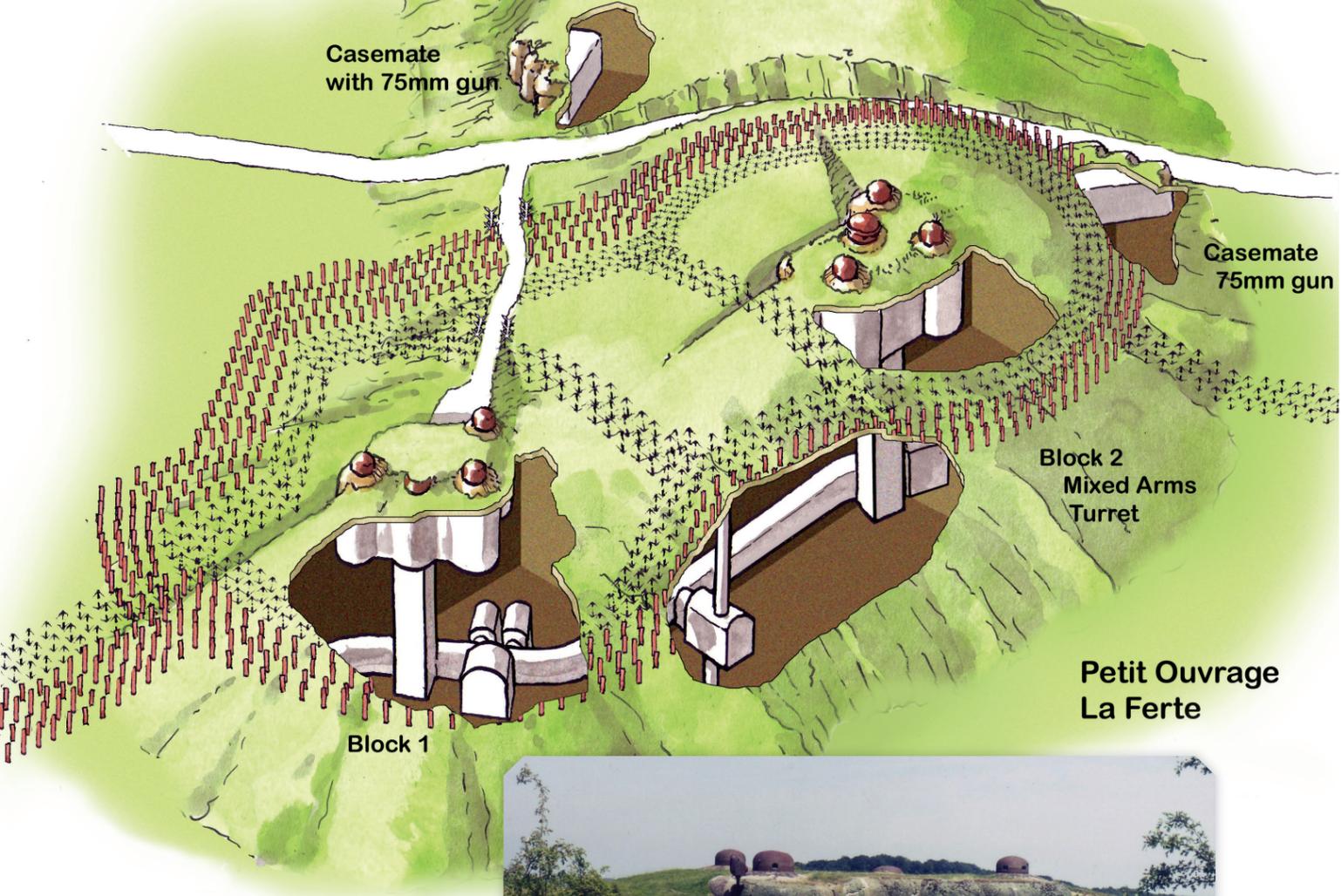


# Analysis: The Maginot Line

By J.E. & H.W. Kaufmann



Haut Porier was one of the few PO the Germans took by assault. This casemate had several cloches. The metal cover in the middle of the casemate housed a searchlight. Above it is one of several supports on the face of the casemate that held the antenna of a radio.

## Strategic Context

On 10 May 1940, as the German invasion of the west began, their initial thrusts bypassed the main line of French fortifications; though, a few weeks later, the divisions of Army Group C breached the Maginot Line in several places. That larger course of events led to the widespread belief the Maginot line had been nothing more than an expensive “white elephant” or a figment of imagination within what must’ve really been nothing more than a massive propaganda campaign. Conversely, however, we must ask: if that was actually the case, why did the Germans avoid the line in their initial assault?

