minimum of asperities with its rounded or flattened angles, this form escapes from the impact of projectiles by diverting them, slipping them off its flanks, and from gazes, too, since lighting systems do not throw shadows on its silhouette.

Linked to the ground, to the surrounding earth, the bunker, for camouflage, tends to coalesce with the geological forms whose geometry results from the forces and exterior conditions that for centuries have modeled them. The bunker's form anticipates this erosion by suppressing all superfluous forms; the bunker is prematurely worn and smoothed to avoid all impact. It nestles in the uninterrupted expanse of the landscape and disappears from our perception, used as we are to bearings and markers.

This unusual aspect of bunker forms—absolutely different from the forms of ordinary constructions, scandalous on a snapshot—paradoxically is able to go unnoticed in a natural environment. This factor can be found in certain nautical forms, as if hydrodynamic, aerodynamic, and aerostatic profiles allowing for the flow of fluids had the same power on visibility.

Throughout this analysis, we have seen an analogy with the continuous matter of the liquid element, the situation on the littoral of the Atlantic Wall strengthening the analogy. An autonomous object, the bunker is linked to its environment by a relationship that is not only that of foreground to background but, conversely, that of background to foreground.

The autonomy of the blockhouse springs up out of a background alive with virtualities, drives, powers. The void no longer exists, everything can move, arrive, or go; the earth has lost its materialness, and space its emptiness, everything is saturated, the ordinary problems of architecture remain, but amplified. Water-tightness, for example, is no longer just a concern with the flow of water, with simple humidity, but with the fluidity of projectiles, with their impact. It is a question of tightness to compression, no longer to capillarity. The foundation no longer rests on the ground, but on its center of gravity, from whence arrives one of the first known single-block architectures.

By its implementation, concrete—liquid material—played its part in the new characteristics of these works. Concrete was used according to its principle, which is hardly surprising since the great specialists in this material—Finsterwalder and Todt, for example—participated in the works.

In brick or stone constructions, in assemblages of discontinuous elements, the balance of the buildings is a function of the summit-to-base relationship. In the construction of single-form concrete, it is the coherence of the material itself that must assume this role: the center of gravity replaces the foundation.

In concrete casting, there are no more intervals, joints—everything is compact; the uninterrupted pouring avoids to the utmost the repairs that would weaken the general cohesion of the work.

The bunker is not really founded; it floats on ground that is not a socle for its balance, but a moving and random expanse that belongs to the oceanic expanse, and extends it. It is this relative autonomy that balances the floating bunker, guaranteeing its stability in the middle of probable modifications to the surrounding terrain.

Referred to most often as the edifice of abomination, one transfers to the building what was the essence of arms. No one is shocked by the store window of the firearms dealer, and so little by the exhibits of combat vehicles, while the blockhouse concentrates the reprobation of war of a whole era. A personality expresses itself here through material, but there is a mistake concerning its content; what is put down to the warlike power of the Third Reich must be ascribed to the power of modern arms. The imposing forms of the bunkers of the Atlantic Wall are the consequence of its adversaries' arms, of the fire power of those that rescued us, of our own armies. The bunker, defensive architecture, is not the expression of a neo-classical aesthetic, as is the official architecture of the Nazi regime. It issues from a different history, the history of arms and entrenchment. Without going back to the last century's casemates, you have only to be familiar with English, French, or German defenses of the First World War to find many of the solutions used on the Maginot line as well as in the West Wall.

What gives "meaning" to these landmarks of contemporary military space is the firepower of all of modern armies, is the novelty of the risk factor, the new ballistics of a war in three dimensions, the war of imminent danger, everywhere at once. To see only the arrogance and violence of the enemy would be to abuse ourselves about ourselves. The bunker marks off a military space—that of the last war game, a game that all nations elaborated and perfected together in the course of the last century. The bunker of the Atlantic Wall alerts us less of yesterday's adversary than of today's and tomorrow's war: total war, risk everywhere, instantaneity of danger, the great mix of the military and the civilian, the homogenization of conflict.

Contemplating the half-buried mass of a bunker, with its clogged ventilators and the narrow slit for the observer, is like contemplating a mirror, the reflection of our own power over death, the power of our mode of destruction, of the industry of war. The function of this very special structure is to assure survival, to be a shelter for man in a critical period, the place where he buries himself to subsist. If it thus belongs to the crypt that prefigures the resurrection, the bunker belongs too to the ark that saves, to the vehicle that puts one out of danger by crossing over mortal hazards. Literally, casemate means "strong house," reinforced house; it is always a case of habitat, or rather of a kind of clothing, of collective armor in the final analysis. When we show interest in ancient armor, the ornaments and figures indicate clearly the origin and the style—Italian, French, etc.—but here hardly anything survives of this form of identification, the omnipotence of arms volatilized what was left of aesthetic will. If a few details still allow French fortifications to be distinguished from German ones, this concerns only problems of implementation, of the influence of different types of plans, in one country as opposed to another for a short time yet. With the bunker, the diversity of fortifications fades away; with it, the essence of surface entrenchment systems will disappear.

