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SUBJECT: Critique of MS # C-022, "The Atlantic Wall Between the  
Loire and the Spanish Border"

TO: Office of the Chief of Military History  
Special Staff, United States Army  
Washington 25, D.C.

1. Inclosed is a short critique of the manuscript noted above.
2. The source of this additional information, General der Artillerie von Bechtolsheim, describes his personal connection with the units discussed in the basic manuscript in his critique.
3. It is believed that this is an authoritative and valid criticism of the basic manuscript, and should be read in that connection by all interested parties. Five (5) copies each in German and in English are therefore inclosed for attachment to each copy of MS # C-022 in your possession.

FOR THE CHIEF, HISTORICAL DIVISION:

Incls a/s

WFR/ro

V. E. PATE  
Lt Col, Infantry  
Control Officer

Anton Freiherr von Bechtolsheim  
General der Artillerie

Karlsruhe,  
16 October 1952

Remarks Concerning MS # C-022

"The Atlantic Wall Between the Loire and the Spanish Border"

by

General Gallenkamp

On page 18 General Gallenkamp criticizes the fortifications of Bordeaux. He complains about the diversion of "considerable quantities of material" for the purpose of providing Bordeaux with an all-round system of field-type fortifications and even expresses the suspicion that these measures were carried out at the instigation of special interests within First Army for the protection of its headquarters.

As Chief of Staff of the First Army from June 1942 to July 1943, I take the liberty of commenting on this criticism as follows:

1. The system of field-type fortifications surrounding Bordeaux was ordered by the army for operational reasons. With its bridges across the Gironde, Bordeaux was an important strategic point of the first order, and indeed could be regarded as our central citadel behind the Biscay Front. The city, therefore, had to be protected against enemy landings from both the sea and the air. The protection of the command post of the army headquarters was of no importance, inasmuch as there were sufficient alternative command posts available in the event of the opening of a war of movement and some of these had actually been prepared.

2. Any attempt to compare the extent of the fortifications which

were thrown up around Bordeaux in field strength with the actual garrison strength of the city gives a distorted picture. If operations had approached the soil of Bordeaux there would undoubtedly have been field troops available to defend the fortifications. The commitment of the garrison of Bordeaux, including Navy and Luftwaffe elements, was only envisaged as a security measure against a possible enemy airborne landing.

3. Since the works were constructed only as field fortifications, the quantities of material employed for the purpose cannot be described as "considerable" especially since no reinforced concrete whatsoever was used. Nor were any workmen diverted from other points of main effort, since these field-type structures were erected by the garrison of Bordeaux, including all staff personnel. Moreover, these fortifications were first constructed on the southern bank of the Gironde, which was the most critical point.

Therefore, the accusation against the command of the First Army, which is implicit in General Gallenkamp's statements cannot be considered justified.

signed: A. Freiherr von BECHTOLSHRIM

MS # C-022

Curt GALLENKAMP  
General der Artillerie  
CO of LXXX Inf Corps

A SUMMARY OF THE DEVELOPMENT OF THE  
CONSTRUCTION OF THE ATLANTIC WALL  
ON THE BAY OF BISCAY BETWEEN THE  
SPANISH BORDER AND THE LOIRE

Translator: A. ROSENWALD  
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HISTORICAL DIVISION  
EUROPEAN COMMAND

Curt GALLENKAMP  
General der Artillerie  
Born: 17 February 1890  
Wesel am Rhein, Kreis Rees,  
Germany.

GALLENKAMP joined the Army in March 1909, entering the 7th Field Artillery Regiment as an officer candidate, and in the same year was given his commission as a Lieutenant, with seniority dating from 22 August 1908. During World War I he served in several assignments as acting GSC officer and in February 1918 was detached for general staff training in courses held at Sedan. After the end of World War I and the dissolution of the Imperial German Army, he was carried over into the new Reichswehr, the 1,000,000-man army Germany was permitted to maintain under the Treaty of Versailles.

In 1927 GALLENKAMP, then a Hauptmann, was given GSC status and from then until the outbreak of World War II rotated between the field forces and general staff assignments, being promoted Generalmajor in March 1930. Immediately after the outbreak of War General GALLENKAMP was placed in command of the 78 Inf Div, taking part in the French and later in the Russian campaign. Promoted Generalleutnant in April 40 he was appointed CG of LXXX Inf Corps in France on 1 April 1942, this appointment coinciding with his further promotion to General der Artillerie. On 12 August 1944 General GALLENKAMP resigned for reasons of ill-health. He was placed in the OKH Officer Reserve Pool and removed to the Reserve Military Hospital, Frauenberg, Bad Mergentheim, Wuerttemberg, where he was captured on 12 April 1945.

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## I. Basic Considerations Set Forth by the Local Command Agencies.