The existence of the Maginot Line had actually dictated German strategy since before the beginning of the war. As early as 1936, after the remilitarization of the Rhineland, the Germans had begun the construction of their own “West Wall” to match the French fortifications on the other side of the border. The

German construction effort grew to be massive, as their *Organization Todt*, in less than three years, built a barrier potentially as formidable as the Maginot Line, which had been under construction for most of the decade. The Maginot Line extended from the Upper Rhine, which formed a large section of the Franco-German

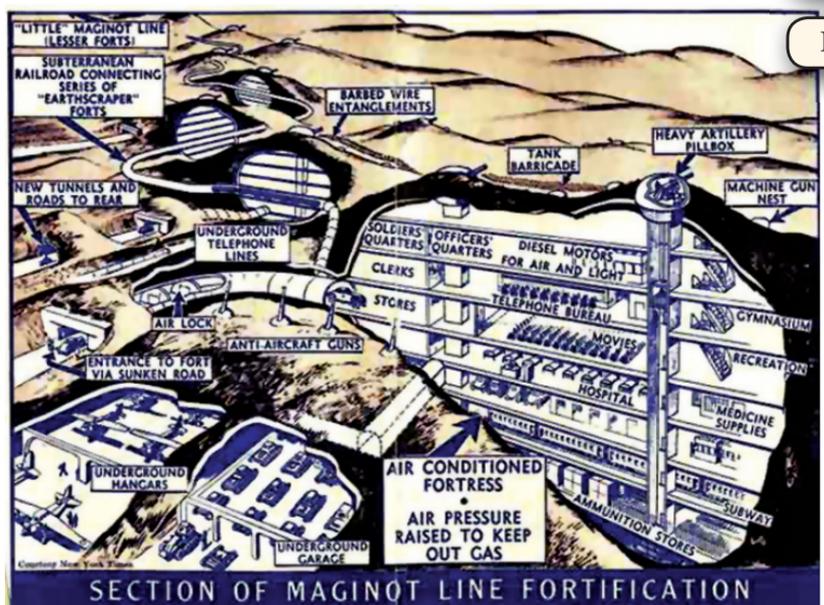
border, to the southern Belgian border. Though it’s often commonly assumed the line extended along the Belgian border all the way to the North Sea, that wasn’t the case. Another section of the Maginot Line—known as the “Little Maginot Line” in English-language sources—extended along the Alpine frontier with Italy. That section was the most formidable of the French fortifications, and it halted the advancing Italian Army in the summer of 1940.

The German high command had no intention of taking on the Maginot Line for several reasons. In the first place, they knew what they would be facing if they tried to do so. French forces theoretically could defend the Maginot Line much more effectively than they had Verdun in 1916. So, rather than be drawn into another First World War type engagement, the Germans dusted off a variant of the Schlieffen Plan of 1914, when their army faced only the fortress rings of Liege and Namur barring their way to the French frontier.

By 1940 the Belgians had refurbished parts of those two old fortress rings. They also built a new forward line at Liege consisting of four modern forts, including Eben Emael, along with interval positions between them. The Germans had no illusions about surprising the French with their thrust into Belgium, and they realized they would have to engage a major enemy force after cracking the defenses of Liege. That engagement would, however, be fought as a battle of maneuver rather than an assault on fixed positions.

Shortly after the war began in September 1939, the French Army sallied out of the Maginot Line to cross the German frontier. The French advanced through an area known as the Sarre Gap, which separated the two main sections of the Maginot Line. Rather than launching a lightning assault, like the German one that was then crushing Poland in the east, the French lumbered slowly toward the West Wall where they faced only a relatively small force. The halfhearted French offensive was there brought to a halt. The French pulled back into their defensive line in October.

Unlike the Maginot Line, the West Wall consisted mainly of small fortifications such as machinegun and anti-tank gun bunkers and troop shelters. Like the Maginot Line,



Another highly exaggerated view of the line, as shown in an article in the New York Times from 1939.

though, it also included an almost continuous line of anti-tank barriers. Even more importantly, in addition to those combat positions, it included minefields. Anti-personnel mines, mass-produced by the Germans, were deployed in large arrays, which was at the time a feature not yet found in any other fortified line.