A history draws to a close and the concrete landmark indicates the place where the long organization of territorial infrastructures comes to an end, from the steps of the empire, to the borders of the state, to the continental threshold. The bunker has become a myth, present and absent at the same time: present as an object of disgust instead of a transparent and open civilian architecture, absent insofar as the essence of the new fortress is elsewhere, underfoot, invisible from here on in.

The blockhouse is still familiar, it coexists, it comes from the era that put an end to the strategic notion of "forward" and "rear" (vanguard and rearguard) and began the new one of "above" and "below," in which burial would be accomplished definitively, and the earth nothing more than an immense glacia exposed to nuclear fire. The poetry of the bunker is in its still being a shield for its users, in the end as outdated as an infant's rebuilt armor, an empty shell, an emotionally moving phantom of an old-fashioned duel in which the adversaries could still look each other in the eye through the narrow slits of their helmets. The bunker is the protohistory of an age in which the power of a single weapon is so great that no distance can protect you from it any longer.

Abandoned on the sand of the littoral like the skin of a species that has disappeared, the bunker is the last theatrical gesture in the end game of Occidental military history. The ancient ramparts, the ditches surrounding cities, were a means to reorganize a landscape. You still stroll there on Sundays, and raise vegetables close to the moats, and plant flowers on the

platforms of the batteries; this was a geometrization on the scale of an urban perimeter, while the blockhouse is scaled onto much larger expanses. Contemporary defense has sowed its equipment, a little like the objects one loses during a trip; the fortress is nothing more than a long series of support stations composed of numerous casemates, each one resembling an ambiguous instrument: a pseudo-tank made of concrete, the giant helmet of artillery observation posts, the zoomorphic forms of command centers with their frontal dome and their lateral epaulets ... An odd mixture, the fortification has become a combination of different species: mineral and animal come together in a strange fashion, as if the last fortress symbolized all of the armor types of the carapace, from the turtle to the tank, as if the surface bastion, before disappearing, exposed one last time its means and its methods in the domain of the animate as well as the inanimate.

The Atlantic Wall is in fact a "military conservatory" installed on the European coast; all resources, from the ancient port fortifications and archaic arms, find a place there, but the genres are mixed and the points of view blurred. The dummy work is countless in this continental citadel: false batteries, wooden weapons, various camouflages. Myth conflates with propaganda; the rampart is also ideological, serving both to reassure the population and to disarm the adversary with a sense of the invincible, the impregnable.

The last citadel is a theater where wars past and present concentrate themselves, from the dagger, to the bow's silent attack on sentries, to the stratospheric missile, from the lure of the swamp-hunter to the infrared detector; every kind of strategy is put to use, from the trap doors of the ancient Roman legions to the most scientific of land mines, from the anti-tank ditches to the "cairns" of upright stones in the fields to impede the parachuters. The intense propaganda around the construction of the Second World War's fortifications (the Maginot line as well as the Atlantic Wall) reveals their theatrics, their necessarily spectacular side. Indeed, if it was formally useless to inform the populations of "fortified cities" about the solidity of the fortifications, the new defense systems—by their very dimensions—required effort in this domain.

For "fortified nations," information is essential, the guarantee of the force of resistance, proof to the citizen that his territorial limits will remain impermeable. The surprise of war in the air partially annulled this sentiment of security, the destruction of the great European cities completely broke down the shielding effect of littoral and frontier fortifications; summer vacation pleasures could start up again on the beaches, at the continent's limits, the rendezvous and the popular festivities on the fortifications, on the periphery of the ancient fortified places.

TYPOLOGY OF
THE FORTIFICATIONS
OF THE
ATLANTIC WALL

—Firing units with crenelated battlements:
machine guns, 75–155mm cannons, antitank
guns, and howitzers.

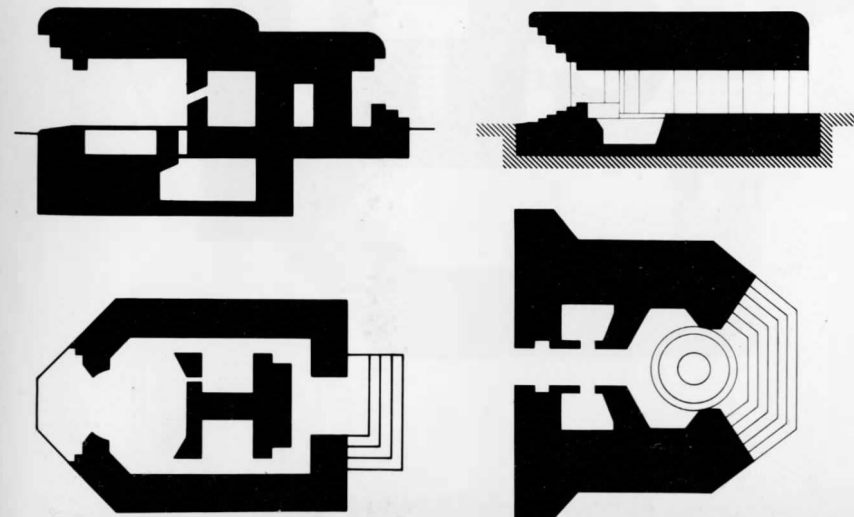
—Firing units under armored cupolas:
machine guns
mine throwers
grenade throwers
light howitzers.