Early in 1942 the Seventh Army functioned as the High Command in the sector bordering the Bay of Biscay. Under its control, the defense of this coastal sector was assigned to the LXXX Infantry Corps with three Infantry divisions (715 Static [Stellung] Division, 708 Static Division, and 336 (?) Infantry Division commanded by Generalleutnant Rupprecht). When the idea of fortifying the Bay of Biscay front was initiated, the Army and the Corps had to decide what objectives were to be achieved in their sector. The length of the front was 500 Kilometers. From the outset, it was obvious that adequate forces and material would not be available to establish sufficient defensive depth along the entire remote front. Moreover, the two static and one infantry division and the three naval artillery battalions on the islands constituted a minimum commitment of forces, and even the construction of concrete shelters would not permit any further economy of troops, unless it were intended to abandon every security of the coast against espionage and surprise raids undertaken by even the smallest formations.

Which were the interests that should govern the guiding principles of the entire plan of construction?

Naturally, the Navy was highly interested in securing its submarine bases in Bordeaux, La Pallice-Rochelle, and St. Nazaire at the mouth of the Loire. A great number of the submarines operating in the Atlantic depended on these bases. After the successful attack against the sluices of St. Nazaire in March 1942, this demand was advanced with increasing urgency. Secondly there was a demand for more protection for the southern harbor of



Bayonne, which served as a port through which much-needed ore was shipped from Northern Spain.

The Army had to consider whether a strong fortification would prevent, or at least delay, a possible enemy operation south of the Gironde, or between La Rochelle and the island of Noirmoutier. An enemy offensive below Gironde in conjunction with an operation in the Mediterranean, could have the effect of closing the open door to Spain and annihilating all the German forces in South and Southwest France. An operation north of La Rochelle would constitute an attack on the rear flank of our positions at the Channel coast. In view of the considerable distance of British bases and the consequent difficulty of ground operations with superior air forces to ensure a decisive success, both of these operations seemed to be rather improbable.

In addition to the locally conditioned demands of the Luftwaffe for protection of the large-scale sound detection installations against sabotage, only three focal points remained to be fortified, the two submarine bases at Bordeaux and La Pallice-Rochelle, and the harbor installations of Bayonne.

The necessity of concentrating all available working power and materials on the protection of these points was evident, particularly as three such strong centers of defense, plus the fortress St. Nazaire adjoining on the north, would constitute a defensive system of decisive importance in the event of a large-scale operation of British and American forces south of the Gironde or between La Rochelle and Noirmoutier. Within the framework of German counter-operations, these defense centers would serve as a bulwark

and natural points of resistance.

Further consideration was given to the islands. In view of their staggered locations and the prevailing difficulties in delivering materials, it was necessary to decide whether they should be included in the plan of construction as full-scale projects or handled only as an outpost area. The Navy, naturally, interceded in favor of their full-scale integration, particularly since, as on the islands of Oleron and Ré, it intended to emplace a series of long-range naval batteries designed to offer effective resistance to surprise attacks against La Pallice-Rochelle.

To a certain degree these deliberations were nullified upon receipt of directions from OKW and VB West, ordering that construction be carried along the entire Army front, with particularly strong defenses at both of the submarine bases.

The local command agencies had to comply with this decision, taking care of local necessities within the framework of the over-all plan.

## II. Organization of Construction

From this time on the Seventh, later the First, Army undertook to conduct negotiations with all agencies concerned on the main outlines of the construction plan including the forces which had to be committed and the allocation of material to the three branches of the armed forces. Several engineer construction headquarters, each assigned to a certain front sector, were subordinated to the Seventh Army, and were responsible for the tactical requirements of the respective Wehrmacht headquarters, and for attendance to all technical details.

After construction designs for each building site had been decided upon

actual construction depended entirely on the large Organization Todt organization. The latter regulated the supply of the machinery and materials, supervised each individual construction site, and was fully responsible that the desired security was attained through proper use of material and adequate strength of all structures.

For transportation of material, management of construction work, delivery of accessory materials and building machinery, and procurement of workmen, the Organization Todt in most cases employed French construction firms. Besides the French workmen, a considerable number of laborers were Communist refugees from Spain. It must be emphasized that, on the whole, this kind of organization produced the best results on the Biscay front. As time went on, the leaders of the OT agencies became more tractable and complied with practical proposals of the front-line troops as much as possible within the limitations of their instructions.

### III. Planning of Construction

In regard to construction planning the front line troops naturally were influenced by local tactical interests, and their demands far surpassed the capabilities of the construction organization. They would have liked concrete shelters for every infantry group, for the entire crew of every battery, and for every command post. The two extremes of the desirable and the possible had to be drawn together on a middle ground of compromise.