In January 1940 a light German aircraft crash-landed in Belgium. The officer aboard carried a copy of the invasion plan. The Germans at the time didn’t know for sure the Allies had captured the documents along with the officer, but they couldn’t take that chance. Accordingly, a radically new plan proposed by Gen. Erich von Manstein received Hitler’s approval. The new operation called for its main thrust into Belgium going through the Ardennes rather than Liege.

The Belgian fortifications, which weren’t as impressive as those of the Maginot Line, extended from Antwerp to Liege. There were also some positions along the Meuse River to Namur, with work still underway on what became known as the Dyle Line. With the exception of a small number of bunkers, there were thus few fortifications between Liege and the Maginot Line. The French showed little concern about that, since Marshal Henri Petain had declared in the 1930s that those wooded and rolling hills were “impassable to a modern army.” Contrary to Allied expectations, then, the bulk of the German

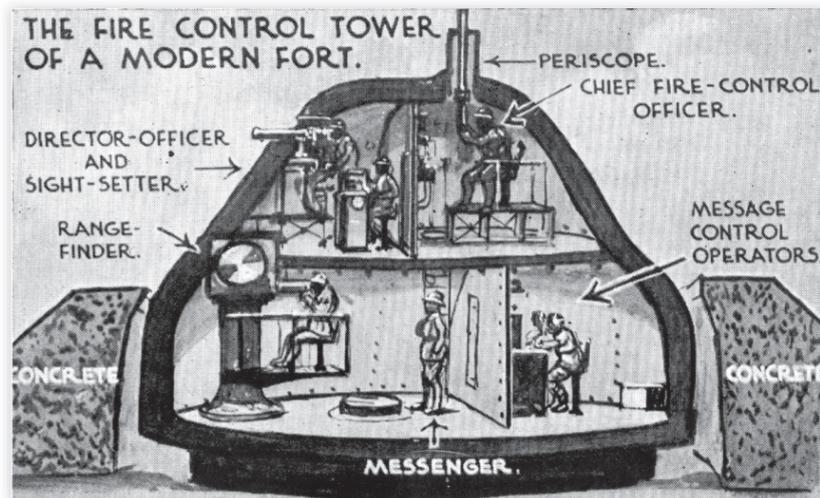


A then common and abstract view of the Maginot Line, as presented in the Allied press late in 1939.

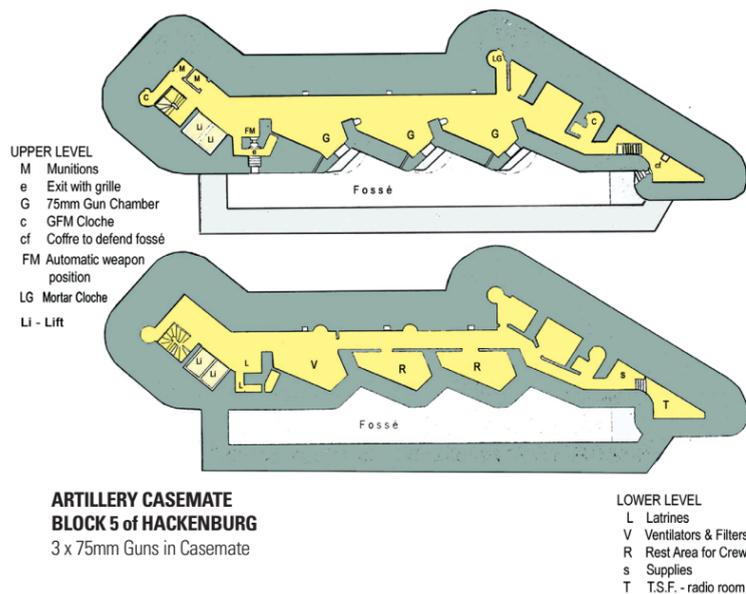
mechanized divisions swept through the Ardennes, breached the Meuse barrier, and trapped the Allied armies as Manstein had planned. During that movement the assaulting forces only brushed up against the northern end of the Maginot Line.

