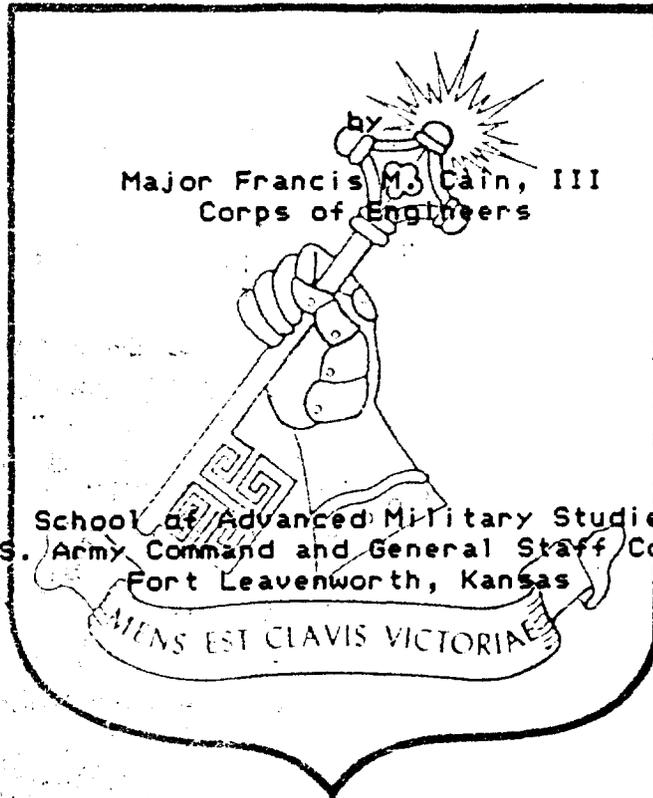


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The 1111th Engineer Group in the Bulge:
The Role of Engineers as Infantry in AirLand Battle



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ABSTRACT

THE 1111th ENGINEER GROUP IN THE BULGE: THE ROLE OF ENGINEERS AS INFANTRY IN AIRLAND BATTLE. BY Major Francis Marion Cain, III, USA, 63 pages.

This study examines the role of U.S. Army Engineers fighting as infantry in AirLand Battle by analyzing the actions of the 1111th Engineer Combat Group during the Battle of the Bulge in December 1944. The 51st and 291st Engineer Combat Battalions of the 1111th Engineer Combat Group are representative of the twenty-two engineer units committed as infantry during the Bulge to stop the German onslaught. By manning hasty defensive positions at Malmedy, Stavelot, and Trois Ponts, the 291st Engineers and C Company, 51st Engineers delayed the German advance long enough for 30th Infantry and 82d Airborne Divisions to reach the area and wrestle the initiative from Sixth Panzer Army. The defense of the Ourthe River line by elements of the 51st Engineers was instrumental in delaying 116th Panzer Division long enough for 3rd Armored and 84th Infantry Divisions to reach defensive positions in front of the Meuse River.

- Engineers were successful as infantry against mechanized forces for several reasons: (1) Infantry missions were limited in scope; (2) They were augmented with additional fire power; (3) They occupied good defensible terrain; 4) World War II engineer units received extensive combat training before deploying overseas.

The Battle of the Bulge displays many of the characteristics of a Soviet attack on NATO. Like the Ardennes in December 1944, NATO's Central Front is held by units which are overextended, untested in combat, and locked into a rigid forward defense with limited tactical reserves and no operational reserves. Under these circumstances, if Soviet forces do penetrate the Main Battle Area, engineer units are likely to be committed as infantry to block or contain the penetration. Like the Battle of the Bulge, we can expect a non-linear battlefield with fragmented, isolated units - a battlefield dominated by confusion and uncertainty. It is in exactly this type of situation that the actions of a few brave, determined men can make the difference between victory and defeat. By manning small, isolated defensive positions, the men of the 1111th Engineer Group provided the extra measure of combat power that tipped the scales of victory in favor of the Allies in December 1944. Their successors can and must be able to do likewise.

The 1111th Engineer Group in the Bulge:
The Role of Engineers as Infantry in AirLand Battle

by

Major Francis M. Cain, III
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Fort Leavenworth, Kansas

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SECTION I

Introduction

Contrary to popular belief, U.S. Army engineers have doctrinally been employed as infantry only in this century. Although engineers sometimes engaged in direct combat, throughout the eighteenth and nineteenth centuries engineers were considered to be technical specialists rather than combat troops. Not until World War I did the role of engineers begin to change. The extensive use of barbed wire and trenches during World War I made it necessary for engineer support to be pushed forward. Engineers were needed to breach lanes for assault units and to help reduce pillboxes and strong points. (1)

The trench warfare of World War I caused heavy casualties among the infantry units. Consequently, the 816 man engineer regiment of the U.S. Army's square infantry division represented a large source of available manpower, and was often designated as the division's reserve force. As reserves, engineers were called upon to fight as infantry with increasing frequency. For example, on 27 March 1918, the 6th Engineer Regiment, 3rd Infantry Division was used as infantry astride the St. Quentin highway to block a major German penetration. The regiment constructed a trench line under fire and fought as infantry for four days. Another example occurred on 28 May 1918. Heavy casualties among the infantry regiments caused the 1st Infantry Division's attack

on Cantigny to falter, and the 1st Engineer Regiment was committed as infantry to maintain the momentum of the attack. The concept of using engineers as infantry began in World War I, but not until the interwar years was U.S. Army doctrine changed to reflect the employment of engineers as infantry. (2)

Throughout the 1920s and early 1930s few substantial changes were made in the nature of engineer support provided to the infantry division. In the mid 1930s, however, the U.S. Army changed the structure of the infantry division from the cumbersome "square" organization of four infantry regiments to the more flexible "triangular" organization of three infantry regiments. In the 1936 reorganization of the infantry division, GEN Malin Craig, U.S. Army Chief of Staff from 1935 to 1939, recommended divisional engineers be deleted from the new triangular division. However, the Chief of Engineers, MG Julian L. Schley, justified retention of a divisional engineer battalion by arguing that engineers were fighters as well as technicians, as demonstrated by combat experience in World War I, and by 1939, the use of engineers as infantry had been incorporated into U.S. Army doctrine. (3)

With the role of engineers as infantry firmly established by doctrine, the U.S. Army began to employ engineers as infantry on a regular basis in World War II. The first use of U.S. Army engineers in an infantry role in World War II occurred in January 1942, when the 803rd

Engineer Aviation Battalion was committed as infantry to combat Japanese amphibious landings on the Bataan Peninsula. In the European Theater of Operations, engineers were first used in an infantry role at Kasserine Pass from 16 to 19 February 1943. At Kasserine, the 1,200 men of the 19th Engineer Combat Regiment formed the nucleus of a force defending Kasserine Pass. The force included an infantry battalion, three artillery batteries and a tank destroyer battalion. The 19th Engineers covered the withdrawal of the 1st Armored Division on 17 February and delayed the German attack throughout the eighteenth before finally being overrun on the morning of 19 February. The 19th Engineer Regiment's delay at Kasserine gave II Corps time to assemble the strength necessary to stop the leading elements of GEN Erwin Rommel's Panzer Army Afrika a few miles north along the road to Thala. (4)

The largest use of engineer units in an infantry role by the U.S. Army during World War II occurred in the Ardennes during the Battle of the Bulge from 16 to 27 December 1944. During the Bulge, the nature of the fighting was such that three divisional and two non-division combat engineer battalions were committed as infantry on the first day of the German offensive to reinforce front line infantry units. On the second day, nine more combat engineer battalions were committed as infantry to further reinforce hard-pressed infantry units and to contain local penetrations. By the third and fourth days, five additional combat engineer

battalions were being used to block major German penetrations, while 12th Army Group rushed in reinforcements drawn from other sectors of the front. In total, twenty-two combat engineer units were committed as infantry to stop the German onslaught. (5)

The changing nature of modern war in the twentieth century has required engineers to fight as infantry with increasing frequency and regularity. Therefore, the purpose of this paper is to determine if current U.S. Army doctrine for combat engineer units fighting as infantry is viable and to evaluate the future role of engineers as infantry by analyzing the role of the 1111th Engineer Combat Group as infantry in one of the most intense and hard-fought battles of World War II - The Battle of the Bulge. In analyzing the role of the 1111th Group, this paper will provide an overview of the operational and tactical setting, describe the actions of the 1111th Group, discuss the viability of contemporary doctrine based on the experiences of the 1111th Group, and assess the future role of engineers fighting as infantry in AirLand Battle.

SECTION II

Operational And Tactical Setting

By December 1944, the Allies had regained most of the territory formerly occupied by Germany, and seven allied armies approached Germany's western frontier on a broad

front. Meanwhile, in the skies over Europe, Allied air forces maintained a substantial edge over the Luftwaffe. The port at Antwerp was operational and the slowing of the Allied advance since October allowed the supply situation to improve significantly. (6)

The outlook on the German side was not so bright. As American, British, Canadian, and French Armies closed in on Germany from the west, Russian armies were rapidly advancing from the east. Hitler was determined to act decisively while German industry was still producing materials for war, and morale at home was reasonably high. After analyzing the situation, Hitler decided to attack in the West, out of the Ardennes. Antwerp would be the final objective. This would allow the Germans to disrupt the Allies' supply flow and destroy all forces north of the Bastogne-Brussels-Antwerp line. Such a blow would also severely strain the Anglo-American alliance. (see Appendix A, Map 1)

Terrain

Hitler chose the most difficult terrain on the entire western front to launch his counteroffensive. The Ardennes is not a single, well-defined bloc, but instead consists of three major areas: the High Ardennes in the south, the Famenne Depression in the middle, and the Low Ardennes in the north. The High Ardennes is a wide plateau dotted with high ridges and large forests which form isolated,

compartmented pockets. The High Ardennes runs on a north east-southwest axis from Losheim to Bastogne to Neufchateau. West of the High Ardennes and running parallel is the Famenne Depression. This long narrow depression is generally free of tree cover. The Low Ardennes includes two plateaus: the Herve, between Liege and Aachen, and the Condroz, between the lower Ourthe and the Meuse in the vicinity of Dinant. This area is relatively narrow and constricted by the flanking line of the Meuse. (see Appendix A, Map 1)

The road network leads generally southwest from the German frontier through the Ardennes. While most roads follow the level stretches of ridgelines and wider valley floors, there are many sharp twists and turns. In 1944 there was not a single main highway crossing the Ardennes in an east-west direction. Rivers also play a dominant part in the Ardennes terrain. The Ardennes is bounded by the Meuse River in the northwest and west. Two major river systems originate in the Ardennes. The first is the Ambleve and Salm rivers which block movement west from St. Vith, Malmedy, and Spa. The Ourthe River is the most severe military obstacle east of the Meuse. It originates west of Bastogne and runs north to the Meuse at Liege.

The Ardennes offers three major avenues of approach from the German frontier to the west. These avenues lead generally southwest from the frontier and exit south of

Namur at Givet, Libramont, and Vinton respectively. In general, movement cross-country is limited, even in good weather; movement along the narrow valley floors can be easily blocked at villages and bridges. The compartmented terrain limits visibility and fields of fire.

The defender has three natural defensive positions between the Meuse and the German frontier. First is the plateau at Bastogne extending along a chain of ridges to Neufchateau. Second is the Ourthe River line. Finally there is a rugged zone running southeast from between Liege and the Moselle River, around Malmedy and St. Vith and flanked by the Our and Sauer Rivers. (7)

The weather in the Ardennes is as inhospitable as the terrain. The Ardennes experiences heavy rainfalls and deep snows in winter, and mist is frequent and heavy, often lasting well into late morning. Raw, harsh winds sweep across the ridge lines and the cold is damp, and penetrating; days are short and gloomy. On 16 December 1944, the sky was overcast with heavy ground fog and light rain. Some patches of snow remained on the ground. BMNT was 0750 hours and sunrise was at 0829. Sunset was 1635 and EENT followed quickly at 1713 hours. (8)

Tactical Setting

On 16 December 1944, the First U.S. Army sector in the Ardennes was thinly held by two corps with six divisions

defending a 104 mile front. The northern sector of the Ardennes was held by V Corps' 99th Infantry Division covering a front of over twenty miles in difficult terrain. At the time of the German attack, 2nd Infantry Division was attacking through the 99th to seize the Roer Dams.