Until the spring of 1942, the Navy alone had used almost all the available quantities of iron and concrete for construction of its submarine installations at La Pallice-Rochelle. The construction there of six submarine pens and buildings with concrete roofs over three meters in thickness

had been almost completed. But now, according to the plan, a similar large-scale installation was to be built for the submarine base at Bordeaux, and as it enjoyed priority over all the other works, the project pre-empted huge quantities of building materials from the uses of the Army and the Luftwaffe. Besides, the Navy called for emplacement of naval coast batteries and the construction of shelters for command posts of naval and artillery commanders, which meant an additional drain on materials. Therefore, if the directives of OER and OB West were to be compiled with to even a minimal extent, the naval installations, especially the boldly conceived installations of the naval and artillery commanders had to be reduced considerably. After the allocation of material to the Luftwaffe for emplacement of antiaircraft batteries and sound detector equipments, very little remained for the Army's use, and it had to be concentrated in the vicinity of Bayonne, the mouth of the river Gironde and the submarine-protection area of La Pallice-Rochelle (to which the islands of Oléron and Ré originally belonged). The use of these limited construction forces and materials was strictly controlled. They were utilized chiefly for shot-proof shelters for artillery observers, for emplacement of a series of antilanding weapons, for command posts of regiments, battalions and companies, and for shelters for the occupying infantry at key points near Bayonne, Bordeaux, and particularly the entrance to the harbor at La Pallice-Rochelle.

During the second part of the year -- thanks to the extension of the Organization Todt; the arrival of a great number of concrete mixers, construction machinery, and planking material; and the inclusion of French

cement and iron production in the delivery program -- further front sectors, particularly the four islands Oléron, Ré, Ieu, and Noirmoutier, could be provided for in the construction plan. Large parts of the coast, however, were still completely excluded from it. This was especially the case in the extensive area between Bayonne and the Gironde, as well as in some parts south and north of the small harbor and watering place, Les Sables d'Olonne. Our tasks and the demands of the higher command agencies increased concurrently with the influx of materials and forces.

At first it was the Navy again which demanded more material. The washing away of the dunes on the cape La Coubre made it necessary to withdraw a battery of heavy guns. The installation of a modern battery of heavy flat-trajectory guns in the Forêt de La Coubre, and the emplacement of two double turrets from the former cruiser Seydlitz on the island of Ré, the substructure of which reached deep into the ground, consumed considerable quantities of material. Besides, there was the necessity of providing shot-proof command posts for the commanders of the islands and their artillery commanders.

In the meantime a great number of captured guns had arrived from the eastern theater of war. According to an Army order, they had to be emplaced in a flanking position, well protected by reinforced concrete so as to ensure their effectiveness during critical moments of an invasion. For these reasons, construction on the Bay of Biscay front in 1942 was limited to the afore-mentioned areas.

Decisive progress was made in 1943. It may rightly be termed the year of large-scale construction. The commitment of working forces and

delivery of material reached their highest points.

In spite of the fact that in the harbor of La Pallice-Rochelle a new submarine shelter with three submarine pens, a new gateway for the harbor, and a bomb-proof covered sluice installation were built, and although the roofs of submarine shelters were increased to five meters to make them secure against the heaviest bombs, the program of fortification could be extended along the entire Biscay front. The hitherto developed focal points, Bayonne, the mouth of the river Gironde, and La Pallice-Rochelle, were improved to such an extent both as to area protected and all-around effectiveness, that they now assumed the character of fortresses. To be sure, the infantry and islands program was delayed by an order from Hitler in late 1943, directing that the emplacements of all stationary batteries be covered by reinforced concrete, so as to withstand both the heavy fire from naval artillery and the especially heavy air attacks which would accompany an invasion. The desirability of these precautions could not be denied, but their accomplishment would mean a considerable weakening of the defense as a whole. Not only was the firing effectiveness of all stationary guns restricted, but the necessity for stability of the casemates limited the size of the embrasures to such an extent that at most, they permitted a traverse of only 60 degrees. Even if the batteries were to be situated in a slightly fan-shaped line, the area which could be effectively covered by their collective fire could not exceed 90 degrees. Considering the limited strength of the artillery in relation to the huge expanse of the front, this measure had the following effects; the firing ranges of the batteries

over-lapped each other only in exceptional cases. Between and beside them were large unprotected areas. It had to be assumed that, because of the well-organized enemy intelligence service, this fact would become known to the enemy prior to his landing, and that his landing craft could evade practically all artillery fire. If airborne troops were used in an invasion -- a possibility with which the defender had to reckon -- their inland attacks would be completely safe from the fire of the entire coastal artillery. Still another disadvantage was that even under the altered situation the Navy insisted that the entire coast artillery be placed on the foremost dunes. Naturally, the casemates had to be built high above the ground, and offered enemy naval artillery perfectly visible targets. Considering the unexpectedly heavy fire from enemy naval artillery in Italy and France in 1944,\* we had to reckon with the fact that the old-fashioned type of emplacement, as ordered by Hitler, was inadequate, to protect our artillery firepower for a critical phase of the fighting.

