The Maginot Line

France had suffered appalling damage to both men and buildings in World War One. After Versailles in 1919, there was a clear intention on the part of the French that France should never have to suffer such a catastrophe again. After 1920, those men in both political positions and the military favored adopting a military strategy that would simply stop any form of German invasion again.

Senior figures in the French military, such as Marshall Foch, believed that the German anger over Versailles all but guaranteed that Germany would seek revenge. The main thrust of French military policy, as a result, was to embrace the power of defense.

As head of the armed forces, Marshall Petain commissioned a number of teams to come up with a solution to the French dilemma. Three schools of thought developed:

- That France should adopt a policy of offense as opposed to defense. One of the main supporters of this was Charles de Gaulle. He wanted France to develop an army based on speed, mobility and mechanized vehicles. There were few who supported his ideas, as many in the military saw them as aggressive and likely to provoke a response, as opposed to guard against a German attack.
- 2) France should base its military in a line of small heavily defended areas from which a counter attack could be launched if required. Marshall Joffre favored this idea.
- 3) France should build a long line of fortifications along the whole French/German border which would cut France off from German access. Marshall Petain favored this idea.

Petain had come out of World War I with much respect, and with his backing, the idea of a long and deep defensive barrier gained political support. In this, Petain was supported by Andre Maginot, the Minister of War.

In 1929, Maginot returned to government office. He attained money from the government to build a fullscale defensive barrier along the German border. He overcame any opposition to his plan very simply – the fortification, he argued, would end any chance there was that France would suffer the terrible bloodshed of 1914 -1918 should there ever be another war. Also, in 1930, French troops that had occupied the Rhineland as part of the Versailles Treaty, had to leave the area that bordered onto France – this at a time when the Nazi Party and Hitler were making real headway in Germany.

Maginot had a number of sound military arguments on his side:

- The Line would hinder any German attack for so long that the bulk of the large French army would be fully mobilized to counter the attack.
- The troops stationed in the Line would also be used to fight against the invading Germans should they get through any one part of the Line and attack them from the rear.
- All the fighting would take place near to the French/German border so that there would be minimal damage to property.
- The Ardennes in the north would act as a natural continuation of the man-made Line as it was considered impenetrable, so the Line need not go all the way to the English Channel.

Work on the Maginot Line started in 1930 when the French government gave a grant of 3 billion francs for its building. The work continued until 1940. Maginot himself died in 1932, and the line was named after him in his honor.

What and where was the Maginot Line and its defenses?

It was not a continuous line of forts as some believe. In parts, especially in the south from Basle to Haguenau, it was nothing more than a series of outposts as the steep geography of the region and the Rhine River provided its own defense between France and Germany. The Line comprised of over 500 separate buildings but was dominated by large forts (known as 'ouvrages') which were built about nine miles from each other. Each ouvrage housed 1000 soldiers with artillery. Between each ouvrage were smaller forts which housed between 200 to 500 men depending on their size. There were 50 ouvrages in total along the German border. Each one had the necessary fire power to cover the two nearest ouvrages to the north and south. They were protected by reinforced steel that was inches deep and capable of taking a direct hit from most known artillery fire.

The smaller forts were obviously not as well armed or protected as the ouvrages, but they were still well built. They were further protected by minefields and anti-tank ditches. Forward defense lines were designed to give the defenders a good warning of an impending attack. In theory, the Maginot Line was capable of creating a massive continuous line of fire that should have devastated any attack.

The fortifications on the northeast frontier included twenty-two huge underground fortresses and thirtysix smaller fortresses, as well as many blockhouses and bunkers. The French placed most of their largest fortresses in the northeast because of their desire to protect the large population, key industries, and abundant natural resources located near the Moselle valley. The first attack by the Germans against the Maginot line itself occurred on May 16, 1940.

How the Maginot Line was supposed to work?