The southern portion of First U.S. Army's line was held by VIII Corps along an eighty-five mile front. In the northern VIII Corps zone, 14th Cavalry Group screened the Losheim Gap. Next in line was the untried 106th Infantry Division. The understrength 28th Infantry Division and elements of 9th Armored Division held VIII Corps' center. 4th Infantry Division manned the southern flank. (9)

The German attack began at 5:30 a.m., 16 December 1944, as over 2,000 German artillery pieces began an intense artillery barrage along the front from Monschau to Echternach. The schwerpunkt of the offensive was delivered in the north by the four SS panzer divisions of Sixth Panzer Army, by far the strongest of the three attacking armies. In the north of Sixth Panzer Army zone, LXVII corps attacked to seize Monschau and block any U.S. Army counterattack from the north. South of Monschau, the 277th and 12th Volksgrenadier Divisions attacked into the 2nd and 99th (U.S.) Infantry Divisions to cross Elsenborn Ridge and then swing north to block a possible counterattack. Meanwhile, the 3rd Parachute Division attacked to open routes for the 1st SS Panzer Division through the 14th Cavalry Group

defending in the Losheim Gap. Behind the 3rd Parachute Division, Kampfgruppe Pieper was poised to exploit the penetration through the Losheim Gap. Formed from elements of the 1 SS Panzer Division, its mission was to rush forward quickly and seize crossing sites on the Meuse River.

Fifth Panzer Army made a supporting attack in the south with two corps of four divisions. LVIII Panzer Corps, consisting of 116th Panzer and 560th Volksgrenadier Divisions, attacked to seize the vital road junction of St. Vith. LVIII Corps would then continue the attack to seize crossing sites over the Ourthe River, and to cross the Meuse east of Namur. XLVII Panzer Corps attacked with two divisions to seize another vital road junction - Bastogne. After Bastogne, XLVII Corps planned to advance to cross the Meuse south of Namur. Seventh Army, in the south, attacked with eight infantry divisions to protect Fifth Panzer Army's exposed southern flank. (see Appendix A, Map 2)

Although the German attacks of 16 December achieved total surprise, they failed to reach their first day's objectives. By late afternoon, 12th SS Panzer Division was committed to assist the 277th Volksgrenadier Division in breaking through the 99th Infantry Division. Meanwhile, Kampfgruppe Pieper was caught in a traffic jam behind the 3rd Parachute Division. Finally in desperation, after waiting all day, Pieper ordered his column forward, ruthlessly pushing other units off the road. After several

hours, leading elements of Kampfgruppe Pieper reached the German forward line of troops by midnight 16 December. (10)

SECTION III

Fighting Engineers:

The 1111th Engineer Combat Group in the Bulge

The 1111th Engineer Combat Group, commanded by COL H. Wallis Anderson, typified the sixty-two engineer combat groups which served in the European Theater during World War II. Created in 1943, the more flexible engineer combat group organization replaced the combat engineer regiment at corps and army level. Group headquarters normally controlled three or four engineer battalions, a light equipment company, a dump truck company, and an engineer maintenance company. (11)

Although some engineer regiments still existed in the Advanced Section Communication Zone, the group was the largest engineer combat organization in the field army. Normally five engineer combat groups supported each field army under the command of the Army Engineer. Usually one or more engineer combat groups supported each corps. The remaining groups supported the army rear on an area basis. During the Battle of the Bulge the First Army Engineer, COL (later Major General) William A. Carter, commanded five engineer groups consisting of eighteen combat engineer battalions. (12) (see Appendix B, Figures 2 and 3)

On 16 December 1944, 1111th Engineer Combat Group occupied positions directly in the path of Fifth and Sixth Panzer Armies' axis of advance. Group headquarters was located at Trois Ponts, approximately twenty-five miles behind the front lines. The 291st Engineer Combat Battalion was within a few miles of Group Headquarters at Basse Bodeux, while the 51st Engineer Combat Battalion was located over twenty miles to the southwest at Marche, and the 296th Engineer Combat Battalion was at Sourbrodt (near Eupen), approximately twenty miles to the north. The 962nd Engineer Maintenance Company was ten miles east of group headquarters at Malmedy. The 629th Engineer Light Equipment Company and the 767th Engineer Dump Truck Company were located further east at Butgenbach, only nine miles behind the forward line of troops. (see Appendix A, Maps 3 and 4)

The Group's assigned missions were: responsibility for engineer work in its assigned area, close support of V Corps, and rear area security missions. In addition to normal operations such as bridge repair, road maintenance, snow removal, and quarry operations, 1111th Group was heavily committed to operating forty-one sawmills and producing lumber for construction of bridges and winter quarters. (13)

The Group's first indication that the Germans had launched a major assault came early on the morning of 17 December, when at 0200 hours, First Army issued a general

alert stating that paratroop landings had taken place and a large scale enemy counterattack was a possibility. COL Anderson received no further information until 1005 hours when MAJ Carville, Group LNO at V Corps, reported that the 629th Light Equipment Company had been overrun by German armor units.

COL Anderson immediately grasped the seriousness of the situation and made a quick appraisal of the Group's disposition. Not only were his battalion headquarters strung along an arc over sixty miles long, but individual companies were dispersed on platoon and even squad project sites over an area of 750 square miles stretching from Dinant on the Meuse River to the town of Eupen just south of Aachen. In addition to the 629th at Butgenbach, other 1111th units in the general vicinity included B Company, 291st Engineers and 962nd Engineer Maintenance Company at Malmedy; C Company, 202nd Engineers at Stavelot; and Group Headquarters with elements of the 291st at Trois Ponts.

COL Anderson decided to order LTC David E. Pergrin, commander of the 291st Engineers, to Malmedy to take charge of all Group units in the area, ascertain the situation, and take steps necessary to prevent the German advance. COL Anderson also ordered the 629th to withdraw to Malmedy. (14)

Having dispatched LTC Pergrin to take charge of the situation at Malmedy, COL Anderson turned his attention to the defense of Trois Ponts. Around 1900 hours he radioed

LTC Fraser, Commander, 51st Engineers, to send a company to Trois Ponts to assist in establishing a coherent defense. He also requested additional supplies of demolitions, mines, bazookas, and machine guns. By 2000 hours, LTC Fraser ordered C Company, located at Melreux, near Hotton, to proceed immediately to Trois Ponts. The advance elements of C Company, 51st Engineers arrived at Trois Ponts by 2330, and began immediately to prepare both the Ambleve and Salm River bridges for demolition and establish road blocks. COL Anderson was also worried about the defense of Stavelot. Learning that C Company, 202nd Engineers had withdrawn, he immediately ordered them to return to Stavelot and to establish a blocking position at the Stavelot bridge. (15)

Kampfgruppe Pieper

Early on the morning of 17 December, COL Joachim Pieper ordered his combat group forward and began his race for the Meuse. Kampfgruppe Pieper was a powerful force of over 4000 men. Formed around the 1st SS Panzer Division's 1st SS Panzer Regiment, Pieper had seventy-two Mark IV and Mark V tanks as well as thirty Mark VI (King Tiger) tanks of the 501st SS Heavy Panzer Battalion. His armored vehicles also included four flak tanks, and a light flak battalion with self-propelled 20-mm guns. Infantry support was provided by the 3rd Battalion, 2nd SS Panzer Grenadier Regiment mounted on armored personnel carriers and supported by twenty-five assault guns. Kampfgruppe Pieper also included

a battalion of towed 105-mm artillery, two companies of engineers, and logistical units. Pieper, however, lacked tactical bridging and depended on speed and surprise to capture bridges along the way. Pieper also lacked gasoline and planned to capture U.S. Army POL stocks along the way. In march column, Kampfgruppe Pieper was fifteen miles long and mostly road bound. (16)

With A Company at Werbomont, C Company at Chatteau de Froid-Cour, and B Company at Malmedy, the 291st Engineers were stretched over a twenty-two mile sector along a natural defensive line directly astride the route Pieper planned to take to the Meuse. Arriving in Malmedy around noon on the 17th, LTC Pergrin found B Company establishing a perimeter defense of the town. Under command of CPT John T. Collin, B Company called in its platoons and was setting up road blocks, sending out reconnaissance patrols, and loading trucks with TNT, mines, and ammunition. Realizing that the 180 men of B Company could not hope to hold Malmedy for long, Pergrin ordered C Company to Malmedy. (see Appendix A, Map 5)

About 1300, 17 December, patrols reported seeing sixty-eight German armored vehicles including thirty tanks on a road a few miles southeast of Malmedy. Concerned that Pieper might bypass Malmedy and head for Stavelot, Pergrin sent a squad of engineers equipped with twenty mines and a bazooka to set up a roadblock at Stavelot. When they

arrived, Stavelot was in a state of confusion caused by several units trying to withdraw through town. Finding no established defensive positions, the squad emplaced a hasty minefield, covered by rifles and bazookas, at the approach to the stone bridge across the Ambleve River and waited.

At 1900 three Mark IV tanks approached the bridge. The first struck a mine that blew off its treads and the other two withdrew after receiving bazooka and rifle fire from the engineers. Believing he was facing a strong infantry force and considering his badly disorganized column, strung out for twenty-five miles, Pieper decided not to attack Stavelot, but wait until his column closed up and attack at dawn the next morning. Thus, thirteen men of 3rd Squad, 2nd Platoon, C Company, 291st Engineers, with a bazooka, twenty mines and some rifles, plus the mass of vehicles moving through Stavelot, caused the first long pause in Kampfgruppe Pieper's implacable advance. (see Appendix A, Map 6)

Around 0400, 18 December, a company of the 526th Armored Infantry with an attached platoon of 57-mm towed antitank guns from A Company, 825th Tank Destroyer Battalion arrived in Stavelot and immediately began establishing defensive positions. C Company, 202nd Engineers also joined in the defense and wired the bridge for demolition. (17)

Pieper launched his attack at daylight. 57-mm antitank guns and bazookas were no match for Pieper's tanks. They soon rolled across the bridge, bypassed the 526th's strong

points and drove towards Trois Ponts. Although the 202nd Engineers attempted to blow the bridge, the charges failed to go off. Apparently two German soldiers, disguised as Americans, sabotaged the attempt.

Pieper's delay in front of Stavelot afforded time for COL Anderson to prepare defensive positions at Trois Ponts. At 1000 on 18 December, COL Anderson ordered Group Headquarters, 629th and 962nd to relocate to Modave. A forward command post would remain in Trois Ponts. In addition to C Company, 51st Engineers and a platoon from the 291st, COL Anderson was aided by a 57-mm antitank gun and its crew from the 526th Armored Infantry. The gun was part of the 526th convoy moving to Malmedy when the half-track towing the gun threw a tread and fell out of the convoy. They had only seven rounds of ammunition.

At 1115 on 18 December the first enemy tank came into sight. The 57-mm gun immobilized it, but fire from the tank's 75-mm gun destroyed the gun and killed the crew. The engineers then blew the two bridges over the Ambleve River. Pieper's column hesitated for about forty-five minutes before trying to outflank the town to the north and southeast. At that point, COL Anderson ordered the bridge over the Salm River within Trois Ponts and the bridge southeast of town destroyed. Seeing their route blocked, Pieper's column withdrew. In midafternoon, COL Anderson departed for First Army Headquarters to confer with COL

Carter, placing Major Robert B. Yates, Executive Officer of the 51st Engineers, in charge. (18) (see Appendix A, Map 7)

Studying his map, COL Anderson deduced that Kampfgruppe Pieper was now trapped in the Ambleve River valley. He was also aware the Pieper's only chance to escape from the serpentine valley was by the bridge at Cheneux. It was too late to demolish the bridge at Cheneux, but, once across the Ambleve at Cheneux, Pieper would also have to cross another bridge on the way to Werbomont over the Lienne Creek near the hamlet of Habiemont. COL Anderson promptly radioed headquarters of A Company, 291st Engineers in Werbomont to send a detail immediately to prepare the bridge over the Lienne for demolition.

A Company had only fifteen men left in Werbomont. The rest were in Trois Ponts, Malmedy, or out hunting German paratroopers. Nevertheless, Staff Sgt. Edwin Pigg assembled those men left and the necessary wire and TNT. The detail reached Habiemont at 1500 and immediately began to wire the bridge for demolition. COL Anderson arrived about 1600 along with several men and vehicles from the 291st and Group Headquarters who were withdrawing to Modave. Thirty minutes later, the first German tank rounded a curve not more than two hundred yards from the bridge. The engineers immediately blew the bridge, blocking Kampfgruppe Pieper's last route to the Meuse. (19)

Confrontation at Trois Ponts

MAJ Yates at Trois Ponts was now entirely cut off. Group Headquarters had displaced to Modave; the 291st Engineers were cut off in Malmedy and the remainder of the 51st Engineers were engaged at Hotton. Major Yates commanded a small Task Force consisting of C Company, 51st Engineers, a reinforced platoon from A Company, 291st Engineers, and a squad of the 526th Infantry. Weapons were eight bazookas, six .50-cal machine guns, four .30-cal machine guns and a 57-mm antitank gun. Help, however, was on the way. During the night of 18 December, the 82nd Airborne Division began arriving in assembly areas at Werbomont, and by 2100, 19 December, the 82nd Airborne Division's 85th Reconnaissance Squadron made contact with Major Yates at Trois Ponts.