The extension of improvements along the entire Biscay Front also showed the weaknesses of Hitler's order. As already mentioned, extensive portions of the front line had no firm roads of communication with the hinterland. Creation of such was, however, a pre-condition for the construction work ordered. Without them it was impossible to bring up to the building sites either the building machinery or materials. So we had to construct mile upon mile of concrete roads, particularly in the sector between Bayonne and the Gironde, to permit the building of shelters and emplacements for flanking machine guns and antilanding artillery pieces for pockets of resistance and infantry strong points. These emplacements were

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\* Author seems to have his facts somewhat out of alignment here, as experience gained in 1944 could not have been taken into account in 1943, the time under review in these passages.

strung along at a distance varying from two to six kilometers from each other. Preparatory constructions and final tactical constructions were never in proper balance. In addition, an even greater danger appeared. If the enemy succeeded in effecting a landing maneuver, a high-quality firm road of over 50 kilometers length was at his disposal immediately behind his landing base. This road being under direct cover of his naval artillery and air forces, would enable him to carry out quickly and without danger any lateral movements he desired. It was obvious that the totally concealed road was bound to attract the attention of every reconnaissance flier and be conspicuously visible on every aerial photograph. It certainly meant a welcome and essential facility for the delivery service of the German troops.

In the northern sector of the construction front and on the islands, considerable use was made of narrow-gauge and field railway lines to overcome supply difficulties, although these, too, required work and time. The advantage of the railways was that they did not require the huge quantities of material which could be better used in additional defense installations. Already in 1944, with the increase of enemy air activity against French industry, bridges, and railroad lines, the broad stream of materials supplied for the Biscay front was declining more and more, until it stopped altogether after the invasion.

Unfortunately, in the process of time, Hitler's demand for emplacement of all batteries was reinforced by his subordinate headquarters. For example, Feldmarschall Rommel insisted upon the erection of an extensive line of foreshore obstacles to render enemy landing more difficult.



The manufacture of concrete tetrahedrons for this purpose was undertaken at numerous points. The army also ordered the construction of concrete installations along a second position running parallel to the coast at a distance of about 50 kilometers, and the construction of numerous concrete combat installations for the all-around defense of Bordeaux. Finally, concrete antitank obstacles in all villages and towns in the vicinity of the coast, and a number of dams intended for possible inundation of large areas, consumed considerable quantities of material.

These few examples may suffice to show that the primary idea of the Army and the Corps, to concentrate defense installation between the Spanish border and the Loire into three efficient centers, gave way over a 2½-year period to a plan aimed at protection of every point, and preparation for every possible form of attack.

#### IV. Aims Actually Achieved Before the Invasion

##### 1. Sector: Spanish Border to the Gironde

##### 1. Subsector: Spanish Border to Harbor of Bayonne

For the protection of the extreme southern part of the Atlantic front, considerable construction work was carried out in the subsector between the Spanish Border and the harbor at Bayonne. A network of light, medium, and heavy batteries, among them two railroad batteries, were grouped around the fishing harbor of St. Jean de Luz, which was also secured by a series of infantry combat installations.

Extensive installations were built on either side of Biarritz, where absolutely bomb-proof shelters were provided for the local combat and artillery commanders, flanking batteries, and infantry units by drilling

tunnels into the rock.

The second network of coast batteries of various calibers were grouped around the harbor gateway of Bayonne. Here one could speak with a certain justification of the depth of the field of combat, since these installations reached back to the town Bayonne where they were linked up with the all-around defense installations of the port.

Two switch positions extending from the coast east into the zone of interior were intended to offer support against a possible enemy attack over Spanish territory. One of these switch positions started from St. Jean de Luz, the other south of Biarritz. Both of these positions, as well as the all-around defense of Bayonne, consisted chiefly of field-type fortifications. They were provided with some concrete defense works built into them at the most critical points.

## 2. Subsector: Harbor of Bayonne to Fortress Gironde-South

The 100-kilometer stretch of coast between these two points was lined with a broad sand-covered beach characterized by a range of wooded dunes of varying height, and offered only one point for concentration of power. This was on either side of the mouth of the Bay of Arcachon, where several batteries were emplaced, as well as a number of infantry combat installations. Operating together, all these installations would have been able to offer a certain delaying action against an enemy forcing entrance into the bay. At the same time the installations were intended to serve as coastal protection for the southwest front of Bordeaux.

With the exception of widely separated battery positions whose fields

of fire did not even approach each other, the remaining front in this sector consisted only of a beadlike row of resistance points and defensive works which were built in concrete strength B, and perhaps only C. They had almost no defensive power, since in many cases they scarcely possessed the maximum range of heavy infantry weapons. Thus, this entire coastal front sector amounted to little more than an observation area.