## Fortification Elements

The construction of the Maginot Line began in the early 1930s, and most of its major fortified positions, known as *ouvrages* (“works” or forts), were completed and manned by 1936 except in the Alpine sector. The *ouvrages* were subterranean positions barely visible

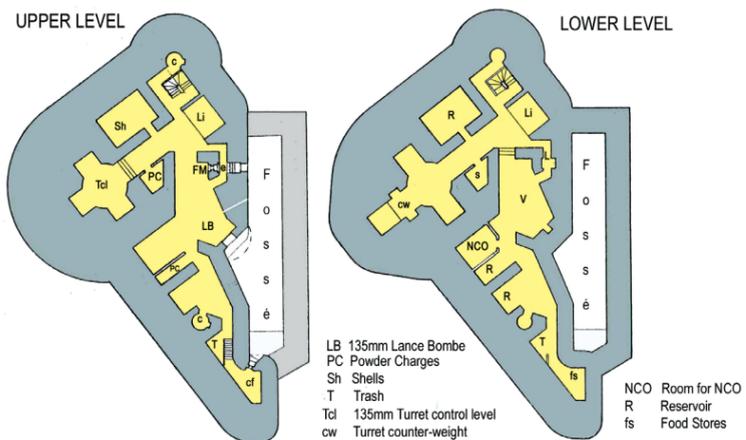


A somewhat more realistic 1939 representation of a tower within the line.



**ARTILLERY CASEMATE  
BLOCK 5 of HACKENBURG**  
3 x 75mm Guns in Casemate

**ARTILLERY CASEMATE & TURRET BLOCK  
BLOCK 9 of HACKENBURG**  
135mm LB in Casemate, 2 x 135mm LB in Turret



Examples of two types of combat blocks. The artillery casemate at Hackenberg had three 75mm guns. The combination artillery casemate and turret block at Hackenberg was for a 135mm Lance Bombe and two 135mm in a turret.

on the surface except for their combat elements. Each *ouvrage* consisted of several subsidiary positions called blocks. The large ones (*gros ouvrages* or GO) included several blocks and usually also two entrance blocks.

Since the combat-position blocks were also identified as artillery blocks, those forts were often referred to as artillery *ouvrages*. One—occasionally two—faces of each combat block served as weapon-holding casemates, and were therefore exposed to the surface. In the blocks that mounted turrets but no other weapons, nothing was exposed at the surface except the heavily protected roof, which was up to 11.5 feet (3.5 meters) thick, consisted of reinforced concrete, and was the thickest part of the structure.

On the roofs of most combat and entrance blocks protruded bell-shaped armored domes, which are often referred to as “turrets” in English, a term that leads to confusion. Those domes, called *cloches* (bells) in French, were standard features on many fortifications in other countries as well. The *cloche* didn't rotate or retract. Each was a fixed position that had to be heavily camouflaged because it would otherwise stand out plainly amid the surrounding terrain.

The French employed several types of *cloche* in their fortifications. The most common was the GFM (*Guêt Fusil Mitrailleur* or Observation [&] Automatic Weapons). That type of *cloche* came in two types, A and B, but standard features included embrasures with fitted armored openings for spotlights, periscopes, binoculars and breechloaded 50mm mortars.

There were two general types of observation *cloches*: one with narrow observation slits and a roof periscope, and one with a top that was kept flush with the surface but mounted a large extendable periscope with the observer below ground. Another type of *cloche* mounted a twin machinegun that covered a single sector through one embrasure. A special type of *cloche* intended for an automatic 60mm mortar never became operational.

A final development in the mid-1930s was the mixed-arms *cloche*, which had two embrasures for twin machineguns (*JM – Jumelage de Mitrailleuses*) with a 25mm anti-tank gun sandwiched in between. Some blocks mounted one or two *cloches* and others mounted several.

The turrets, the main feature of many *gros ouvrages*, had minimum exposure. Each turret block generally included one or more *cloches* but all turrets were retractable into the ground. There were three types of artillery turrets and two types of infantry turrets. Artillery turrets mounted a pair of 75mm guns, or a 135mm *Lance Bombes* (a combination mortar/howitzer), or breechloaded 81mm mortars. The infantry turrets mounted either machineguns (*JM*) or mixed-arms. The machinegun turrets were still being converted into mixed-arms turrets when the war began. That conversion consisted of inserting an additional embrasure to accommodate a 25mm gun.

Artillery casemates normally mounted three 75mm guns or one 135mm *Lance Bombe*. The 81mm mortars in casemates usually came in pairs and, like the 81mm turret, they were considered infantry weapons even though they were also listed as artillery.