The 82nd arrived just in time. Because 12th SS Panzer Division was bogged down in its attempt to clear the three northern routes, Major General Hermann Priess, Commander, I SS Panzer Corps, decided his only chance for success was to break through behind Kampfgruppe Pieper. He, therefore, ordered the 1st SS Panzer Grenadier Regiment to break through at Trois Ponts.

At 0900, 20 December, the German artillery preparation on Trois Ponts began. Major Yates' engineers, dug-in behind the river bank along the Salm River, were hard pressed to repel the German infantry attacking across the river. Just

as the situation seemed hopeless, the 2nd Battalion, 505th Parachute Infantry Regiment arrived at 1300, and under covering fire from the engineers, immediately counterattacked and drove the Germans back across the Salm River. Early on the morning of 21 December, the Germans launched another strong attack across the Salm. The fight continued for most of the day and engineers and Germans often engaged in hand-to-hand combat along the river line. By 1630 the situation stabilized and, with the 82nd firmly in control of Trois Ponts, COL Anderson ordered MAJ Yates to withdraw. After holding Trois Ponts for ninety-four hours, C Company, 51st Engineers and elements of the 291st Engineers departed at 2330, 21 December. (20)

Engagement at Malmedy

There was no attack on Malmedy on 18 December. Around 0300 on 18 December the 99th Infantry Battalion and the 526th Armored Infantry Battalion (minus one company directed to Stavelot) and three platoons of A Company, 825th Tank Destroyer Battalion began to arrive in Malmedy. When the 30th Reconnaissance Troop arrived at 0830, followed by the 117th Infantry Regiment, the 30th Infantry Division assumed responsibility for the defense of Malmedy. At 2300 that night, COL Carter, First Army Engineer, ordered LTC Pergrin to begin withdrawing the 291st for work on the barrier line being constructed in front of the Meuse. The commander, 30th Infantry Division, complained bitterly to First Army

that the 291st was vital to the defense of Malmedy. COL Carter was overruled and the 291st remained in Malmedy. On 19 December the 120th Infantry Regiment arrived in Malmedy, and the 117th shifted to Stavelot. LTC Pergrin's 291st Engineers were then attached to the 120th.

In an attempt to regain the initiative, Sixth Panzer Army planned a major attack for 21 December to clear the north shoulder of the penetration. The 150th Panzer Brigade was ordered to assist the 1st SS Panzer Division to take Malmedy. The 150th Panzer Brigade's attack began early on the morning of 21 December and immediately ran into stiff opposition from engineer, infantry, and tank destroyer units defending the town. After heavy fighting and suffering severe losses, the 150th Brigade withdrew across the river and set up defensive positions facing Malmedy.

By 23 December Kampfgruppe Pieper was almost out of supplies. Hemmed-in by the 82nd Airborne and 30th Infantry Divisions, Peiper did not have even enough fuel to attempt a breakout. At 0100, 24 December, COL Pieper demolished his remaining vehicles and withdrew on foot with 800 men. They moved southward and crossed the Ambleve River south of Trois Ponts. Early on 25 December the remnants of Kampfgruppe Pieper linked up with 1st SS Panzer Division at Wanne. (21) (see Appendix A, Maps 8 and 9)

BY 25 December no major German forces were north of the Ambleve River line and Sixth Panzer Army's attack had

reached its culminating point. On 26 December, after nine days of combat, COL Carter was finally able to get the 291st released from Malmedy. C Company departed on 27 December and B Company left on 31 December. The deepest penetration in the Battle of the Bulge was made not by Sixth Panzer Army, but by Fifth Panzer Army to the south.

Defending the Ourthe River Line

By 22 December Fifth Panzer Army had bypassed Bastogne with three armored spearheads driving for the Meuse south of Namur. Probing towards Namur was 116th Panzer Division, towards Dinant was 2nd Panzer Division, and farther west, toward Givet, was Panzer Lehr Division. The 51st Engineers covered a twenty-five mile front from Hotton to Champlon, directly in the path of 116th Panzer Division. (22)

LTC (later Brigadier General) Harvey R. Fraser, Commander, 51st Engineers, was alerted for a possible German breakthrough at 1730, 17 December. He immediately began making preparations for defense of the area. Later that night, C Company, 51st Engineers was ordered by COL Anderson to Trois Ponts and reverted to control of Group Headquarters. The battalion was ordered to prepare all crossings over the Ourthe River from Durbuy to LaRoche for demolition. The engineers feverishly prepared bridges,

roadblocks, minefields, and abatis. LTC Fraser was formally charged with the defense of the area at 1930, 18 December.

(23)

Throughout 19 and 20 December, the towns along the Ourthe River were in a state of confusion created by tremendous volumes of refugees, individual stragglers and units moving to the rear. LTC Fraser established a clearing point to assist reuniting lost individuals and units, and instituted a rigid civilian check system which resulted in the capture of over thirty German spies and agents.

On 20 December, the 51st Engineers were augmented by remnants of A Battery, 440th AAA Battalion with eight 40-mm guns, eight .50-cal machine guns and eight bazookas. The defensive line was now complete with all bridges wired for demolition, minefields and roadblocks established. B Company, 51st Engineers manned the Ourthe River line from Durbruy to Hotton and A Company manned the line from Hotton to LaRoche. (see Appendix A, Map 10)

Not only was Hotton a vital road junction, but its class 70 timber bridge across the Ourthe was one of the few crossing sites that could hold heavy German armor. Defending Hotton was Captain Preston C. Hodges, Commander, B Company, 51st Engineers. In addition to one platoon from B Company, CPT Hodges had a squad from A Company, a squad from the 23rd Armored Engineer Battalion, 3rd Armored Division with a 37-mm antitank gun, two 40-mm antiaircraft guns from

the 440th, plus several .50-cal machine guns and bazookas. CPT Hodges rigged the bridge with 800 pounds of TNT and 300 pounds of satchel charges. Early on the morning of 21 December, one of CPT Hodges' platoon leaders discovered an M4 Sherman tank being repaired at the ordnance depot on the outskirts of town. The tank commander and crew were persuaded to join in the defense of Hotton and the tank was placed to cover the approach to the bridge.

At 0700, 21 December elements of 116th Panzer Division attacked across the Ourthe River at Hampteau, 2,000 yards south of Hotton. The squad from A Company, 51st Engineers defending the village was easily overcome, but the bridge was too light to hold the heavy German tanks. At 0730 lead elements of the 116th Panzer Regiment and 60th Panzer Grenadier Regiment attacked to seize the bridge at Hotton. Initially, LTC Fraser maintained constant telephone contact from his Command Post at Marche with CPT Hodges. When the phone lines were cut at 0833, LTC Fraser immediately left Marche and went to Hotton. During the heavy fighting, fire from the 40-mm antiaircraft guns and the engineer's machine guns kept the German infantry from crossing the bridge. Fire from the M4 tank and engineers armed with bazookas destroyed four German tanks and damaged seven others. At 1400 a counterattack into the German's flank by Combat Command Reserve, 3rd Armored Division, caused the Germans to withdraw. Throughout 21 December, elements of the 84th Infantry Division were arriving in assembly areas around

Marche. The 334th Infantry Regiment arrived in Hotton later that afternoon and established a defensive line from Marche to Hotton. (24)

Further south, the 2d Panzer Division was already across the Ourthe River at Ortheuville, where, after heavy fighting on the night of 20 December, 2d Panzer had wrestled the bridge from the 158th Engineer Combat Battalion. Except for elements of A Company, 51st Engineers manning roadblocks southeast of Marche, the Marche-Bastogne highway was wide open. A Company held the roadblocks long enough for 7th Armored Division trains to escape to Marche. The engineers then destroyed the bridges and placed several abatis as they withdrew to Marche. These obstacles delayed 2d Panzer Division for several hours and gave the 84th Infantry Division additional time to prepare defensive positions in Marche. (25)

Contribution of 1111th Engineer Group to the Battle of the Bulge

By evening 17 December, 6th Panzer Army had achieved a penetration through the Losheim Gap between the 99th and 106 Infantry Divisions. Kampfgruppe Pieper was exploiting this penetration and driving rapidly to the Meuse at Huy. The 1111th Group was the only U.S. Army combat unit between Kampfgruppe Pieper and the Meuse. By manning hasty defensive positions and destroying key bridges, the 1111th

Group bought the time necessary for XVIII Airborne and V Corps to move additional combat units into the Ardennes and take the initiative from Sixth Panzer Army. The delay at Stavelot was Pieper's first setback; it cost him twelve hours, and afforded V Corps additional time to move more combat forces into the town. The engagement at Trois Ponts delayed Pieper for several more hours and denied him vital crossing sites on the Ambleve River. During his interrogation after the war, Pieper stated, "If we had captured the bridge at Trois Ponts intact and had had enough fuel, it would have been a simple matter to drive through to the Meuse River early that day (18 December)." (26)

Finally, when A Company, 291st Engineers demolished the bridge across the Lienne, Pieper's last route to the Meuse was blocked and he was now trapped between the 82d Airborne and 30th Infantry Divisions. At Malmedy, B and C Company, 291st Engineers held this key road junction until adequate forces could be brought in to occupy the town, and then fought to stop the final German breakout attempt.

By 20 December the schwerpunkt of the German offensive had shifted to Fifth Panzer Army. Fifth Panzer Army's leading units had bypassed Bastogne and were driving for a gap Army reconnaissance units had located between XVIII Airborne and VIII Corps. The 116th Panzer Division was to attack on 21 December to seize crossing sites over the Ourthe at Hotton, then to take Marche before the U.S. Army

could bring in more troops, and thus open a road to the Meuse. To the south, 2d Panzer Division was already across the Ourthe and preparing to drive to the Meuse at Namur.

(27)

Fortunately, the 116th and 2d Panzer Division attacks were separated by the Ourthe River and therefore not mutually supporting. Defense of the Ourthe River line and the Bastogne-Marche highway by the 51st Engineers screened the movement of the 84th Infantry Division into assembly areas around the critical road junction of Marche and allowed VIII Corps time to establish a strong defensive line east of the Meuse. Both the commanders of 116th Panzer Division and Fifth Panzer Army paid tribute to "the Bravery of American Engineers" at Hotton and admitted that failure to capture the Hotton bridge was a decisive factor in the stopping LVIII Panzer Corps east of the Meuse. (28) For their actions during the Battle of the Bulge, the 51st and 291st Engineer Combat Battalions were awarded the Presidential Unit Citation. (see Appendix A, Map 11)

This section has examined the nature of combat between engineers and mechanized forces through the experiences of the 1111th Engineer Combat Group in the Battle of the Bulge. The story of the 1111th Group shows that engineers can be successfully employed as infantry and that engineers fighting as infantry can make a significant contribution to the outcome of a major battle. Examination of the 1111th

has provided several important insights into the role of engineers as infantry which will help us evaluate our current doctrine and understand the role of engineers as infantry in AirLand Battle.

SECTION IV

Doctrinal Analysis

Just as in 1944, combat engineer units today still have a secondary mission to fight as infantry. The purpose of this section is to examine current U.S. Army doctrine for engineers fighting as infantry to determine how the experiences of the 1111th Engineer Combat Group in the Battle of the Bulge either support or refute it, and to determine if there are areas which are not adequately addressed in the doctrine.

The doctrinal basis for employing engineers as infantry is found in FM 100-5, Operations, which states that in addition to contributing to the combined arms team by performing mobility, countermobility, and survivability missions, combat engineer units are organized, equipped, and trained to fight as infantry in tactical emergencies. (29) Specific doctrine for combat engineers fighting as infantry is found in Field Manual 5-100, Engineer Combat Operations.

Several aspects of current doctrine are substantiated by the experiences of the 1111th Group. The current FM 5-100 states:

It is highly likely that engineers will be involved in direct combat. Engineers may have to fight....
The most frequent involvement can be expected while carrying out engineer missions. (30)

The experience of the 1111th Group validates this statement.

Although located behind the corps rear boundary, and involved in a number of engineer missions, the 111th Group was still required to fight as infantry.

FM 5-100 also states, "Engineers may have to reorganize with little or no notice." (31) This certainly was true for the 111th Group. COL Anderson was not notified that a major attack was under way until the German offensive was over twenty-four hours old. Once notified, group units at Malmedy, Stavelot, and Trois Ponts had less than twenty-four hours to establish defensive positions.