B. Sector: The Gironde to the Mouth of the Seudre

1. Parts of the Fortress Gironde-South and Gironde-North

a. Gironde-South

Upon reaching the part of the Fortress Gironde-South, the picture of fortification assumed an entirely different character. There, between L'Amelie and the Pointe de Grave, numerous batteries up to a caliber of 180 mm., were reinforced by a battalion of 77 and 88 mm. anti-aircraft artillery guns. Even the combat installations of the infantry were built to protect each other with effective flanking fire. It could be said that both to the sea and against the Gironde a continuous and interlocking field of fire was provided. In addition, batteries were located on the northern bank of the Gironde, which could deliver their fire across the river and which had been adjusted to wide-flung targets. Being designed as an all-around fortification, the system did not lack the necessary depth. In this part of the fortress every soldier was protected by concrete at least in strength B, and in combat posts and medical installations, the strength A was sometimes used. To a certain degree telephone connections were also secured by laying the cable deep under the ground. Many concrete dam constructions created additional swamp obstacles.

Occupied by good troops, this sector was well able to fulfill its double task. This consisted in protecting the entrance into the Gironde with its modern landing piers for large ocean-going steamers and its seaboard terminus, and serving as an advanced cover for the northwest front of Bordeaux. After the troops of the First Army had evacuated the fortress Gironde, it proved its defensive power for months, cut away from all supply lines.

b. Gironde-North

The defensive ability of Gironde-South was evident to a greater degree in the fortress sector Gironde-North, where there was an even more successful concentration of defensive strength. From the very beginning, our high command agencies had imparted greater operative importance to this part of the fortress.

The all-around defense of Gironde-North roughly followed the line from Vaux sur Mer, Hill 32 east of Royan, Hill 48 north of Sasussac, to St. Georges de Didonne, extending thus in a sweeping curve around the town and the harbor of Royan. The line, which consisted of a series of 75-to-150-mm. batteries, three concrete works (Panzerwerke) equipped with from six to ten tank turrets for heavy infantry weapons, and the corresponding combat installations of the infantry providing reciprocal coverage to each other, possessed great defensive power against a modern and superior enemy. Besides, in order to conceal the works from possible observation by enemy naval artillery, they were situated on Hill 25 southwest of Vaux, astride the Royan-Medis road on Hill 32. In this part of the fortress, strength A concrete was used to a large extent, especially as the command posts of

the 708 Infantry Static Division, the fortress commandant, and the naval commandant were also located there. The part of the fortress east and southeast of the Royan-Medis road could not be brought to the same defensive strength by June 1944.

In the fighting taking place during the period between August 1944 and the first months of 1945, this part of the fortress, cut away from all communicating roads, also proved its full defensive ability.

The north front of the fortress was considerably strengthened against attack from the east by the Seudre support position which extended in a line from the vicinity of Vaux Hill 33 just west of St. Supplicede de Royan up to the Seudre east of Marnac sur Seudre. The position, which was favorable already because of its terrain, was improved by field type fortifications, and, especially along the roads and highways leading to the west, was reinforced with concrete combat installations built in strengths B and C. In addition to being a support position, it could be considered as a kind of advanced line for the north front of the fortress.

## 2. Coastal Line: St. Palais-Mouth of the Seudre

The line of heavy coastal fortifications continued toward St. Palais sur Mer, where there was a strong battery position. The field of fire of this battery, just as that of the modern heavy canon batteries (200 - 230 mm.) at the Pointe de la Coubre, overlapped with the field of fire of the batteries on the southern bank. Although not so strong as the fortress itself, the entire sector between St. Palais and the Pointe de la Coubre was still equipped with a narrow-meshed network of infantry combat installations in strength B, but it lacked any depth.

For protection of the above-mentioned three heavy caliber batteries, the entire Pointe de la Coubre had been developed into an all-around reinforced concrete defensive installation for a reinforced infantry battalion, the defensive power of which could be designated as absolutely first class. The Cote d'Arverre, up to the mouth of the Seudre, possessed several well-fortified strong points, the middle and northern points being occupied by a combined combat group with the strength of an infantry company reinforced with a battery. In case of fighting, a firm hold of this coastal sector was of decisive importance, because the high wooded dunes in the Forêt de la Coubre contained the majority of artillery observation posts with a wide outlook particularly to the south and the west. The firing range of the north batteries in this sector almost crossed that of the artillery on the island of Oléron, which formed the left corner of the extensive fortress area, La Pallice-Rochelle. The southern batteries of the island were emplaced to deliver flanking fire in front of the Cote d'Arverre and to block the narrow entrance into the Seudre. Thus, a system of fortifications had been erected here which, at the least could have considerably delayed even a superior army. By a more careful use of building materials it could easily have been transformed into an installation which would have made available strong mobile reserves for the corps front. As it was, it fulfilled the double task of providing protection for the south of the Gironde and serving as an advanced post for the north-west front of Bordeaux.