—Infantry observation units or
artillery units under armored cupolas.
command post for coastal battery firing.

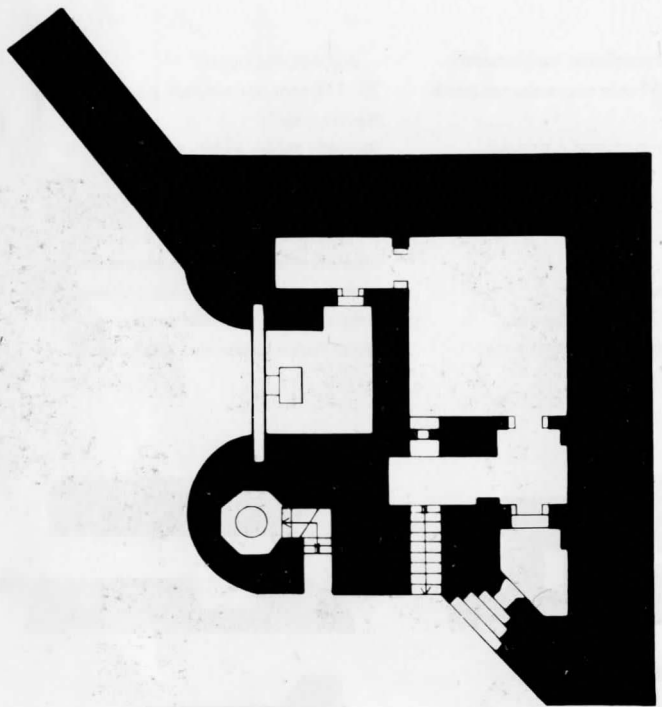
—Air defense units:
20–120mm antiaircraft guns
training rack

shelters: radio, radar, radiolocation
gunnery control stations.

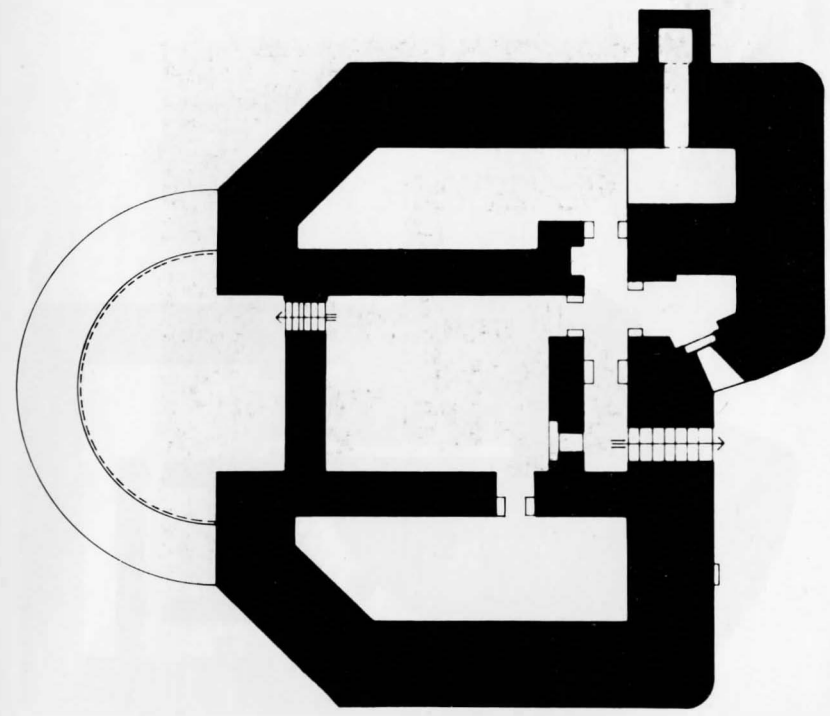
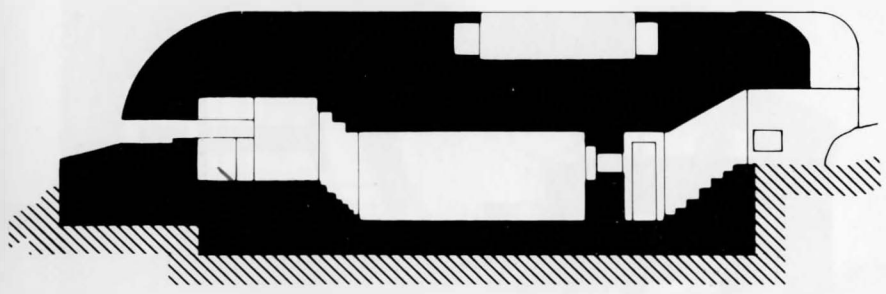
—Precautionary units:
troops, munitions,
transmission centers, cannons, tanks,
command posts, dressing stations,
power plants, transformers,
water supply stations, kitchens.