Another important doctrinal statement contained in FM 5-100 is, "...engineers must be well trained in the basic infantry subjects..." (32) During World War II, engineer combat battalions like the 51st and 291st were trained by Army Ground Forces, not by Army Service Forces. Therefore, their training emphasized combat skills, often at the expense of more technical training. (33) Because of their initial combat training, combat engineer soldiers had the basic skills necessary to set up defensive positions, and operate crew served weapons such as .50-cal machine guns, bazookas, and 37-mm antitank guns.

When employing engineers as infantry, commanders must be cognizant of the relative combat power of engineer units compared to infantry units. FM 5-100 discusses this important difference:

Engineer units are not as effective in executing infantry missions as infantry units of similar size. An engineer unit's ... heavy weapon systems are fewer than in an infantry unit. ... Engineer employment should be limited in scope... (34)

The commander who decides to reorganize his engineer as infantry must ensure that they are augmented at an acceptable level with antitank and indirect fire weapons, communications equipment, field artillery, air defense support, and medical evacuation. (35)

Although combat engineer units lacked the organic fire power and indirect fire support available to infantry units, the 51st and 291st had large quantities of excess weapons, demolitions, and mines which they used effectively to increase their combat power. (36)

If engineers were not formally augmented with additional combat power, at least they did not fight German armor alone. In Malmedy, the 291st was augmented initially by the 99th and 526th Infantry Battalions and later by the 120th Regiment. At Trois Ponts, the stray 57-mm antitank gun from the 526th Infantry played a key role in the defense. The 37-mm antitank gun from the 23rd Armored Engineer Battalion, the eight 40-mm antiaircraft guns of the 440 AAA, and the Sherman tank recovered from the ordnance shop provided the additional combat power required to hold the critical road junctions and bridges at Hotton.

Doctrine also addresses the relative importance of engineers performing in an infantry role and the contribution engineers made to the outcome of the battle. FM 5-100 says, "The employment of engineers reorganized as

infantry usually occurs in emergency situations - as a last resort...the outcome of numerous battles have been decided by engineers performing in an infantry capacity." (37) As discussed in Section III, the experiences of the 1111th Group validate this statement.

FM 5-100 categorizes possible combat operations for engineers fighting as infantry into offensive, defensive, and special operations. Specific missions in each category are (38):

Offensive Operations: Hasty Attack
Bypass

Defensive Operations: Defend
Withdrawal

Special Operations: Ambush
RACO
Defense of urbanized terrain
Reconnaissance
- zone
- area
- route
- point

Other situations: Reserve
Counterattack

The 1111th Group did not perform a wide range of infantry tasks. The unit's primary infantry missions were establishing a hasty defense, reconnaissance, and combat patrolling.

There are some aspects of current doctrine which are not supported by the experiences of the 1111th. One of these is the requirement for additional communications equipment. FM 5-100 states that engineers must be augmented with acceptable levels of communications equipment if they are to be effective as infantry. (39) Our case study of the 1111th Group does not support this statement. No one would argue that engineer units do not need more communications equipment, especially non-divisional engineers. However, the 1111th Group did perform infantry missions without additional communications support in spite of its initial dispersion and lack of FM radios.

COL Anderson seems to have overcome this deficiency by several methods. First, he always sent a liaison officer to higher headquarters and adjacent units. The group also depended on the civilian telephone for most routine communication traffic. During the initial stages of the battle, the civilian phone system worked fine, but rapidly broke down as the Germans advanced. COL Anderson also made extensive use of messengers and couriers to keep First Army informed and to pass on timely and accurate intelligence to the First Army engineer. The group also maintained a Daily

Engineer Situation Report. However, this reporting system broke down under the pressure of combat and units heavily committed as infantry failed to submit daily reports. (40)

Another doctrinal statement which is not supported by the 1111th's experiences is, "Platoon and larger-sized units are divided into forward and rear echelons. ... The rear echelon consists of personnel and equipment not required for the combat mission." (41) In this example, almost everyone was required for combat. Although Group Headquarters, light equipment company, and maintenance company moved to the rear, the combat battalions remained forward. The 51st and 271st did not divide their units into forward and rear echelons. One reason is the lack of time. The situation developed so quickly, there was no chance to separate non-essential equipment and personnel. Another reason is the tremendous road congestion and confusion caused by support units moving to the rear and combat units repositioning and moving forward. Considering traffic congestion and confusion, engineer units were probably better off remaining intact. Finally, dividing a unit into a forward and rear echelon significantly reduces the number of soldiers available to man defensive positions. As we saw at the Lienne River bridge, even headquarters troops were required to fight.

Finally, the experiences of the 1111th Group provide insight into an important aspect of combat not sufficiently

addressed by FM 5-100. That is reconstitution of engineer units upon completion of their infantry mission. The manual only warns, "...the reduction of power caused by the loss of a portion of the engineer system from the battlefield ... could adversely affect the overall tactical outcome..."(42) Although the 51st and 291st had few casualties, their companies and platoons were widely dispersed throughout the battlefield. By 26 December the German offensive reached its culminating point, (43) but the battlefield was so fluid that it took time to collect isolated, dispersed units. Some squad size elements did not return until 5 January 1945. Once out of combat, the 51st and 291st had only a few days to rest and refit before participating in the general counteroffensive against the German penetration.

For most engineers, refitting included receiving individual replacements, drawing complete new issue of clothing (original clothes were in rags), a bath, some sleep, and plenty of hot food. Interestingly enough, not much equipment was lost. Even equipment which was overrun by German units was recovered later during the counteroffensive. (44)

An analysis of the actions of 1111th Engineer Combat Group during the Battle of the Bulge shows that current U.S. Army doctrine for engineers performing as infantry is viable. The 1111th Group did reorganize as infantry with only a few hours notice. Engineers were then able to carry

out their missions quickly and effectively. The 1111th Group was committed as infantry only under emergency conditions, and once committed, the Group made a significant contribution to the final outcome of the battle. Doctrinal deficiencies, however, do exist. Lack of communications equipment did not prevent the 1111th from performing its infantry mission. Also, during battle it may not be necessary to divide units into a forward and rear echelon, and reconstitution of engineer units after a battle is not adequately addressed.

SECTION V

Engineers As Infantry In AirLand Battle

The purpose of this section is to assess the future role of engineers fighting as infantry in AirLand Battle. This section will examine the reasons for the success of the 1111th Group and discuss the nature of a future conflict between Soviet and U.S. forces in Europe.

In the final analysis, 1111th Engineer Combat Group was effective as infantry for several reasons. First, infantry missions performed by the Group were limited in scope. Their major tasks were to establish a hasty defense, reconnaissance and combat patrolling. They were not required to conduct a deliberate attack or withdrawal under pressure. Additionally, the engineers were augmented with additional firepower in the form of excess machine guns,

bazookas, demolitions, and mines. They also received antitank guns, antiaircraft guns, and even a tank from the remnants of other combat units.

To understand the relevance of the 1111th Engineer Combat Group's experiences to the role of engineers as infantry in AirLand Battle, one must consider the nature of a conflict between NATO and Soviet forces. Several characteristics of such a conflict can also be found in the Battle of the Bulge. One aspect of this conflict would be the rapid advance of Soviet forces during the offense. Soviet doctrine calls for rates of advance of between thirty and forty kilometers a day. Kampfgruppe Pieper also planned such a rapid advance and hoped to reach the Meuse in four days. The organization and mission of Kampfgruppe Pieper were similar to those of a Soviet independent tank regiment or mechanized corps operating as a forward detachment for a division. Like that of Kampfgruppe Pieper, their role is to clear routes of advance, and capture key road junctions and bridges.

Another aspect both conflicts would have in common is a non-linear battlefield caused by the rapid movement of forces, compartmented terrain, confusion, and uncertainty. During the fighting in the Ardennes, large formations tended to break up into small, isolated units fighting violent engagements. Confusion and uncertainty increased as smaller units were frequently bypassed and cut off from parent

organizations and communications broke down. Understanding the intent of the commander is one way of overcoming confusion and infrequent communications. COL Anderson, LTC Pergrin, and LTC Fraser, and their company commanders understood the commander's intent. Therefore, they were able to continue with their mission even though cut off and isolated.

The non-linear nature of the next battlefield also means that engineers will act as infantry more frequently than in the past. They can expect little or no advanced warning as the rapid rate of advance planned by Soviet forces will quickly bring them in contact with combat engineer units working in the Main Battle Area and possibly the Corps Rear Area.

Although the nature of the Battle of the Bulge has much in common with a future European battlefield, there are also several significant differences which are important for understanding the role of engineers as infantry in AirLand Battle and to place the experiences of the 1111th Group in perspective. First, the particular nature of the terrain provided the defender with several distinct advantages. The German axis of advance did not lie along major avenues of approach thru the Ardennes as in 1940, but actually ran perpendicular to them. Thus, Fifth and Sixth Panzer Armies had to cross several natural obstacles and rough terrain before reaching the Meuse. The nature of the terrain also

limited the amount of firepower attacking German units could bring to bear. By German doctrine, Kampfgruppe Pieper and leading elements of 116th Panzer Division should have attacked on a 400 to 800 meter front. Instead they were forced to attack on a front only two or three tanks wide.

The terrain in most of Europe is more open than the Ardennes. Attacking Soviet forces will be less confined and have more room to maneuver. Because of their large amounts of river crossing equipment, natural obstacles, like the Ambleve and Ourthe Rivers can be crossed quickly without loss of momentum. This means that engineer units fighting as infantry should keep most of their heavy equipment with them instead of sending it to the rear as current doctrine recommends, and use it to construct defensive positions and obstacles to slow the enemy's advance.

Second, if Soviet units do penetrate the Main Battle Area, engineer units will be the only combat units available to contain the penetration. Even if NATO has time to mobilize significant forces, tactical reserves available to corps and divisions commanders will be limited. There will be no fresh units such as 30th Infantry, 82nd Airborne, and 84th Infantry Divisions. Commanders can expect no additional resources and must plan to handle these penetrations within their existing resources. The best use of combat engineers in this situation would be as an economy of force measure to help contain and shape the Soviet

penetration, while corps concentrates its remaining combat power for a counterattack to destroy the Soviet penetration and restore the Main Battle Area.

Another important difference between the Battle of the Bulge and a Soviet attack on NATO is that Soviet units have significantly more firepower than the Germans in 1944, while the firepower of today's combat engineers has not increased proportionately. This means that to be effective as infantry, combat engineer units will need even more augmentation than in 1944. However, if the Soviets are achieving a major penetration in the Main Battle Area, the corps may not have assets available. Combat engineer units, then, must use initiative and innovation to overcome their lack of fire power. The confusion and violence on the battlefield will result in individual weapons systems and remnants of combat units being separated and lost. Engineers must aggressively seek out these elements and incorporate them into their defense. Engineers must be aware of other potential sources of combat power such as weapons under repair in nearby maintenance units or artillery units which can provide indirect fire support. Combat engineer units should also retain most of their heavy equipment to prepare defensive positions and construct obstacles.

A study of the Battle of the Bulge is important to understanding the role of engineers as infantry in AirLand

Battle because this battle displays many of the characteristics of a Soviet attack on NATO. Like the Germans in 1944, the Soviets will attack against an allied front held by units untested in combat, overextended, locked into a rigid forward defense, with limited reserves. The Soviet attack will be preceded by electronic jamming, infiltration, and an intense artillery barrage. Skillful use of deception coupled with bad weather could achieve complete surprise.

As in the Battle of the Bulge, we can expect a non-linear battlefield with fragmented, isolated units. It will be a battlefield dominated by confusion and uncertainty. It is in exactly this type of situation that the actions of a few brave, determined men can make the difference between victory and defeat. By manning small, isolated defensive positions, the men of the 111th Engineer Combat Group delayed the German drive to the Meuse long enough for XVIII Airborne and VII Corps to concentrate their forces and regain the initiative. Their successors can and must be able to do likewise.