### 3. The Fortified Positions of Menden

The fortifications of the extensive town, of Bordeaux,

with its harbor installations, its submarine shelter, and its Meriquec Airfield, defended this western communication center of southwest France very adequately. Defense installations along all important arterial roads could, at best, only temporarily delay a surprise attack by a mechanized enemy dependent on the roads. An infantry attack could easily bypass installations, particularly as the weak occupying forces could not secure the intermediate areas between the adjacent works. At this point we may well question whether the use of considerable quantities of material for these installations was justified or whether the special interests of the Army in protecting its headquarters were given undue preference.

#### C. Sector of the Fortress La Pallice-Rochelle

This sector, with its outlying islands of Oléron and Ré, represented the strongest and most compactly fortified part of the coast. True, the coast line from Marennes to Angoulins was protected to a certain extent by the outlying islands, and was accordingly rather low on the priority list of improvements. Nevertheless, even this sector contained a number of battery positions north of the south of the Charente River, as well as infantry combat installations. It was interesting to observe how in this historically significant area the positions of the numerous Vauban fortifications retained their old importance in the modern war. On several occasions they could even be retained in their old form and used for purposes of concealment by building reinforced concrete installations within them. The majority of the installations naturally were concentrated in the center of the fortress, the all-around defense line of which commenced roughly near Angoulins at the coast, and

extended west of La Jarne, west of St. Rogetien near Hill 32, and finally reached a very deep canal. Following along the latter, with a salient to the east, north of Dompierre up to St. Quen d'Annis, turning then to the west across the elevated terrain near Billedoux-Esmerdes, it reached the coast again. The entire position was reinforced by a network of infantry combat installations, almost all of them built in strength B, designed to protect each other by flanking coverage and reinforced by a continuous antitank ditch. Construction groups for combat reserves and staffs of battalions located on the rear hills gave this front sector the necessary depth. The coastal sector between Angoulême and Esmerdes possessed a similar power of resistance. The most intensive improvements were naturally located in the vicinity of the submarine installations. These were surrounded by a closely spaced cordon of fortifications. South and north of La Pallice, two concrete works, each of which contained five or six tank turrets for heavy infantry weapons and several turrets for tank howitzers, had been completed prior to the beginning of the invasion. All the works were built either in strength A or B. In case of emergency, the combat installations of the infantry were ably supplemented by groups of concrete shelters which the Organization Todt had built to protect about fifteen hundred of its workers against the increasing heavy air raids. Mobile assault reserves in the vicinity could find protection in these bullet-proof shelters. The inner strong point and last center of resistance of these fully modern installations was the submarine pen itself. Fitted with all kinds of embrasures, it was built so to speak, into a kind of "alcazar." This deeply echeloned, self sufficient fortification, designed to concentrate all factors of defense into a focal point and



answering every requirement of a modern defensive warfare, was able to resist all attacks during an 8 month siege prior to the armistice on 8 May 1945.

The two islands, Gléron and Bô, belonging to the same fortress area, were by no means as well-fortified as the area on the mainland. There were two reasons for this. On the one hand, it was a common conception of the GMR, OB West, and the Army that the islands, even if thoroughly fortified, could not resist an attack by a really superior enemy. They argued that the terrain of the islands did not offer the necessary pre-conditions for such a fortification, nor was it possible to make adequate forces available for their defense. On the other hand, there were definite limits to the supply of building materials, transportation was inadequate to convey the huge quantities of materials and supplies required for the troops, and the small fishing harbors could accommodate only limited tonnage. In addition, there was a lack of transport facilities and fuel for moving the material from the harbors to the island building sites. As a result of all these circumstances only limited defenses had been created by July 1944.

All command posts and battery fire direction centers were completed in construction strength B. The gun emplacements of all batteries, with the exception of the double turrets from the cruiser Seydlitz, the guns of which were protected by the carriage side plates, were emplaced as prescribed. Bomb-proof shelters were provided for the gun crews. The installation for all antiaircraft guns had been completed as prescribed. On the other hand, it had not been possible to build bullet and bomb-proof shelters

for the occupying infantry troops. In this respect, we had to limit ourselves to about one third of the installations situated at the most important points. The bulk of the infantry had to be content with emergency installations in construction strength C. This was obviously an undesirable condition. On the one hand, it considerably limited the defensive power of the islands, and on the other hand, it was in an unsound relationship to the number of committed batteries. In a large-scale battle, the islands, in spite of the strength of their artillery, could be accorded the importance of an advanced or outpost position only in the framework of the fortress area. But if either island fell, the enemy, especially in the case of Oléron, would win concentration bases for his artillery, his assault troops, and to a certain extent for an air force which would be able to strike decisive blows at the inner nucleus of the mainland fortress. For this reason the Corps had always defended the idea that the fortification of the islands should not be neglected if we had made up our mind to declare La Pallice-Rochelle a fortress.