The number and type of weapons was standard in the northeast along the German frontier but not in the fortifications in the Alps, which, because of the extreme terrain, were much different. The infantry casemates included embrasures for *JM* and often a 37mm or 47mm anti-tank gun. The smaller gun was used mainly in casemates and entrance blocks built before the 47mm weapon became available. Some infantry casemates included embrasures for 50mm or 81mm mortars. The crewmen in a combat block were never directly exposed to enemy fire, and they always fought from behind some form of armor and concrete protection.

In some cases a combat block included a casemate as well as a turret. Some combat blocks served both as infantry and artillery blocks, while most blocks with *cloches* also served as observation posts. Special observation blocks, located at key points within some forts, usually included an observation *cloche* with narrow viewing slits and/or a periscope *cloche*, and usually a GFM *cloche*.

The crews in the combat blocks consisted of artillerymen—when 75mm weapons or larger calibers were present—and infantrymen. Troops from various sections of the French Army *Genie* (engineers) operated the power station, communications, and other sections



The official badge of the Maginot Line fortress units: “They Shall Not Pass.”

of the subterranean facilities. After the 1936 mobilization in reaction to the German remilitarization of the Rhineland, the army reorganized the garrisons of the *ouvrages* along lines similar to those found on warships and began referring to them as crews.

The GO normally had two entrances: an EM (*Entrée des Munitions*—Munitions Entrance) and an EH (*Entrée des Hommes*—Men's Entrance). They led into the bowels of the fort, which were usually about 100 feet below the surface, depending on the terrain. The underground facilities contained a barracks with quarters, a kitchen, a generator and other facilities for the garrison that could range from 100 to 1,000 men, depending on the size of the fort.

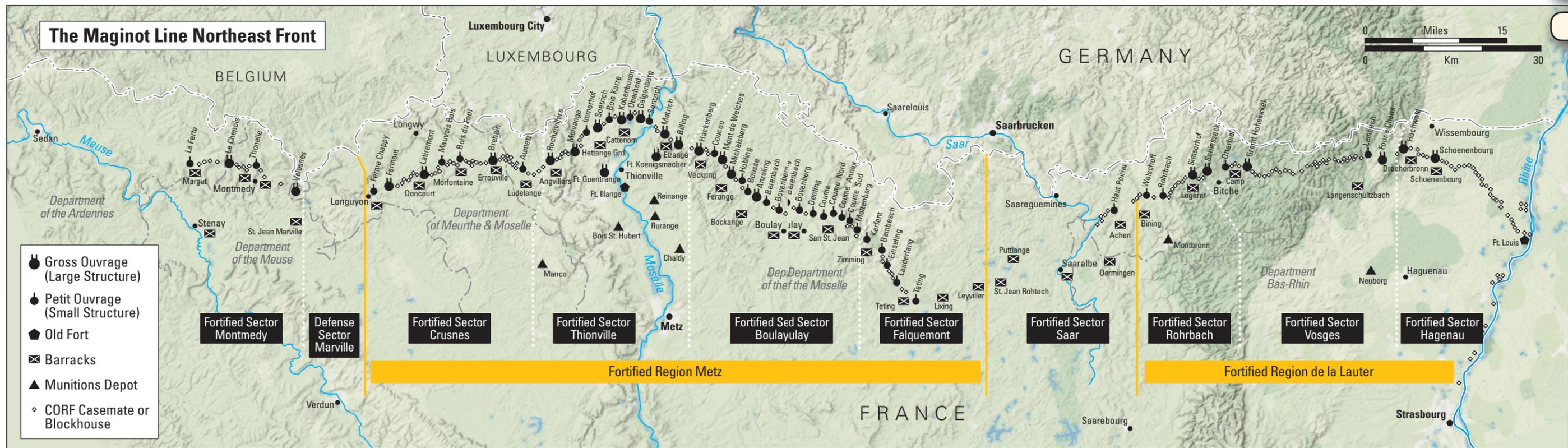
There was usually a large magazine designated as the M-1. Secondary magazines, designated as M-2, were located below the artillery blocks, and smaller M-3 magazines were located in the combat blocks. The combat blocks of a GO were normally located up to two-thirds of a mile away from the entrances and the underground barracks. A small train ran through the main gallery linking the barracks with the combat blocks, unless the distance was short.

Gas protection was assured by maintaining an overpressure in the fort. Filters in the barracks and combat blocks provided further safety.