APPENDIX A

MAPS

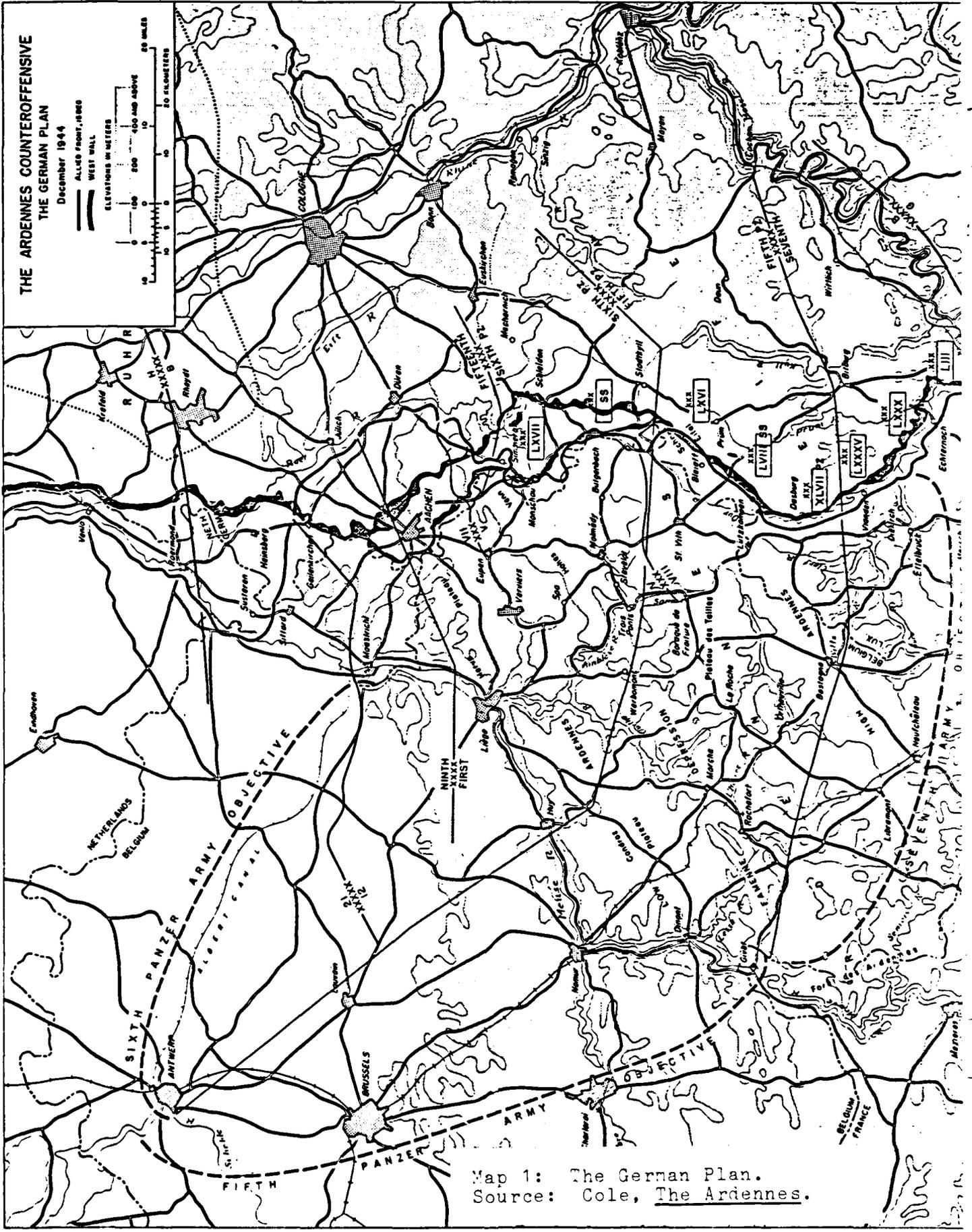
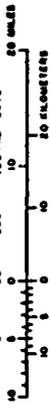
**THE ARDENNES COUNTEROFFENSIVE
THE GERMAN PLAN**

December 1944

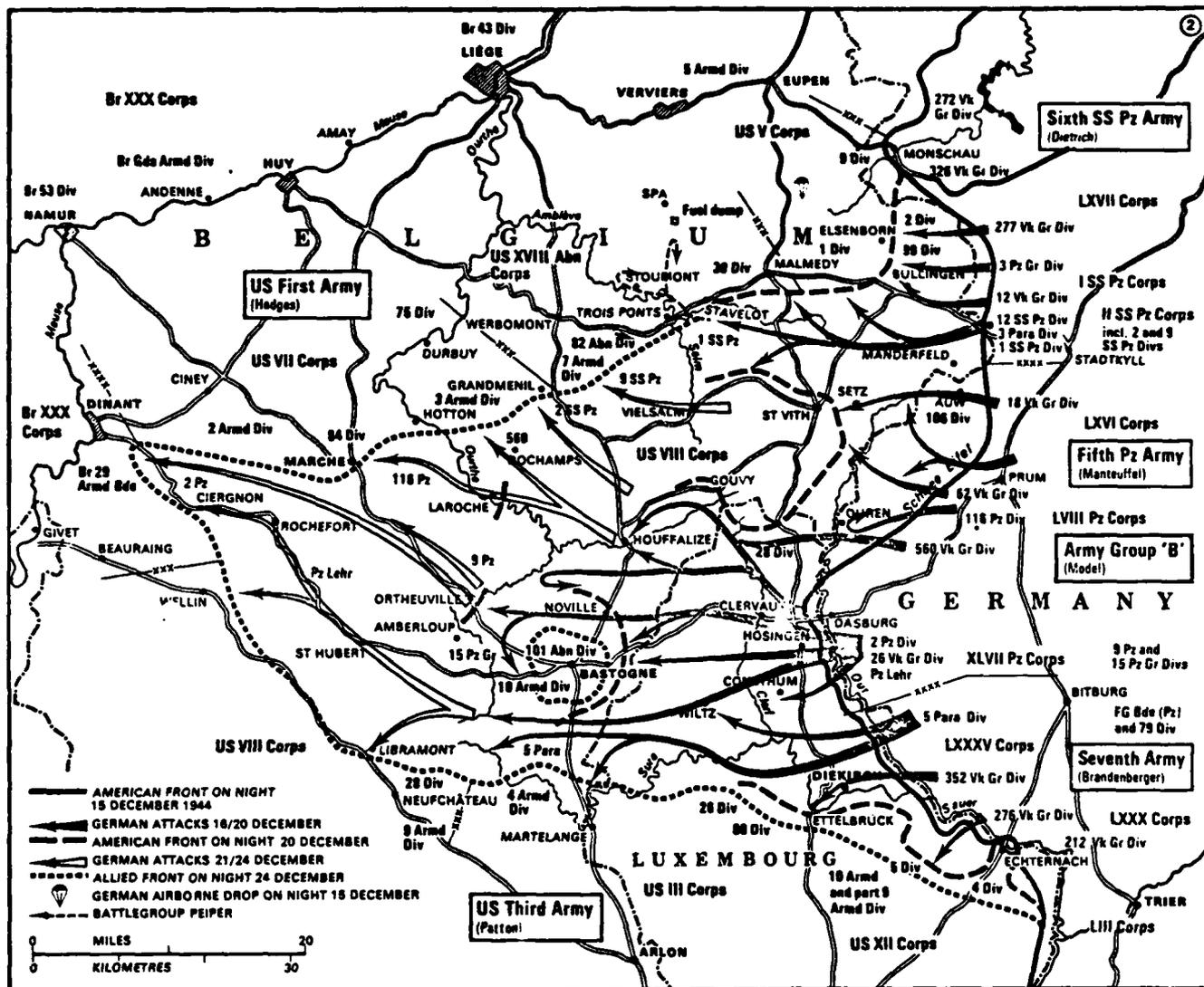
ALLIED FRONT, 1940

WEST WALL

ELEVATIONS IN METERS

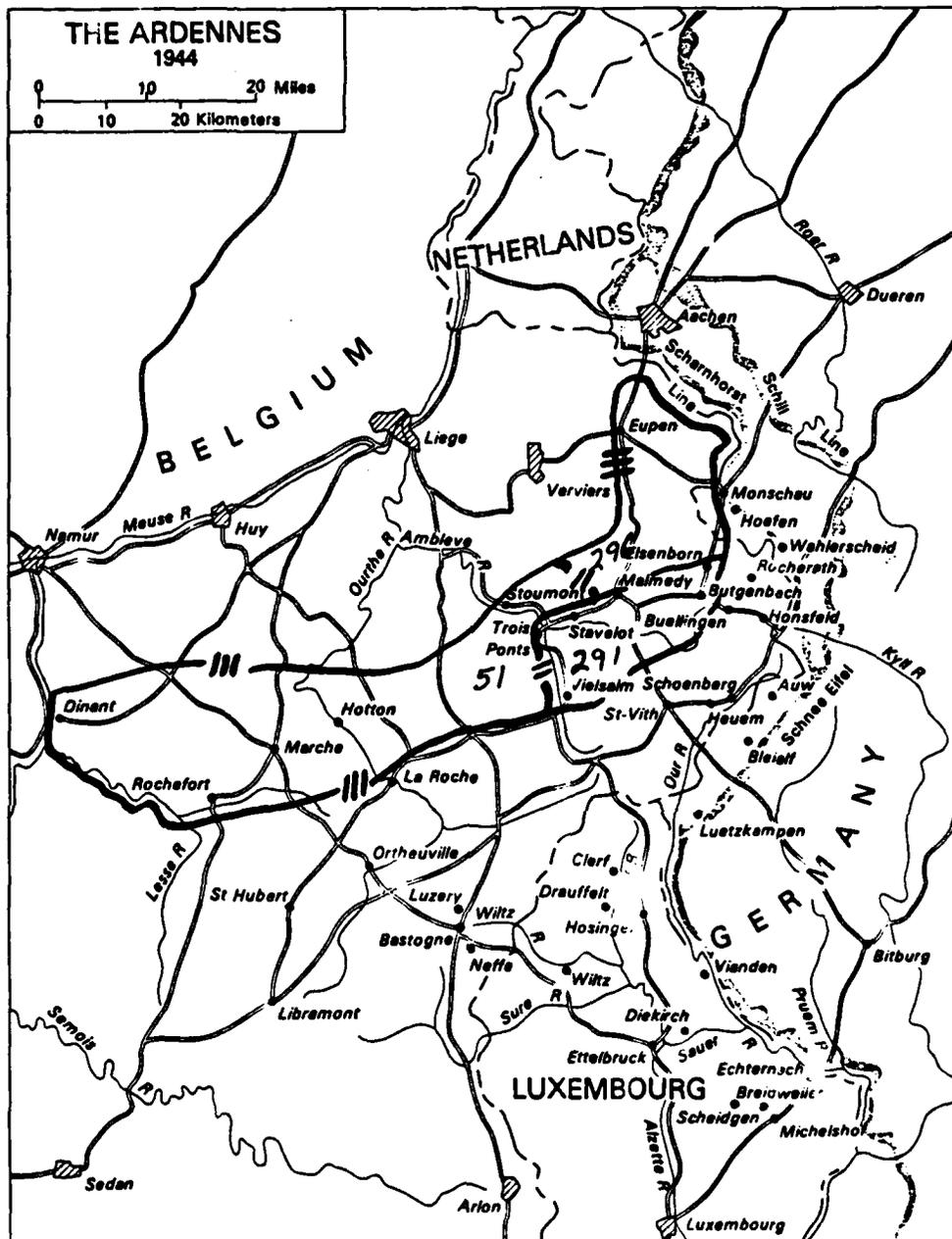


Map 1: The German Plan.
Source: Cole, The Ardennes.



