

Staff Department  
THE INFANTRY SCHOOL  
Fort Benning, Georgia

STUDENT MONOGRAPH  
Advanced Infantry Officers Course  
Class Nr. 2  
1955-56

THE SUCCESSFUL REDUCTION OF A FORTIFIED POSITION  
IS DEPENDENT UPON DETAILED PLANNING AND INTENSIVE  
TRAINING OF ASSAULT ELEMENTS

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PREFACE

4 February 1956

I would like to express my appreciation to the members of the Infantry School Library for their able assistance in locating the reference material for the preparation of this monograph.

The point of view expressed in this paper is that of the author, not necessarily that of the Infantry School or the Department of the Army.

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## INTRODUCTION

Field Manual 31-50 describes a fortified position as a "series of strongly organized localities disposed in great depth and width in such a manner as to be mutually supporting. Exceptionally it may be a single, strongly organized locality." (2:2)

Any army involved in offensive action is most certain to find itself confronted on many occasions with the task of attacking a fortified position. Present doctrine, however, advocates that "whenever possible, fortified positions are bypassed or neutralized and later reduced by siege or by an attack from the rear. When they cannot be bypassed, they are reduced by frontal attack."(3:150)

It is the successful attack of a fortified position with which this monograph is concerned, and more specifically it is directed at those planning factors which contribute to its successful reduction.

Military history is resplendent with successful examples of this type operation with all probably varying in the technique in which the attack was executed, but each possessing factors in common-detailed planning and trained assault elements.

There are many inherent disadvantages to the assignment of this mission to a single and specialized body of troops; and as a consequence, it must be justifiably so a mission of infantry in the attack. This of course does not preclude specialized troops such as engineers from participating in the assault.

Much has been written in the past and more will be written in the future on the techniques of attacking a fortified position, but the keys to its successful reduction will always remain inherent in detailed planning and preparation and in the intensive training of the

assault elements.

Due to its very nature a fortified position has generally been planned in great detail; tremendous effort and vast amounts of materiel have been expended in its construction; and likewise an equivalent amount of effort and detailed planning must be exerted if it is to be reduced with a minimum loss of personnel, equipment, and time.

The planning principles employed and the preparations completed before the attack which are set forth in this discussion of two historical examples are significant to all infantry troops participating in the attack of a fortified position and particularly to those leaders who may find themselves involved in the planning phases of an operation of this nature.

Detailed planning and intensive training of assault elements cannot be overemphasized if the momentum of the attack is to be maintained and a penetration is to be effected with a minimum loss of personnel.

In the following discussion a comparison is made between a German action against Fort Eben Emael in the early stages of World War II and a United States action against the Siegfried Line in the latter stages of the war in which the commanders concerned have realized the significance of thoroughly preparing and training their units, effecting detailed coordination, and executing their assigned mission with a high degree of speed and aggressiveness.

## DISCUSSION

In the preparation for the attack of a fortified position, planning, training, coordination, and reconnaissance demand increased attention. If time has favored the defender, it can be expected that the fortified position will present a highly effective and formidable obstacle.

The fortifications usually consist of reinforced concrete pillboxes or log bunkers, expertly camouflaged, and mutually supporting. To compensate for its limited observation, positions outside the pillboxes connected by communication trenches are usually constructed. The position may be located to take advantage of natural terrain obstacles and supplemented by artificial obstacles such as minefields and barbed wire.

It is readily seen that each uncertainty surrounding the position must be reduced if it is entirely possible. A concentrated intelligence effort should be directed to reduce these uncertainties. Aggressive patrolling against the position will reveal highly useful information. Because the positions are mutually supporting, it is imperative that their exact location be determined and plotted. The weak areas in the barrier plan must also be determined to reduce the time of exposure to the mutually supporting fires of the positions.

Once the intelligence aspects of the terrain and the positions have been determined, full scale planning can be undertaken.

Special equipment will be required based on the nature and construction of the fortified position. Some of the most common to be employed will be flamethrowers and explosives in the form of satchel charges, pole charges, shaped charges, and bangalore torpedoes.

Because of its complexity and the requirements for special equipment, the attack on a fortified position will necessitate a more intensive training program than heretofore experienced and a reorganization of the rifle platoons into assault elements and fire support elements will likewise be necessitated.