D. Coastal Sector Between the Fortress La Pallice-Rochelle and the Southern Border of the Fortress St. Nazaire

This coastal sector, curving slightly to the northwest, is characterized largely by long, flat lowland stretches, and a broad beach of sand, although the northern third of the coast is steep and rocky, and lined with outlying cliffs. Strawn along the coast are a number of fishing harbors, such as Les Sables d'Olonne, St. Gilles, and Pornic. Offshore, about midway between the two fortresses is the small island of Ieu, and opposite the northern portion of the coast, the island of Noirmoutier. During the deep

ebb-tide hours the latter is connected with the mainland by a paved causeway. In extending fortifications to this long coastal sector, special attention was devoted to the defensive potentialities of these small harbors, since, in case of an enemy landing operation, they would prove extremely helpful in solving the enemy's supply problems. Because of the lack of artillery, little could be done other than to position the available batteries and anti-tank weapons in groups around these harbors. They quite naturally formed the centers of the fortification work. First, the harbor of Les Sables d'Olonne was fortified for all-around defense by a battalion group. Second in strength was the harbor of St. Gilles, improved for a reinforced company. The majority of the works in these two important strong points were built in construction strength B. Through their all-around defenses, they at least possessed a minimal amount of depth. In the remaining sector of the coast, this feature was entirely absent. Like a string of pearls, the points of resistance were distributed along the whole coast line, with a distance varying from 1,000 to 6,000 meters between the adjacent works. Their antilanding weapons, situated for delivery of flanking coverage, were emplaced under reinforced concrete. Because of the scarcity of materials, only partial protective works could be built for the remaining members of the occupying crews. The right wing of the Corps sector in the vicinity of Pornic was in a more favorable position. An offshore chain of reefs and a partly steep, rocky coast offered a natural barrier strengthening the defensive power of the somewhat more closely built reinforced concrete works, a number of which had been constructed in strength B.

On Yeu and Noirmoutier the same conditions prevailed as on the island of Oléron and Ré, to an even greater extent. The island Yeu, about ten kilometers off the coast was almost entirely neglected, which was understandable, in view of its small size. In the case of Noirmoutier, because of its connection with the mainland and its position near the southwest front of the fortress St. Nazaire, its fortifications were on a par with those of Oléron and Ré. Nevertheless, it did not have any large-caliber flat-trajectory batteries.

#### V. Retrospective Considerations

Everybody who was well acquainted with the Atlantic Wall must candidly admit that in the short period of about two and a half years a great deal had been accomplished. In the peace before World War II, the completion of these thousands and thousands of various works from the Spanish border up to the North sea would have required many years. This alone is a proof of the fact that the organization of construction was highly suitable for the end in view. It must be attributed to the co-operation of all the military agencies at the front with the Organization Todt, and to the determination of the parties concerned that a strong defense be attained with a minimum of bureaucratic red tape. It was only natural that the line troops wanted to see their special desires fulfilled both as to the form and size of the defense works, so as to render them better suitable to the local tactical requirements. In the interests of speed and for reasons of standardizing construction, civil firms could not comply with such demands. From the point of view of the troops, it must be emphasized that the engineer staffs and the construction staffs of the Organization Todt

showed an increasing understanding of these considerations and did everything in their power to co-operate.

It is another question entirely whether the over-all plan of construction of the Atlantic Wall was an adequately conceived defense against the tactics of modern warriors. There was ample experience to draw upon in the construction of the West Wall, the Maginot Line, the Oder-Warte fortification system, and finally the system of the Czech frontier fortifications. From all these experiences it could be deducted that a linear row of more or less isolated defense works, without the necessary combat depth and mutual support of adjacent installations, could never be impregnable. It was always easy for the attacker to break through these linear fortifications with surprise attacks of concentrated local forces and to roll up quickly to either side. In the deliberations on the plan of construction for the Atlantic Wall, the immense length of the coast line clearly indicated the impossibility of creating, in a few years, an entrenched network of defensive installations along the entire coast capable of resisting an attack by a vastly superior enemy, employing all branches of his armed forces. This consideration was to lead, logically, to the inclusion in the plan of only those coastal sectors which were primarily threatened by an enemy attack, that is, those situated nearest to the British Isles. At these points, all the factors were favorable to the attacker, especially the ability to use aircraft in support of naval forces and landing troops. In this respect the front of the Bay of Biscay was considerably less favorable to the enemy. Accordingly, it probably would have been advisable to withdraw the entire coastal front and to limit the building activity to the immediate de-

fense of the submarine bases in Normandy and the Bay of Biscay which were indispensable to the Naval Command. Working forces and materiel assembled for this purpose would have sufficed, at least temporarily, to engage enemy forces threatening the front. Committed there until 1944, they would have centralized forces at the coast itself, making it possible to concentrate combat and defense works for local reserves capable of delaying the enemy's advance in the vicinity of the coast until strong strategic reserves could have been brought up for a concentrated counterattack. By the method actually used, nothing of decisive importance in determining the course of the war either at the threatened coast or within the Bay of Biscay front was accomplished. The greatest mistake was to include in the plan the fortification of coastal stretches, which, though they consumed immense quantities of material for approach routes, were only scantily secured by infantry groups and platoons and were destined to remain so even after the installation of defense works. The old tactical precept that he who tries to prepare for all eventualities, actually fails to prevent anything at all, here too, proved its validity.