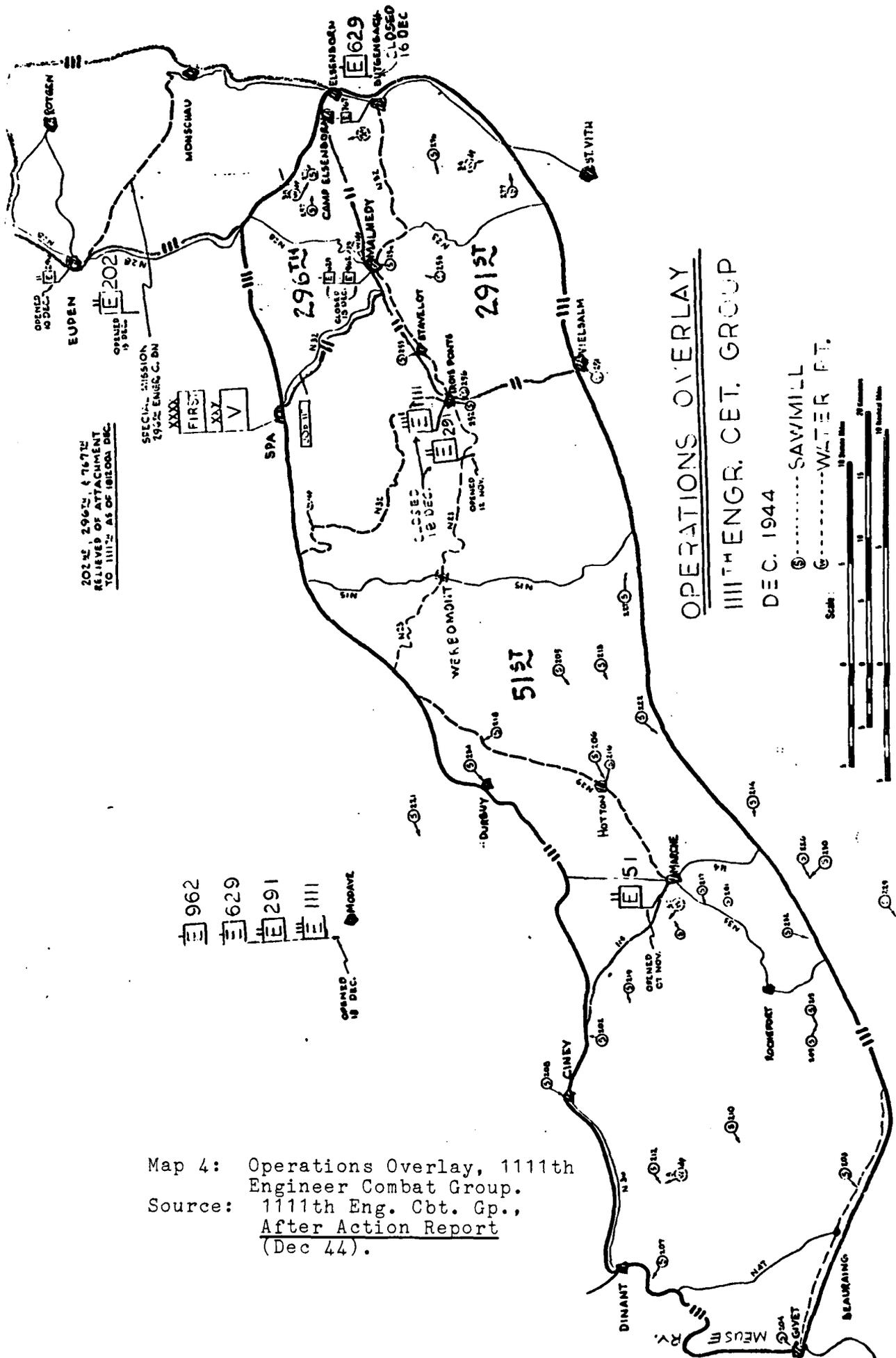
Map 2: The German Attack.

Source: Young, Atlas of the Second World War: 245.



Map 3: Area of Operations, 1111th Engineer Combat Group, 16 Dec 44.

Source: Bech, Bortz, Lynch, Mayo, and Weld, The Corps of Engineers: The War Against Germany: 468.



202ND, 296TH, & 76TH
RELIEVED OF ATTACHMENT
TO 1111TH AS OF 18:00H DEC.

SPECIAL MISSION
195TH ENGR. C. BN

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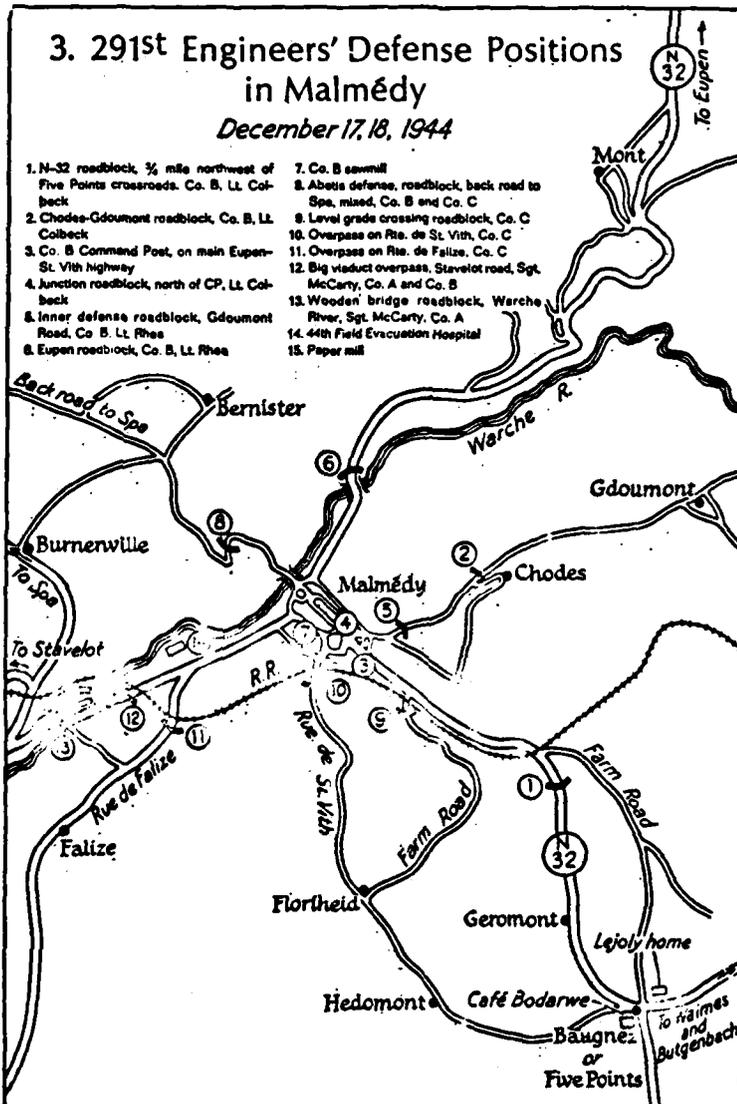
E 962
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MOORE
OPENED 18 DEC.

OPERATIONS OVERLAY
1111TH ENGR. CBT. GROUP
DEC. 1944

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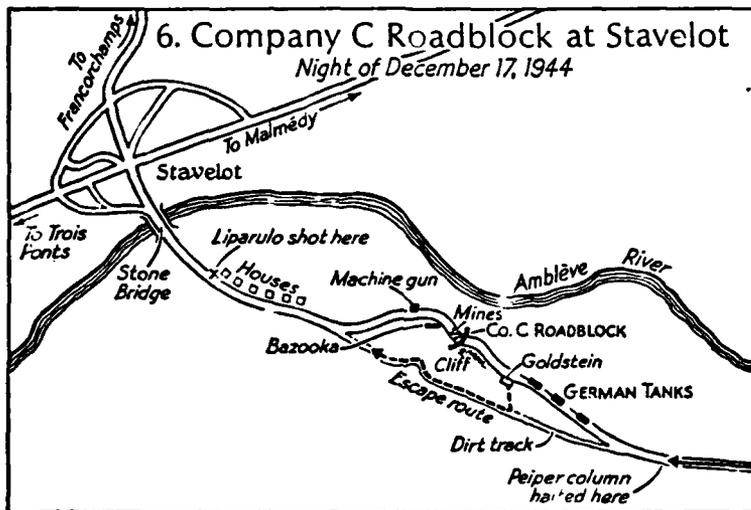


Map 4: Operations Overlay, 1111th Engineer Combat Group.
Source: 1111th Eng. Cbt. Gp.,
After Action Report
(Dec 44).

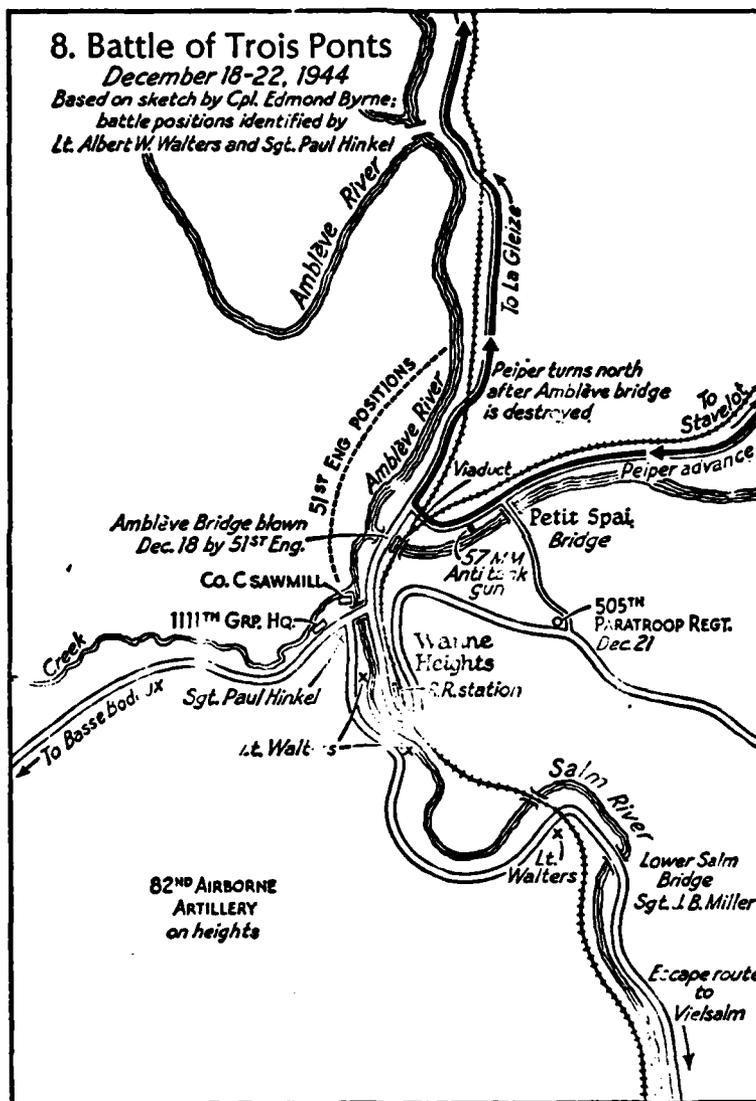


Map 5: Malmédy Defense, 17-18
Dec 44.

Source: Giles, The Damned Engineers: 89.

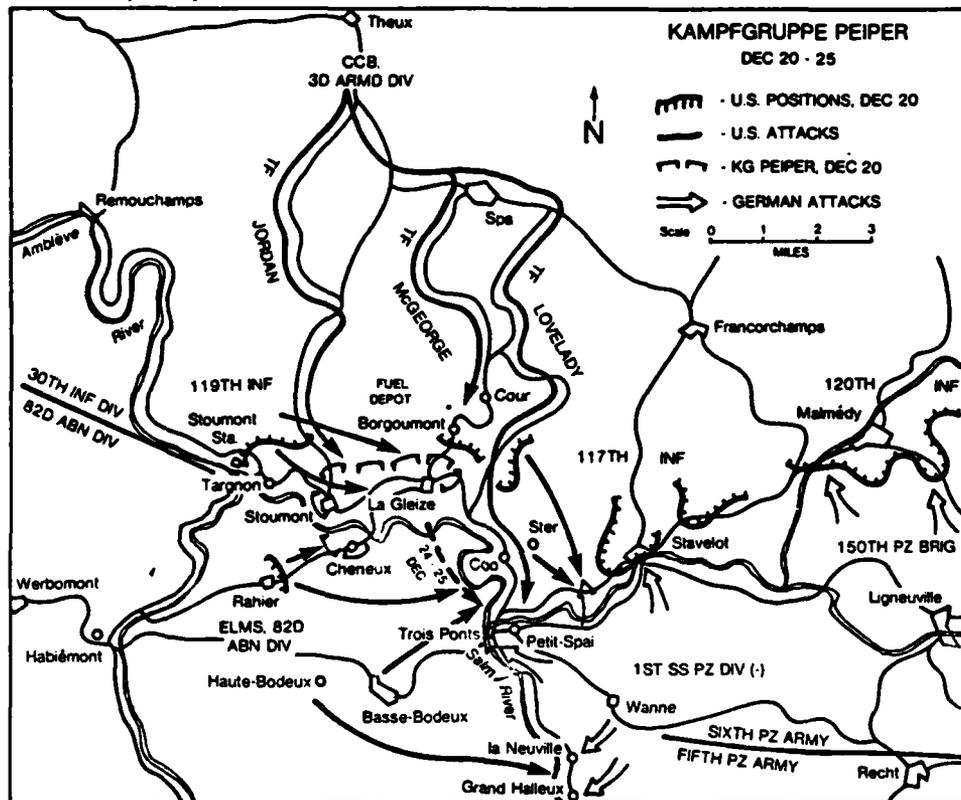


Map 6: Roadblock at Stavelot, 17
 Dec 44.
 Source: Giles, The Damned
Engineers: 215.