A high degree of teamwork and coordination is required. Teamwork must be developed and instilled in the individual during the training phase. Coordination between the assault elements and the fire support elements is most vital during the conduct of the assault. Precise timing in lifting the fires of direct fire weapons from the embrasures of the pillboxes or bunkers to allow the assault elements to close on the position is highly essential. Rehearsals and an elaborately devised communication plan will lend much toward alleviating this problem.

The attack must be executed aggressively. If the defender is allowed to recover from the initial effects of the supporting fires, excessive casualties will result; the momentum of the attack will be lost; and ultimately the attack will fail in its entirety.

The Germans concluded as far back as 1915 that a well-trained assault unit was indispensable to the reduction of a fortified position, and in support of this statement it is written that in March of this same year near Cologne, Germany, they combined two engineer companies and a unit of light artillery into what experts now term as the original assault detachment. This unit was all but decimated in subsequent engagements, but the theory behind the idea did not fade away. A Captain Rohr, an infantry officer, incorporated the technique into his Rohr Storm Battalions, and further successes resulted in its adoption by the German army. (5:3)

It is not the purpose in the illustration above to point out the successes of this combined engineer and artillery unit but to illustrate the necessity for a highly trained and skilled unit in attacking a fortified position.

It is readily apparent to the reader that the Germans considered the problem of such importance and complexity that they charged their engineers with this responsibility as one of their primary missions.

It is also interesting to analyze a German document which was translated in London in June of 1940, a translation which I would like to point out to the reader as occurring one month after the highly successful reduction of the Belgian fortified position of Eben Emael on the fortified line of the King Albert Canal.

There is no concrete evidence that the facts outlined in this German document are an immediate outgrowth of the operation against Eben Emael, but it is certainly indicative that the Germans learned many important lessons concerning the attack of a fortified position.

This translation revealed that the initial penetration of a fortified position would not be accomplished with mass infantry attacks, but pointed out that the successful penetration was dependent upon a carefully planned attack, executed by a limited number of specially selected assault troops placed under the command of an energetic and aggressive leader. Prior to the attack on the position, patrols, including engineers, should determine the exact location and direction of fire of each of the positions and the location of field fortifications in the intervals between the permanent fortifications. Information concerning the nature, strength, and position of artificial and natural obstacles should also be determined. (4:3)

"The company commander must have at his disposal specially chosen assault detachments. The commanders of the assault detachments will be well chosen among experienced platoon commanders, and the N.C.O.'s and men must be selected for their courage, determination, physical fitness, and mental alertness.

Every man in the assault detachments must thoroughly understand his task and be specially trained to carry it out.

The preparation of an attack by an assault detachment must be so thorough that the attack is carried through without any hitch whatsoever. This means that the attack must be planned down to the most minute details." (4:6)

In retrospect let us now examine the action of the Germans against Fort Eben Emael and visualize how well these factors outlined above were applied in the attack of this fortified position.

Early in 1940 Fort Eben Emael, which lies four miles south of Maastricht, Holland, was considered "one of the strongest fortifications in Europe." (11:78)

The fort is described as having consisted of a score of lesser forts scattered over an area of about one square mile. The individual works were constructed of steel, armorplate, and reinforced concrete, deeply embedded in rock and connected by a series of deep tunnels. Each work had large caliber guns for covering the distant approaches and machine guns for close in defense. Each one of the positions, and the fortress as a whole, was protected by dense barbed wire entanglements and belts of mines.

On 10 May 1940 an unidentified division with a reinforced battalion of infantry, engineers, and supporting arms acting as advance guard for the division proceeded down the Aachen-Maastricht road. The

mission of the reinforced battalion acting as advance guard for the division was "to assault and reduce the fortifications of Eben Emael."  
(11:78)

To this end of accomplishing their mission, the reinforced battalion had constructed in a carefully guarded area of Poland, an exact replica of Eben Emael. Every member of the assault force had been rehearsed in his assigned task, and every minute detail had been planned.  
(5:5)

Prior to the attack the Germans knew the following information concerning Eben Emael: The walls of the fort were vertical and forty meters high. The King Albert Canal provided a water barrier five hundred meters wide around two sides of the fort. Overhead cover consisted of two meters of reinforced concrete and five meters of earth. Among its weapons were thirty-five pieces of artillery and twenty double machine guns. Every aperture, every sentry position, every means of defense, and every topographic feature in and around the fort were known to the Germans. (5:3)

The siege of Eben Emael commenced at 0530 hours 10 May 1940 with a heavy air bombardment.