In conclusion, I would like to raise the question whether the huge quantities of iron and steel employed in a purely passive form would not, in fact, have achieved better results in the invasion battle than the concrete works which on a front of a few kilometers were attacked and which decided the fate of the whole Atlantic Wall.

Werb, 8 August 1948.

G. Gallenkamp  
from 1 Apr 42 to 10 Aug 44  
Commanding General  
of the LXXX Army Corps at the Bay of Biscay front.

APPENDIX AComments by Feldmarschall Kesselring on the Report of General der Artillerie a D Gallenkamp on the Atlantic Wall

I am pleased to comply with the request of General Gallenkamp to comment on his report, particularly as it offers me an opportunity to supplement my own study on the topic "OB West, Part I."

When writing my study, I was not aware of the details of the actual conditions under which the Atlantic Wall was fortified. Gallenkamp's report makes it clear that OKW, or at least OB West, has neglected unjustifiably the idea of focal points.

1. The southern part of the Atlantic coast could not be considered as threatened. In view of the prevailing shortage of both personnel and materiel, a fortification, over and above the submarine bases as fortresses, could not be justified. I should like once more to summarize the reasons:

1. The coast was situated eccentrically to the strategic objectives which were decisive for the outcome of the war.

2. An enemy operation in this area would be unlikely, in view of the long sea route, endangered by submarines and possible air attacks.

3. Air support from carrier-based planes alone would not be sufficient for an enemy operation.

Blocking the Spanish border and rendering more difficult the unloading of ore shipments in the harbor of Bayonne was not a primary aim at this advanced stage of the war. Such an undertaking, which could be effective only for a limited time, would have resulted solely in splintering of forces.

II. Combined undertakings consisting of an operation against the French Mediterranean coast, together with one against Brittany and Normandy, would have been conceivable. In both of these strong enemy forces would have to be committed, although the disadvantages mentioned above would also apply to this operation. A landing south of the Gironde was improbable, in both cases because of long distances and an eccentric situation, for example, to the southern coast. A landing operation north of the Gironde in conjunction with an invasion in Brittany and Normandy could more logically be expected. But even this operation was improbable because of the following important reasons:

1. An attack against the flank or the rear of the German forces in Brittany and Normandy had first of all to overcome the Loire barrier; it could be effective only after the main reserves of the fortress St. Nazaire and Bordeaux had been conquered.

2. A thrust into our flank would itself be threatened by a flank attack from German forces stationed at the French Mediterranean coast. Counter-measures leading to splintering of forces would be unavoidable.

Knowing the train of thought of the Allied leadership, and in consideration of the highly questionable prospects for success, an attack against the Atlantic front between St. Nazaire and the Spanish border was more than improbable. The construction of fortifications in the intermediate area between the fortresses, building of approach roads, construction of fore-shore obstacles, and fortifying of Bayonne were not justifiable. In addition, the bomb-proof protection of large command posts and emplacement under concrete of all batteries was exaggerated and unnecessary. On the other



hand, thoroughly fortifying the submarine bases was, in general, a sound plan. As no strategically concentrated attack could be expected, the submarine bases had to be protected against air attacks and surprise raids with support from strong naval forces. Security against bomb attacks was of particular importance, and required a heavy commitment of antiaircraft artillery. It was therefore advisable to convert the submarine bases into a kind of antiaircraft fortress, which with its large-scale batteries would provide complete protection against surprise raids from the sea and the air. A small mobile combat reserve would then have been sufficient, at least for the protection of Bordeaux. In the fortress area of St. Nazaire a main reserve in the strength of a division would probably have been desirable.

III. If this concept had been applied to the defense of the Atlantic coast, the quantity of materials necessary for adequate fortifications could have been reduced by roughly two thirds, and defense forces by at least one third. This would probably have had a decisive effect on the coast fronts expected to bear the impact of a concentrated attack. I repeat the precept set up in my study, that in the case of such large-scale military measures a detailed study, in the nature of a war game, of all questions that may arise, is essential to the establishment of a sound plan of defense with clear directives for constructions, occupying crews, and conduct of battle. Only in this way can exaggerated demands of individual branches of the armed forces be curtailed without damage to the whole defense system.

sgt X. 10 August