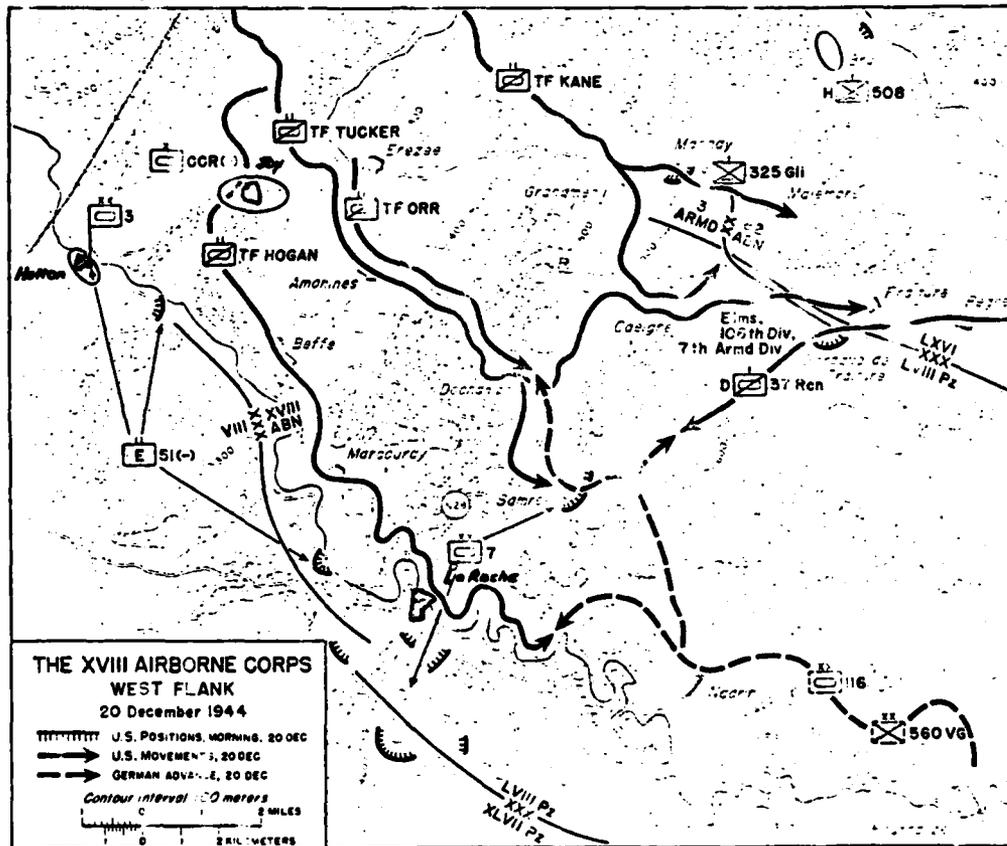
Map 7. Confrontation at Trois Ponts, 18-22 Dec 44.

Source: Giles, The Damned Engineers: 249.



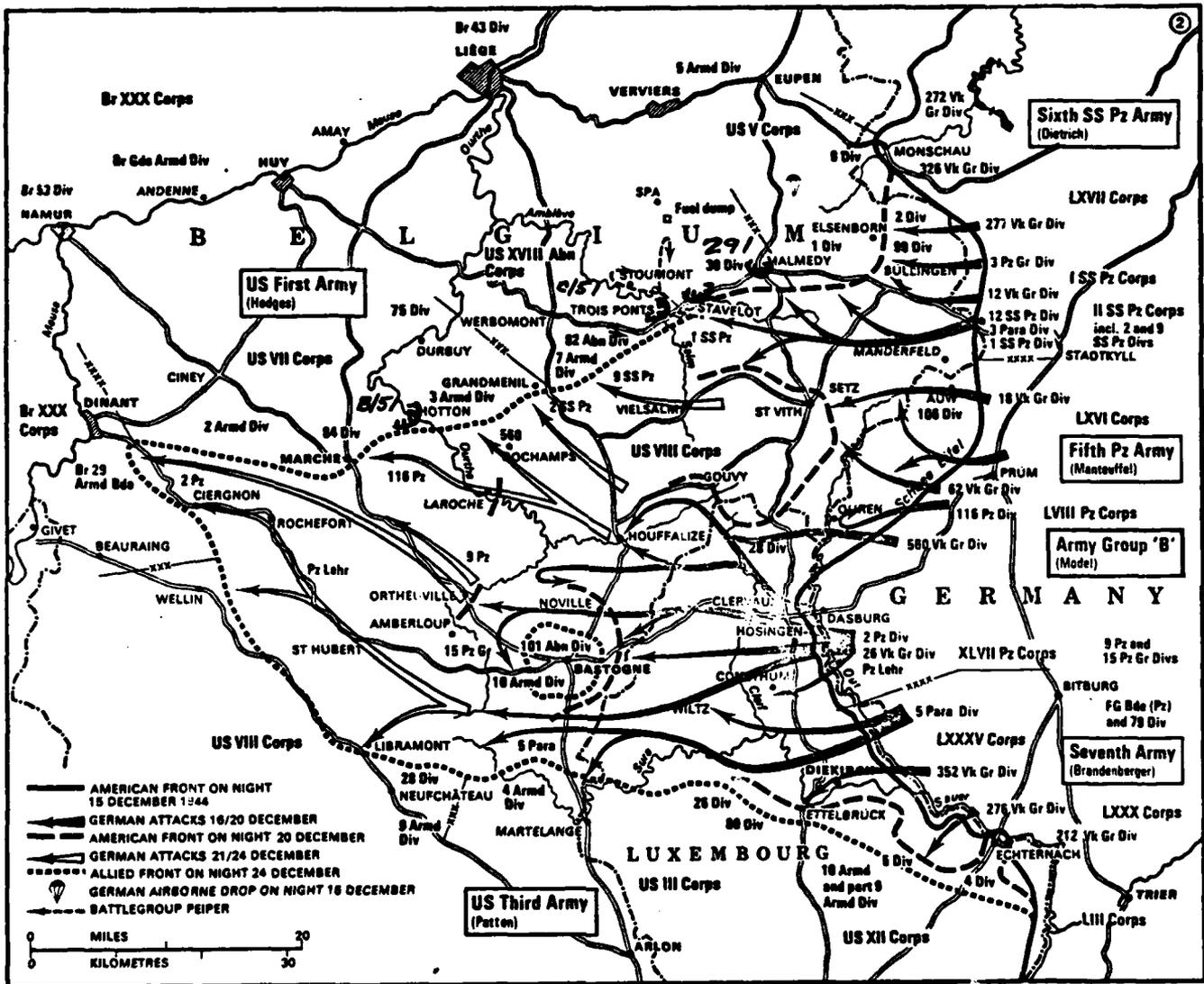
Map 9: Kampfgruppe Peiper, 20-25
Dec 44.

Source: Giles, The Damned
Engineers: 443.



Map 10: 51st Engineers Defending the Ourthe River, 20 Dec 44.

Source: Cole, The Ardennes: 355.



Map 11: 1111th Engineer Group
 Contribution to the Battle
 of the Bulge.
 Source: Young, Atlas of the Second
 World War:245.

APPENDIX B

FIGURES

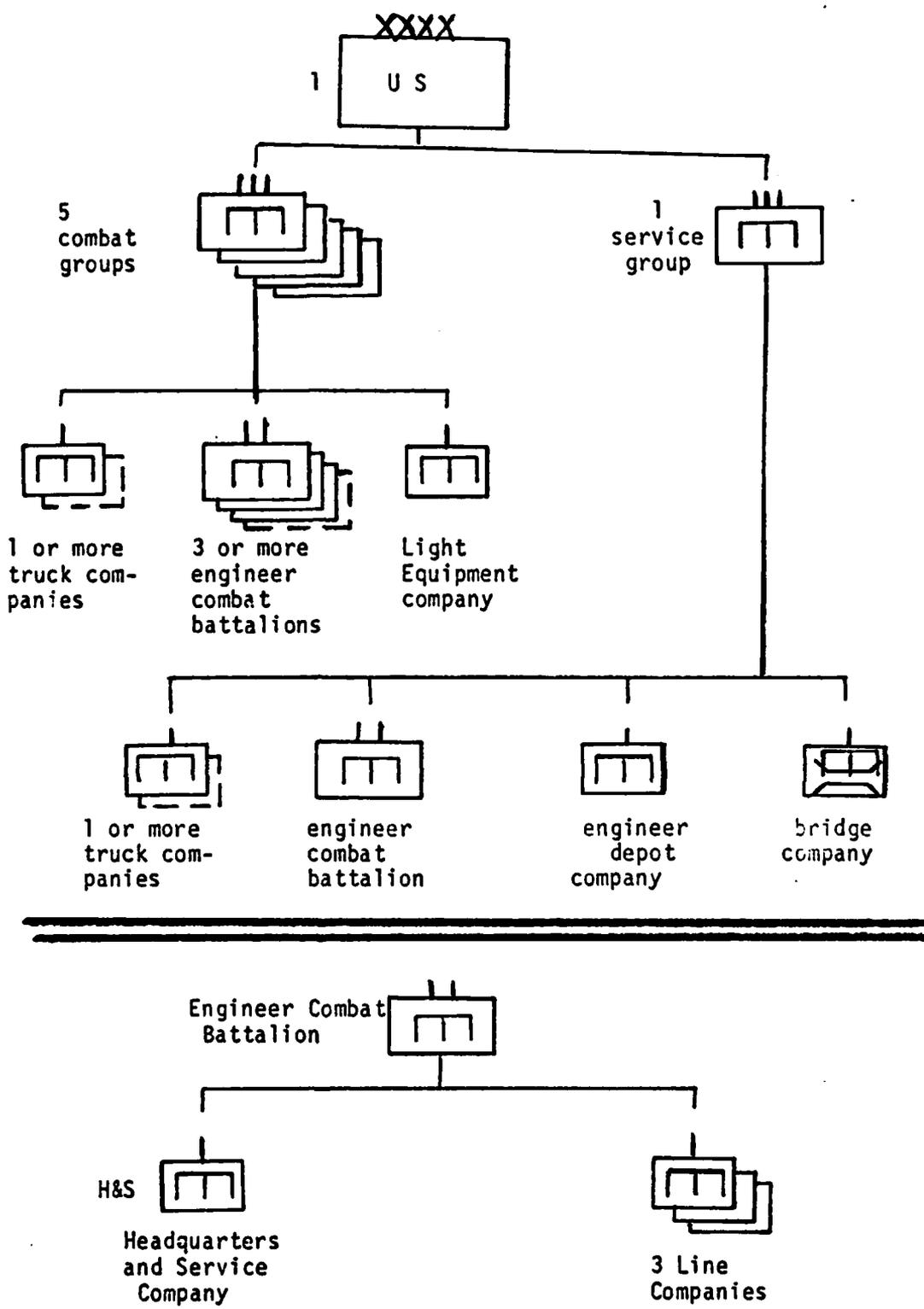


Figure 1: Organization, Engineer Combat Group.
 Source: Leadbetter, "Engineers as Infantry".