A Lieutenant Witzyg, commanding a detachment of seventy men, succeeded in reaching the upper level of the superstructure sometime during the day and in ten minutes destroyed the turrets and the apparatuses on them by the use of explosives and demolitions. (9:81)

At approximately the same time a detachment of twenty-eight men under the command of a Sergeant Portsteffen worked its way southward along a road running parallel to the canal and succeeded in seizing the lower casemates of the fort. (9:81)

A small parachute detachment had also been landed within the fort

and had established radio contact with the assaulting detachments and had kept them informed of the situation within the fort. What other missions that may have been assigned to this element are not known, but it is believed that they may have covered the assault elements in their efforts to scale the steep slopes leading to the upper level of the fort. (11:87)

At any rate these detachments finally joined forces and a systematic reduction of the fort began. AA guns were directed against the embrasures with amazing accuracy; explosives were directed against the sensitive parts of the fort such as the ports, the turrets, and even the hinges. Maximum advantage was taken of the craters resulting from the air strike and of the dead spaces which had been carefully determined in the preparations prior to the attack. Wire obstacles were disposed of by the use of bangalore torpedoes, and flamethrowers were effectively directed against the ports and embrasures. (11:88)

At 1250 hours the following day the Belgian commander surrendered the fort, and approximately eight hundred men of a garrison of fourteen hundred were taken prisoner.

In exactly thirty-one hours and twenty minutes an assault detachment of little over one hundred men had succeeded in reducing of the most formidable fortifications in all Europe.

The reasons for this brilliant success are certainly obvious, but it is felt that they should be noted at this point.

1. Detailed reconnaissance and intelligence certainly played a significant role in the attack of Eben Emael. The exact location of gun emplacements, turrets, embrasures, and obstacles were readily known. Even the dead spaces in the approaches to the fort had been carefully plotted.

2. Extensive preparations and rehearsals paid off well. Each individual in the assault force appears to have known his mission and accomplished it in short order. The construction of a replica of the fort in Poland very clearly indicates the importance which the Germans attached to the conduct of rehearsals in the attack of a fortified position.

3. Thorough training of the individuals in the assault detachments is quite evident since special equipment such as explosives and flame-throwers were adeptly employed.

4. The presence of determined and aggressive small unit leaders such as Lieutenant Witzyg and Sergeant Portsteffen enabled the Germans to reduce Eben Emael in the shortest period of time. This of course is not the sole factor that determined the length of time involved in the assault, but it is certainly a contributing one.

5. Teamwork and coordination were apparently present since there appear to be no "hitches" in the operation.

Of course no discussion would be complete without an analysis of both sides. It is generally agreed that the Belgians committed a grave tactical error in the defense of Eben Emael, and that error was their failure to employ a strong mobile reserve to supplement the defenses of the fort. Too, there are indications that the Belgians were not overly endowed with the will to resist.

The successful attack on Eben Emael has illustrated the desirable results of thorough planning in the reduction of a fortified position. These successes were repeated many more times by the Germans in their drive through the Low Countries and in the attack of Fort 505 on the Magniot Line. Another excellent example of the same principles employed by the Germans is illustrated in the breaching of the Siegfried

Line by the 1st Battalion of the 117th Infantry Regiment, 30th Infantry Division. The organizational structure of the units and the nature of the fortified position differ somewhat, but the principles of planning are essentially the same.

The Siegfried Line is described as a series of pillboxes and emplacements extending from the Western boundaries of Germany from Kleve on the Dutch border to Lorrach near Basle on the Swiss border.