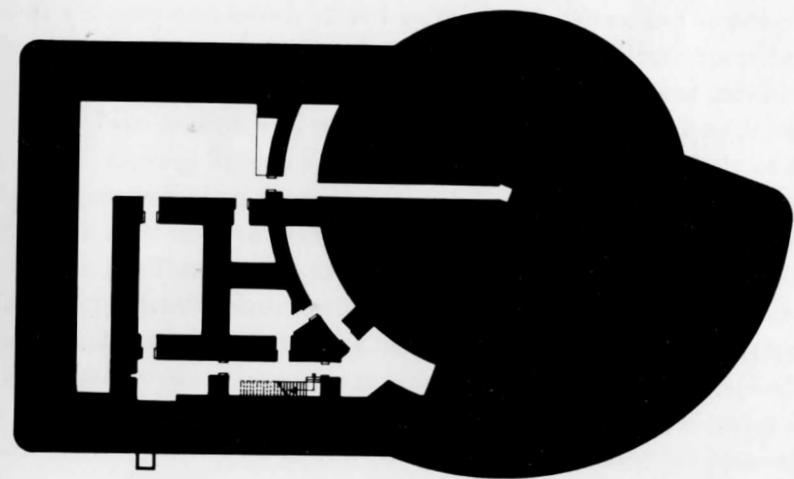
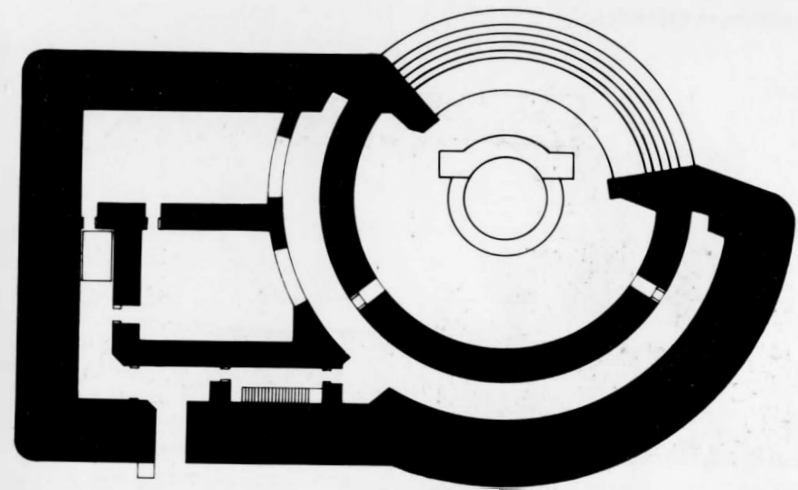
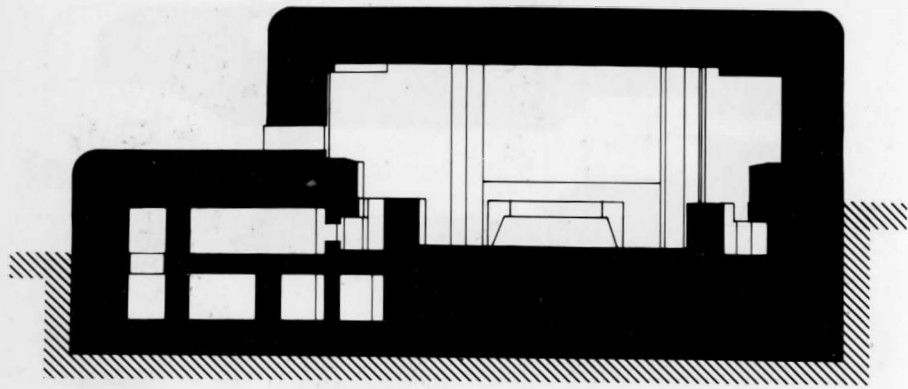
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BUNKER FOR MACHINE GUN (PLAN)



OBSERVATION POST WITH CONTAINER (SECTION AND PLAN)



BUNKER FOR LONG-RANGE ARTILLERY DEDICATED TO FRITZ TODT
(SECTION AND PLANS)