The planned line had two purposes. It would halt an invasion long enough for the French to fully mobilize their own army, and then act as a solid base from which to repel the attack. Any battles would thus occur on the fringes of French territory, preventing internal damage and occupation. The Line would run along both the Franco-German and Franco-Italian borders, as both countries were considered a threat; however, the fortifications would cease at the Ardennes Forest and not continue any further north. There was one key reason for this: when the Line was being planned in the late twenties, France and Belgium were allies, and it was inconceivable that either one should build such a massive system on their shared boundary. This did not mean that the area was to go undefended, for the French developed a military plan based around the Line. With large-scale fortifications defending the south-eastern border, the bulk of the French army could gather at the north-eastern end, ready to enter - and fight in - Belgium. The joint was the Ardennes Forest, a hilly and wooded area which was considered impenetrable.

The funding and organization

In the early days of 1930 the French Government granted nearly 3 billion francs to the project, and work on the Line began immediately. Several bodies were involved in the project: locations and functions were determined by CORF, the Committee for the Organization of the Fortified Regions (Commission d'Organization des Régions Fortifées, CORF), while the actual building was handled by the STG, or Technical Engineering Section (Section Technique du Génie). Development continued in three distinct phases until 1940.

What were problems during construction?

The main period of construction took place between 1930 - 1936, implementing much of the original plan. There were problems, as a sharp economic downturn required a switch from private builders to government led initiatives, and some elements of the ambitious design had to be delayed. Conversely, Germany's remilitarization of the Rhineland provided a further, and largely threatening, stimulus. In 1936 Belgium declared itself a neutral country alongside Luxembourg and the Netherlands, effectively severing its previous allegiance with France. In theory, the Maginot Line should have been extended to cover this new border, but in practice only a few basic defenses were added. Commentators have attacked this decision, but the original French plan - which involved fighting in Belgium - remained unaffected; of course, that plan is subject to an equal amount of criticism.

What were additional design features?

This ultramodern defensive fortification showed traces of the old circular system of fortifications, but its dominant feature was linear. The Maginot Line was, from the standpoint of the troops, a tremendous advance over previous fortifications. Its concrete was thicker than anything theretofore known and its guns heavier. In addition, there were air-conditioned areas for the troops, and the line was usually referred to as being more comfortable than a modern city. There were recreation areas, living quarters, supply storehouses, and underground rail lines connecting various portions of the line. Strongpoints had been established in depth, capable of being supported by troops moved underground by rail.

What personnel was needed?

With the physical infrastructure established by 1936, the main task of the next three years was to train soldiers and engineers to operate the fortifications. These 'Fortress Troops' were not simply existing military units assigned to guard duty, rather, they were an almost unparalleled mixture of skills which included engineers and technicians alongside ground troops and artillerymen.

How should money have been used?

One element of the Maginot Line that has always divided historians is the cost. Some argue that the original design was too large. They often cite the scarcity of fortifications along the Belgian border as a sign that the funding had run out. Others claim that the construction actually used less money than was allotted, and that the few billion francs was far less than the cost of De Gaulle's mechanized force.

How was the Maginot Line designed for defensive purposes?

The Maginot Line was not a single continuous structure like the Great Wall of China or Hadrian's Wall. Instead, it was composed of over five hundred separate buildings, each arranged according to a detailed, but inconsistent, plan. The key units were the large forts, or 'ouvrages', which were located within 9 miles of each other; these vast bases held over 1000 troops and housed artillery. Other, smaller, forms of ouvrage were positioned between their larger forts, holding either 500 or 200 men, with a proportional drop in firepower.

The forts were solid buildings, capable of withstanding heavy fire. The surface areas were protected by steel reinforced concrete, which was up to 3.5 meters thick, a depth capable of withstanding multiple direct hits.

The steel roofs, elevating domes through which gunners could fire, were 30 - 35 centimeters deep. In total, the ouvrages numbered 58 on the eastern section and 50 on the Italian one, with most able to fire upon the two nearest positions of equal size, and everything in-between.

What other defensive designs were added to the Line?

The network of forts formed a backbone for many more defenses. There were hundreds of casements: small, multi-story blocks located less than a mile apart, each providing a secure base. From these, a handful of troops could attack invading forces and protect their neighboring casements. Ditches, anti-tank works and minefields screened every position, while observation posts and forward defenses allowed the main line an early warning.

Why were there variations in the design?