The concrete installations were approximately twenty to thirty feet by forty to fifty feet horizontally, and twenty to twenty-five feet high. At least half of each of the structures were underground. Fields of fire were limited and generally did not exceed fifty degrees of arc. Pillboxes were mutually supporting, and four years of neglect had left the camouflage in an excellent state. (1:4)

The mission of the 1st Battalion, 117th Infantry on 2 October 1944 was to cross the Wurm River and neutralize the pillboxes in the area bounded by the Palenberg-Rimbürg railroad track over to the western edge of the town of Ubach. (1:37)

The 1st Battalion was commanded by Lieutenant Colonel Robert E. Frankland who believed in thorough training for the attack of a fortified position. (1:37)

On the morning of 25 September the 1st Battalion was withdrawn from its defensive positions to the north of Scherpenseel and went into a training area about three kilometers north of the town. Two days of intensive training followed. The entire battalion was put through the paces of practice and rehearsals with pole charges, satchel charges, flamethrowers, bangalore torpedoes, and mock assaults on pillboxes. (1:37) Crossings of the Wurm River were rehearsed in a gully of stagnant water, approximately the same width of the river, with "duckboards" which had been constructed by the 105th Engineer Combat Battalion. (11:38)

It is interesting to note that during these two days of training Lieutenant Colonel Frankland required individuals to become familiar with not only one piece of special equipment but with all of the equipment that was utilized in the assault. He later stated that this familiarization paid off. When one member of the assault element became a casualty, the man next to him could immediately undertake the operation of the equipment and continue the assault without loss of time. (6:112)

It is well to inject at this point the intelligence efforts which had been undertaken. The XIX Corps, to which the 30th Division was organic, had accurately plotted over ninety per cent of the pillboxes on 1:25,000 maps and on 1:11,000 photomaps. Considering the excellent camouflage this was a remarkable accomplishment. These overprinted photomaps were furnished to the divisions in quantity; the 30th Division received four hundred and fifty copies which was sufficient for distribution down to and including each squad leader. (1:9)

The impending attack on the Siegfried Line was made known to the units well in advance for prior to the withdrawal of the 1st Battalion from its defensive positions to the training area on 25 September, the S-2 of the battalion, Lieutenant Morgan, had constructed a twelve by five foot sandtable of the battalion's objective. It was an excellent and ingenious field expedient of tremendous planning value. Cabbage leaves were used as vegetation; wooden blocks were used to represent houses and pillboxes; the Wurm River, the railroad track east of the river, and every important terrain feature known to the battalion was portrayed on this sandtable. The responsibilities of each company and each platoon were defined. (6:110)

Lieutenant Colonel Frankland continued aggressive patrolling be-

fore and after the training period, and every new aspect discovered was added to the sandtable. (6:110)

Platoons and squads were continually withdrawn from their defensive positions to study the layout of the sandtable into the late hours of the night. By the time the attack was to commence every member of the battalion was well oriented on his assigned task. (1:38)

At higher level a very elaborate fire support plan had been conceived and integrated into the plan of attack. On the day of the attack twenty-four battalions of Corps Artillery fired 18,696 rounds of ammunition. The 30th Division Artillery had prepared three hundred and thirty-nine concentrations for use during the attack. (1:15)

The IX Tactical Air Force flew three hundred and ninety-six sorties in front of the XIX Corps sector from H-120 to H Hour. Later reports, however, indicated that the air strike had little or no appreciable effects on the pillboxes. (6:112)

For several days prior to the attack Lieutenant Colonel Frankland had repeatedly emphasized to the battalion the necessity for reaching and crossing the river rapidly. These talks contributed a great deal toward preparing the men psychologically as will be seen in a later comment of the German reaction to the crossing of the river by B Company. (1:39)

For information purposes it is noted that the battalion had tanks attached from A Company, 743d Tank Battalion to assist in the reduction of the pillboxes. These tanks did not succeed in crossing the river during the assault on the pillboxes and did not reach the battalion until around 1830 hours when it was consolidating its positions for the night.

All companies had organized its rifle platoons into sixteen man

assault teams. Each individual in the teams had studied the photomaps and other information and knew the location of the pillboxes and their weaknesses.

This was the situation that confronted the battalion when it jumped off at 1100 hours on 2 October with B Company and C Company abreast, C Company on the right.

Both companies proceeded to the crest of the high ground overlooking the Wurm River without opposition, but once the drive toward the river commenced, both companies were subjected to intense artillery and mortar fire, with C Company being struck the harder of the two.