To counter a possible enemy penetration into the *ouvrages*, their main galleries were provided with demolition chambers. All *ouvrages* included a secret escape exit that could only be activated from inside, with no trace of it visible on the surface when it was closed. All *ouvrages* also had a drain large enough for use as an emergency exit. Casemate combat blocks didn't have normal entranceways, but they often had small exits into the *fossé* (perimeter moat) intended for use by sortieing patrols.

In front of the embrasures and entrance doors of the exposed casemates and entrance façades was a diamond fosse, a deep angular moat that prevented the enemy from easily reaching the apertures. Inside the casemate there was a grenade launcher that allowed the crew to eject grenades into the *fossé* if an enemy attempted to cross it.

The blocks were usually surrounded with barbed wire entanglements and sometimes anti-tank rails. In general, both infantry and artillery casemates fired only to the flanks or the rear and were out of the direct



line of enemy heavy artillery. In most cases only the turrets and some of the *cloches* could fire to the front of the *ouvrages* (except in the Alps).

Many planned GO were never completed as such. They instead became *petites ouvrages* (small works or PO) due to funding restrictions. The planners intended those smaller forts to cover the gaps between the GO. With the exception of a couple of forts with 81mm mortars, the PO had no artillery. Most consisted of one to four combat blocks, and in a few cases they had a standard mixed-entrance block that served for both munitions and men. In some PO a combat block served as entrance block.

All *ouvrages* had communications equipment. Artillery blocks had radio transmitters and receivers to get firing directions from command posts. Speaking tubes linked the men in the *cloches* with crewmen in the blocks below them. Telephones linked the blocks to their fort's command post, and underground cables linked the *ouvrages* to each other and higher headquarters.

Each generator had its own on-hand fuel supply. Underground power lines linked the *ouvrages* to the national electric grid, which

could be used until the fort was cut off from that external source. Interval positions played an important role in the overall defensive scheme. They consisted mainly of casemates and observation posts located between the *ouvrages*. The interval casemates were similar to infantry casemates, but they had a small generator and other facilities needed for them to operate in isolation. Those positions mounted a JM and often an anti-tank gun and included one or more *cloches*.

Another type of interval position was the *abri* (troop shelter), located behind an *ouvrage* or group of interval casemates. *Abris* also had a complete set of facilities and were often large enough to house a company of infantry. On mobilization the army built additional bunkers, shelters and trenches between the *ouvrages* and also set up more obstacles around them.

The *ouvrages* were surrounded with a variety of obstacles, the most common of which consisted of barbed wire fields. A line of anti-tank rails ran along much of the front of the Maginot Line to protect it from armored assault. Anti-tank ditches were also used. Each *ouvrage* had a

small supply of mines, usually stored near the entrance blocks. Those mines served as booby traps and obstructions along the access routes.

**Evolving Strategy**

Many historians have misinterpreted the strategic and tactical roles of the Maginot Line. Though its strategic mission was to defend the "Northeast Front," the line had never been conceived as an impenetrable barrier. Its original mission was only to delay the Germans long enough to allow the French Army time to fully mobilize. Later the French high command decided to expand that mission. Thus, in the latter half of the 1930s, plans were formulated to seal the major gaps, like the one in the Sarre, and to create a second line behind the main one that would be known as the "Stop Line." Most of that work was never completed, especially in the case of the Stop Line.

The mission of the Maginot Line changed for several reasons. During the first half of the 1930s the French Army was weakened by reduced service times for conscripts and political problems. The year 1936 changed France's strategic situation when, in March, the *Wehrmacht* reoc-

cupied the demilitarized Rhineland, which included the newly restored Saar region. In October, Belgian King Leopold III announced a new policy of neutrality for his nation. That upset French military planning, which had counted on Belgium as an ally since World War I. Thus the French decided it was necessary to expand the Maginot Line to create a more formidable barrier than originally planned.

Little could be done about defending the Belgian frontier. In the late 1920s, during the initial planning stage for the Maginot Line, extending the fortifications along the Belgian border, especially the Flemish sections, had been considered impractical for two reasons. First, such a line would seemingly abandon, and therefore antagonize, an ally. Second, most of Flanders wasn't suited for large subterranean fortifications because of its high water table, and Belgium's later neutrality didn't change that. As a result, the French concentrated on reducing the width of the gap in the Sarre area, where the two main sections of the line were separated, and on extending the line along the part of the Belgian border south of Sedan. Smaller fortifications were built at the old fortress ring of Maubeuge, but few



Photo of a *cloche* at Bambsesch that was penetrated by 88mm rounds, one of which can be seen sticking out of it.