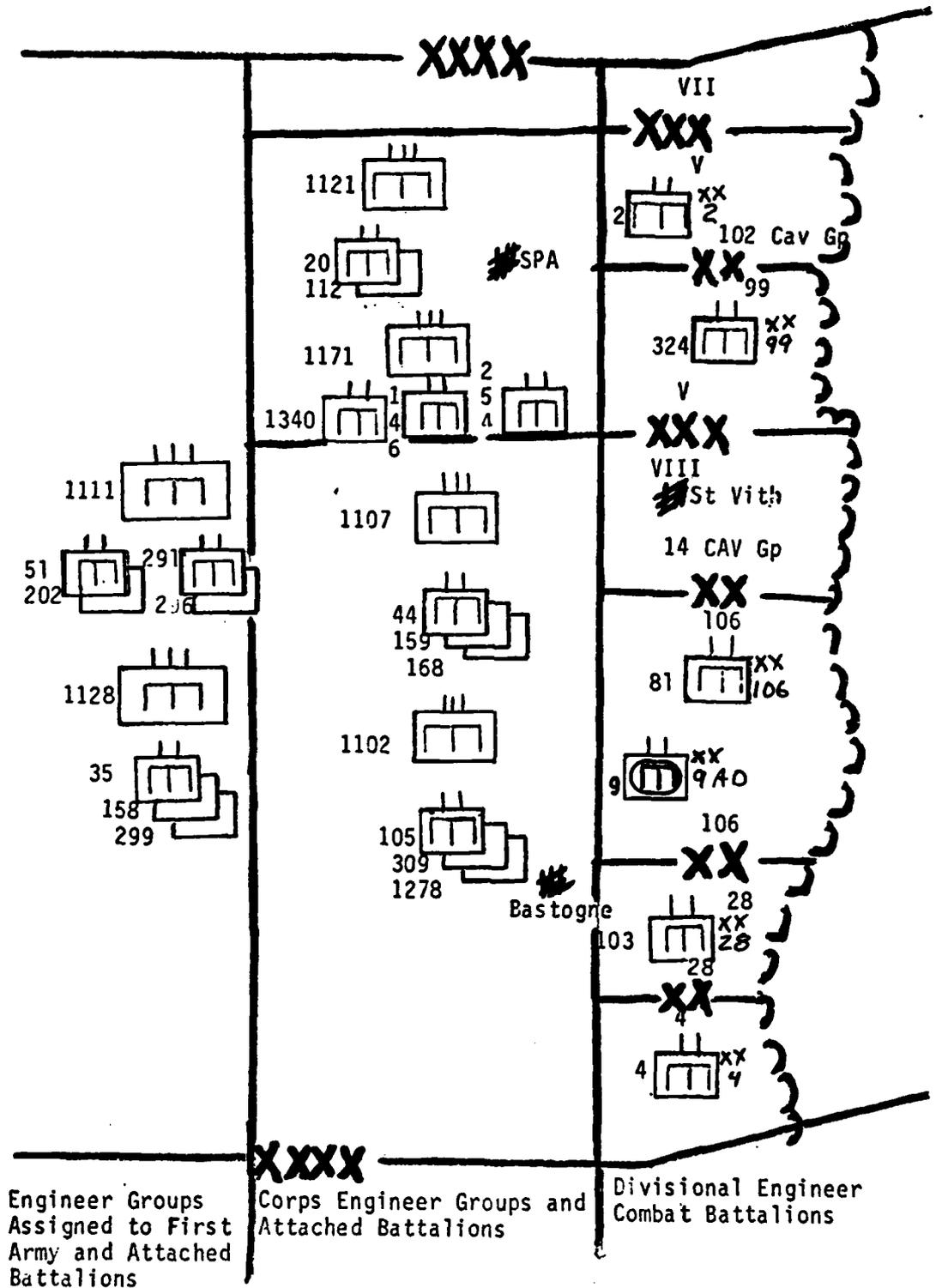


Figure 2: Engineer Troops, First Army, December 1944.
 Source: Leadbetter, "Engineers as Infantry."

ENDNOTES

1. US Army Engineer School, Combat Support Engineering and Mine Warfare Mission Area Analysis (U), Vol. III (U), (May 1983): 10-8 to 10-10. [CARL # S-2830.7-C.6]; and Joseph P. Kish, "Mission Area Analysis Update: Engineers as Infantry" (Individual Study Project, USA War College, 1985): 8.
2. Ibid.
3. Kish, "Mission Area Analysis Update": 12-13; For a more detailed discussion of the evolution of the triangular division's engineer battalion see Francis M. Cain, "Mobility Support of Offensive Maneuver: First US Army's Attack on the Siegfried Line - 1944" (MMAS Thesis, USA Command and General Staff College, 1985): 19-55.
4. Samuel A. Goldblith, "The 803rd Engineers in the Philippine Defense", The Military Engineer 38 (August 1946): 323-325; Alfred M. Beck, Abe Bortz, Charles W. Lynch, Linda Mayo, and Ralph F. Weld, The Corps of Engineers: The War Against German, (U.S. Army in World War II: The Technical Services) (1985): 96-97; and interview with MG W.A. Carter, 26 November 1985. MG Carter was II Corps Engineer during the Battle of the Kasserine Pass.
5. Hugh M. Cole, The Ardennes: Battle of the Bulge (The US Army in World War II: European Theater) (1965); and Charles B. MacDonald, A Time For Trumpets: The Untold Story of the Bulge (1985). On 16 December 1944, the 81st Engineer Battalion, 106th Infantry Division, the 103rd Engineer Battalion, 28th Infantry Division, and the 324th Engineer Battalion, 99th Infantry Division, as well as, the 168th and 146th Engineer Combat Battalions were committed as infantry. By nightfall on 17 December, the 2d Engineer Battalion, 2d Infantry Division, the 4th Engineer Battalion, 4th Infantry Division, along with the 35th, 44th, 158th, 254th, 291st, and a company of the 202d Engineer Combat Battalions were fighting as infantry. On 18 December three more battalions, the 51st, 299th, and 1278th, plus a company from the 9th Armored Engineer Battalion, 9th Armored Division and a company from the 33rd Armored Engineer Battalion, 7th Armored Division were also fighting as infantry. In addition the 326th Parachute Engineer Battalion, 101st Airborne Division fought as infantry in the defense of Bastogne and the 309th Engineer Combat Battalion and a company of the 249th were committed as infantry on 24 December. This listing does not include numerous other engineer battalions which fought as infantry in a self-defense role while performing combat engineer duties. Nor does it include the six Engineer General Service Regiments (342d, 366th, 354th, 392d, 1308th, and 1313th) which were converted to infantry and occupied defensive positions along the Meuse River to prevent Germans from seizing a bridgehead across the river.

6. C.R. Franks, J.A. Hixion, D.R. Mets, B.R. Pirnie, and J.F. Ransone, The Second World War: Europe and the Mediterranean (1984): 369-370.
7. Cole, The Ardennes: 39-47.
8. Ibid.: 46-47, and Janice Holt Giles, The Damned Engineers (1985): 39-42.
9. Cole, The Ardennes: 54-56; and MacDonald, A Time for Trumpets: 83-84.
10. Giles, The Damned Engineers, (1985): 122; and MacDonald, A Time For Trumpets: 24, 130, 144-145, 161, 166, 182-183, 192-193, and 198.
11. Blanche D. Coll, Jean E. Keith, and Herbert H. Rosenthal, The Corps of Engineers: Troops and Equipment (The U.S. Army in World War II: The Technical Services) (1958): 225, 227, 230-232; COL Anderson was an experienced U.S. Army Reserve Officer. Considerably older than his battalion commanders, he had commanded an engineer battalion in World War I. Giles, The Damned Engineers: 8; and interview with MG Carter.
12. Wyland F. Leadbetter, "Engineer Combat Battalions in Their Secondary Roles as Infantry During the Battle of the Bulge, December 1944", Military History Anthology, US Army Command and General Staff College, (1984): 164-165,167; and interview with MG Carter. The six engineer groups assigned to First Army in December 1944 were: the 1121st and 1171st in support of V Corps, the 1102d and 1107th in support of VIII Corps and the 1111th and 1128th in support of the Army. Engineer troops numbered almost 12,000 men not including the six divisional battalions.
13. HQ, 1111th Engineer Combat Group, After Action Report 1 December to 31 December 1944 (27Jan45): 1; and HQ, 1111th Engineer Group, Daily Engineer Situation Report (17 to 31 Dec 44); and HQ, 1111th Engineer Combat Group, Extract From Unit Journal (Dec 44).
14. Ibid. David E. Pergrin graduated from Pennsylvania State University in June 1940 with a B.S. in Civil Engineering and was commissioned in the USAR. He was called into active service in May 1941 and served as a training officer at Ft Belvoir for almost two years before joining the 291st at Camp Swift, Texas, in April 1943. When the 291st sailed for England in October 1943, twenty-five year old Major Pergrin was the battalion commander. For his actions in the Battle of the Bulge, LTC Pergrin was awarded the Silver Star, the Bronze Star, the Purple Heart and the Croix de Guerre (French).

The 291st was originally formed as the 2d Battalion, 82d Engineer Regiment at Camp Swift, Texas, in 1942, and redesignated as the 291st Engineer Combat Battalion on 28 March 1943. The battalion participated in the Third Army Maneuvers during July 1943 and sailed for England in October, 1943. In England the battalion was assigned to the 111th Engineer Combat Group and worked on general construction projects and combat training. The 291st landed at Omaha Beach on 23 June 1944 and was involved in road maintenance and mine clearing. During November and December 1944, the 291st operated sawmills cutting timber for the First Army winterization program. See battalion history, 291st Engineers.

15. Ibid., and Giles, The Damned Engineers: 225-226.

16. Giles, The Damned Engineers: 122-123; Cole, The Ardennes: 260; and MacDonald, A Time for Trumpets: 198.

17. The only assets readily available to First Army were its security troops. At 1630, 17 December, orders went out to the 99th Infantry Battalion (Separate), based at Tilff, a few miles northeast of Spa, and to the 526th Armored Infantry Battalion, a Twelfth Army Group unit based at Spa, and to one company of the 825th Tank Destroyer Battalion also stationed at Spa. These units were to proceed to Malmedy immediately. The 99th Infantry Battalion (Separate) was made up of Norwegians who wished to continue fighting Hitler. The battalion was attached to First Army. The 526th Infantry was also ordered to send a company to Stavelot along with a platoon from the 825th. See Giles, The Damned Engineers: 188.

18. Cole and MacDonald state that MAJ Yates commanded the critical defense of Trois Ponts against Kampfgruppe Pieper. This is not correct. Although COL Anderson ordered his Group Headquarters to evacuate Trois Ponts at 1000; he did not depart but, remained in Trois Ponts with the Group Forward Command Post. COL Anderson commanded the defense of Trois Ponts and personally ordered the bridges destroyed. He did not turn over the defense of Trois Ponts to Major Yates until 1530, 18 December. Compare Cole, The Ardennes: 267-268; and MacDonald, A Time for Trumpets: 238-240; with Giles, The Damned Engineers: 237-245; HQ, 111th Engineer Group, After Action Report; and HQ, 111th Engineer Group, Unit Journal.

19. Giles, The Damned Engineers: 187-270; MacDonald, A Time for Trumpets: 197-244; and Beck, Bort, Lynch, Mayo, and Weld, The Corps of Engineers: War Against Germany: 469-474.

20. Giles, The Damned Engineers: 270-285; and 51st Engineer Battalion, Daily History (17 to 23 Dec 44); and Historical

Division, OCE, "51st Engineer Combat Battalion and the German Breakthrough: 17 Dec to 15 Jan 1945.": 5-12.

21. Giles, The Damned Engineers: 286-320, 342-345, 357.

22. Ibid.: 345.

23. The 51st Engineer Combat Battalion was activated from elements of the 1st Battalion, 51st Engineer Combat Regiment on 13 June 1942. The Battalion spent the next two years training in New York, West Virginia, and Ft. Belvoir. Landing in Normandy on D-plus-21, the 51st Engineers were engaged in constructing roads, maintaining water points, and clearing minefields. On the eve of the German attack, the battalion was operating thirty sawmills in the vicinity of Marche, Dinant, Rochefort, Ciney, and Hotton. See OCE, "51st and the German Breakthrough": 1-2.

LTC Harvey R. Fraser, Commander of the 51st Engineers, graduated from the U.S. Military Academy in 1939, and was assigned to the 3d Engineer Combat Regiment. After a variety of training and troop assignments, LTC Fraser was assigned to the Engineer Base Section, Brittany. The twenty-eight year-old Lieutenant Colonel assumed command of the 51st Engineers on 14 December 1944 - two days before the German attack. For his service in the 51st, he was awarded the Bronze Star, the Legion of Merit, and the Croix de Guerre (French) see OCE, "51st and the German Breakthrough": 2-4.

24. 51st Engineer Battalion, Daily History; OCE, "51st and the German Breakthrough": 17-32; and Cole, The Ardennes: 318, 351, 355, 378-380, 431.

25. Cole, The Ardennes: 431, 432, 436.

26. Ibid.: 267.

27. Ibid.: 428-429.

28. Ibid.: 380.

29. U.S. Army, FM 100-5, Operations (1982): 7-6.

30. U.S. Army, FM 5-100, Engineer Combat Operations (1984): 14-2.

31. Ibid.

32. Ibid.: 14-3.

33. Giles, The Damned Engineers: 11-12.

34. U.S. Army, FM 5-100: 14-6

35. Ibid.: 14-11.
36. Leadbetter, "Engineers as Infantry", 171-173.
37. U.S. Army, FM 5-100: 14-11.
38. Ibid.: 14-7 to 14-8.
39. U.S. Army, FM 5-100: 14-11.
40. 1111th Engineer Group, Daily Engineer Situation Reports.
41. U.S. Army, FM 5-100: 14-4.
42. U.S. Army, FM 5-100: 14-11.
43. At 1915 on 26 December, General Hans Krebs, Chief of Staff, OB WEST, remarked, "Today a certain culminating point has been reached." see Cole, The Ardennes: 672.
44. Giles, The Damned Engineers, 359, and Headquarters V Corps, After Action Report (4Jan45): 51-52.

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