The failure to mention the name of 1st Lieutenant Don Borton of B Company in the crossing of the river would be missing a point entirely. On reaching the river he personally dashed into it and bridged it with the first "duckboard". It was later reported that eleven enemy in front of B Company surrendered because of the sheer speed and aggressiveness with which this crossing was made. (1:39)

Both companies crossed the river in rapid order. C Company because of the casualties it suffered from artillery and mortar fire in its exposed route to the river, reverted to battalion reserve and was replaced in the final assault on the pillboxes by A Company.

By nightfall the battalion had taken its objective and had reduced nine pillboxes without the assistance of the tanks which had been unable to cross the river.

The casualty figures for each battalion for the day's operation are not available for this writing; however, the figures for the entire regiment amounted to two hundred and twenty-seven. Seventy-five to eighty per cent of these casualties resulted from mortar and artillery fire. (1:40)

"The 1st Battalion's assault on the Siegfried Line was exceedingly significant. It was the only lead battalion in the division to accomplish its mission the first day. The outfit cracked the Westwall for the entire XIX Corps." (7:52)

In summarizing the action of the 1st Battalion for this operation it can be stated as in the case of the German attack on Eben Emael that thorough training and planning were the keynotes to success.

The few casualties resulting from small arms fire is indicative that intelligence and reconnaissance efforts had been very effective, and the information gained had been disseminated down to the lowest level in time to be of value. The plotting of over ninety per cent of the pillboxes enabled the assault teams to study the danger areas and reduce them without serious personnel losses.

The momentum of this attack was never lost, because each individual knew his job and was psychologically prepared to accomplish it.

Teamwork had been developed through training under the guidance of an energetic and resourceful commander.

Staff Sergeant Howard King of Company A made this statement concerning the effectiveness of the training that the 1st Battalion had undergone: "Even when we got a new pillbox to take, we just pushed out our support and assault detachments mechanically." (1:9)

The familiarization of the members of the battalion with the use of all assault equipment instead of training him with one particular piece, no doubt, added immeasurably to the combat effectiveness of the battalion.

Aggressive patrolling prior to the attack did much to reduce the uncertainties surrounding enemy dispositions and terrain features not previously known to the battalion.

The use of the sandtable constructed by Lieutenant Morgan contributed much toward erasing the doubts in the minds of the individuals and small unit leaders concerning the situation and the objective. This was probably one of the finest and most valuable efforts undertaken by Lieutenant Colonel Frankland in his planning and preparations for the attack.

## CONCLUSIONS

It is only logical to assume in present day warfare that successful attacks upon modern fortified positions are dependent upon detailed plans and preparations. The extent of the detail involved in the planning of the attack will vary with the formidability of the position being reduced; however, this does not obviate the necessity for a complete and sound plan of attack.

The conclusions evolved from a study of the preceding examples and narrated below are not new and have been time tested and proven and determined to be of sound value.

It is therefore incumbent upon leaders at all echelons to insure that these principles of planning and preparation are applied to the fullest extent possible when their unit is faced with the task of reducing a fortified position.

1. The assault elements require intensive training in the use of special equipment, particularly in the use of demolitions and flame-throwers.

2. Every individual in the assault element should be trained in the use of all special equipment required for the operation. Casualties are most certain to occur, and a failure to train each individual in the use of all equipment will ultimately result in an attack which has lost its flexibility and momentum.

3. Teamwork assumes added significance. This can be achieved only through training and working together.

4. Each individual must understand his assigned task. Rehearsals should be conducted on terrain similiar to the terrain involved in the attack. If time and materiel permit, replicas of the position

to be assaulted should be constructed.

5. Reconnaissance is required in greater detail than that which is required of an ordinary attack. Ground and air reconnaissance means are exploited to the maximum, and the intelligence acquired should be disseminated down to the lowest level in time to be included in the planning and training.

6. Close coordination between the assault elements and the supporting weapons is a must. This too, can be achieved only through training and detailed planning.

7. Planning should commence as early as time permits, and consistent with the need for security the lowest echelons involved should be notified to allow them maximum time for training, planning, and preparation.

8. Leaders must be well forward during the conduct of the attack. Aggressive leadership at all echelons and particularly in the assault elements is most essential. Reluctant leaders cannot provide the necessary incentive and drive to carry a successful attack.

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