There was variation: some areas had far heavier concentrations of troops and buildings, while others were without fortresses and artillery. The strongest regions were those around Metz, Lauter and Alsace, while the Rhine was one of the weakest. The Alpine Line, that part which guarded the French-Italian border, was also slightly different, as it incorporated a large number of existing forts and defenses. These were concentrated around mountain passes and other potential weak points, enhancing the Alps own ancient, and natural, defensive line. In short, the Maginot line was a dense, multi-layered, system, providing what has often been described as a 'continuous line of fire' along a long front; however, the quantity of this firepower, and the size of the defenses, varied.

What other design elements were considered important?

Crucially, the Line was more than simple geography and concrete: it had been designed with the latest in technological and engineering know-how. The larger forts were over six stories deep, vast underground complexes that included hospitals, trains and long air-conditioned galleries. Soldiers could live and sleep underground, while internal machine gun posts and traps repelled any intruders. The Maginot Line was certainly an advanced defensive position - it is believed that some areas could withstand an Atom Bomb - and the forts became a marvel of their age, as kings, presidents and other dignitaries visited these futuristic subterranean dwellings.

What was the historical inspiration for the Line?

The Line was not without precedent. In the aftermath of the 1870 Franco-Prussian War, in which the French had been beaten, a system of forts was constructed around Verdun. The largest was Douaumont, a sunken fortress showing hardly more than its concrete roof and its gun turrets above ground, and below ground lies a labyrinth of corridors, barrack rooms, munitions stores and latrines. This could very well be a description of the Maginot ouvrages; indeed, Douaumont was France's largest, and best-designed fort of the period. Equally, the Belgian engineer Henri Brialmont created several large fortified networks before the Great War, most of which involved a system of forts located set distances apart; he also used elevating steel cupolas (domes).

The Maginot plan used the best of these ideas, rejecting the weak points. Brailmont had intended to aid communication and defense by connecting some of his forts with trenches, but their eventual absence allowed German troops to simply advance past the fortifications; the Maginot line used reinforced underground tunnels and interlocking fields of fire. Equally, and most importantly for the veterans of Verdun, the Line would be fully and constantly staffed, so there could be no repeat of the undermanned Douaumont's swift loss.

Why would other countries develop their defenses differently?

France was not alone in its post WWI building. Italy, Finland, Germany, Czechoslovakia, Greece, Belgium and the USSR all built, or improved, defensive lines, although these varied hugely in their nature and design. Maginot, Pétain and others thought they were learning from the recent past, and using state of the art engineering to create an ideal shield from attack. It is, therefore, perhaps unfortunate that warfare developed in a different direction.

How did Germany invade France?

The Nazi plan to invade France, the Sichelschnitt (cut of the sickle), involved three armies, one facing Belgium, one facing the Maginot Line, and another part-way between the two, opposite the Ardennes. The southernmost division had the unenviable task of advancing through the Line, but they were simply a diversion, whose mere presence would tie-down French troops and prevent their use as reinforcements. On May 10th 1940, the German's northern army attacked the Netherlands, moving through and into Belgium. Parts of the French and British Army moved up and across to meet them and resist the attack in Belgium.

The key difference was the German army group in the middle, which advanced across Luxembourg, Belgium, and then straight through the Ardennes. Well over a million German troops and 1,500 tanks crossed the supposedly impenetrable forest with ease, using roads and tracks. They met little opposition, for the French units in this area had almost no air-support and few ways of stopping the German bombers. By May 15th, this group was clear of all the defenses, and the French army began to wilt. The advance of the northern and central groups continued unabated until May 24th, when they halted just outside Dunkirk. By June 9th, German forces had swung down behind the Maginot Line, cutting it off from the rest of France. Many of the fortress troops surrendered after the armistice, while others held on with little success before being captured.

What other action occurred on the Maginot Line?

The allies themselves had to cross the defenses in late 1944, as German troops used the Maginot fortifications as focal points for resistance and counter attack. This resulted in heavy fighting around various areas along the fortifications.

What has become of the Line after 1945?

The defenses did not simply disappear after the Second World War. Some forts were modernized, while others were adapted to resist nuclear attack. However, by the 1970s, most were unused and fell into decay. Many were sold off and several even made into museums. Adventure seekers like to search out and explore these structures, but due to their state of deterioration this adventure comes with a good deal of risk.

