

N-9924.3

21

RECEIVED  
1944

G.O.P. 1855

ACQUISITION NO.  
FOR G.O.P.

# XIX CORPS ENGINEER OPERATIONS

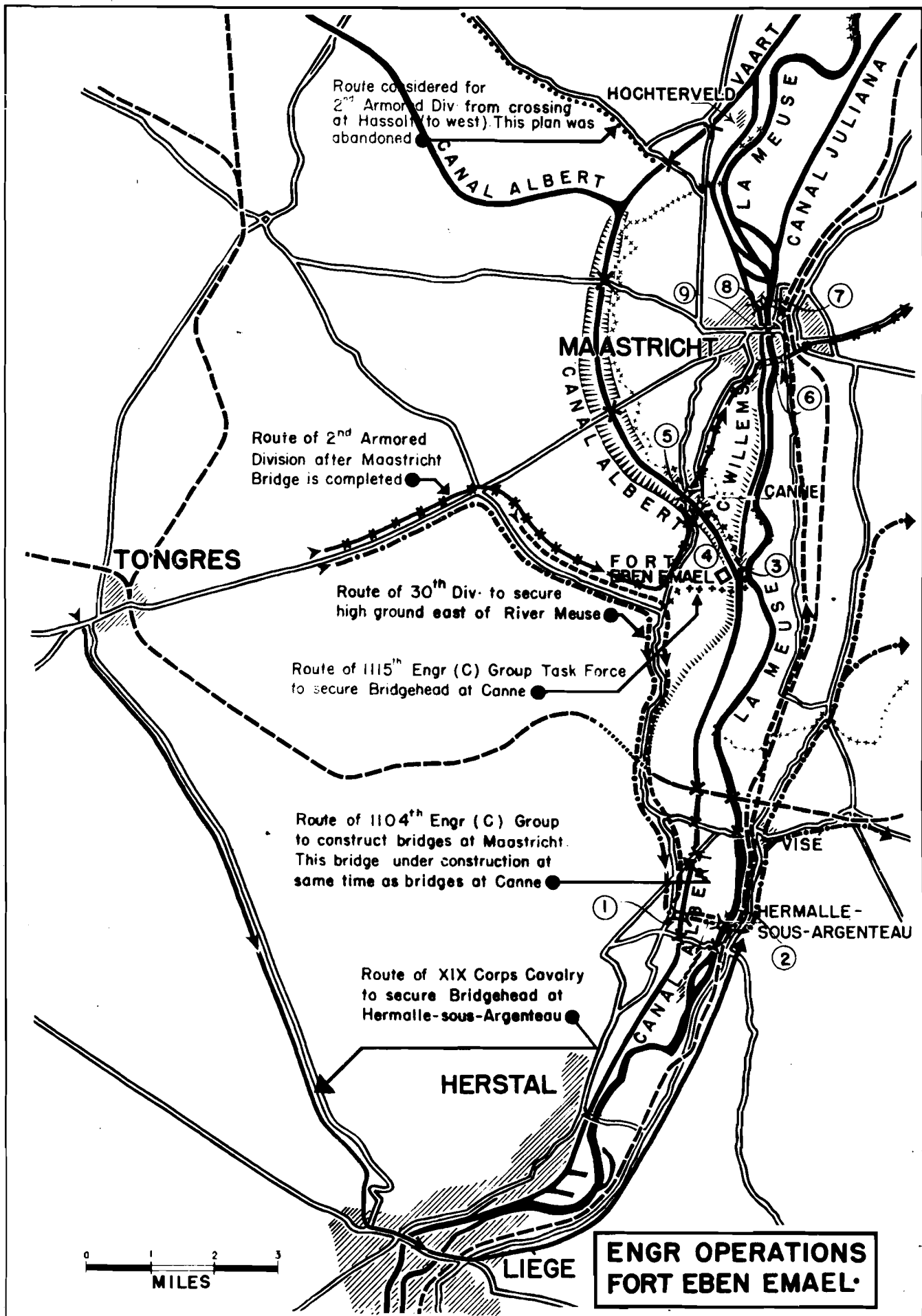
FT. EBEN EMAEL, BELGIUM  
SEPT. 1944

Col HUBERT S. MILLER C.E.  
ENGINEER - XIX CORPS

Incl 2<sup>d</sup>

Commanding Generals and Engineer Officers  
most directly involved in these operations

Maj Gen Charles H Corlett - C.G. XIX Corps  
Maj Gen Leland S Hobbs - C.G. 30th Division  
Maj Gen Ernest N Harmon - C.G. 2d Arm.Div.  
Col Hubert S Miller - Engr XIX Corps  
Col Hugh W Colton - C.O.1104th Engr(C)Group  
Lt Col Gustin - C.O. 246th " " "  
Lt Col Ralph E Leighton- C.O. 247th " " "  
Capt Everett H Farris- C.O. 503rd " Lt.Pon.Co.  
Capt Kent - C.O. 62nd " Topo.Co.  
Col William R Shuler - C.O.1115th Engr(C)Group  
Lt Col John C Dalrymple- C.O. 82nd " (C)Bn  
Lt Col Satherswaite - C.C. 234th " " "  
Lt Col George T Carter - C.O. 295th " " "  
Capt Carlos G Kleine - C.O. 512th " Lt.Pon.Co.  
Capt Carl J Hale - C.O. 611th " L.E.Co.  
Capt Wm H. Linkhorn - C.O. 992nd " Tw.Br.Co.  
Lt Col Carroll H Dumm - Div.Engr. 30th Div.  
Lt Col Louis W Correll - Div.Engr. 2nd Arm.Div.



## XIX CORPS ENGINEER OPERATIONS

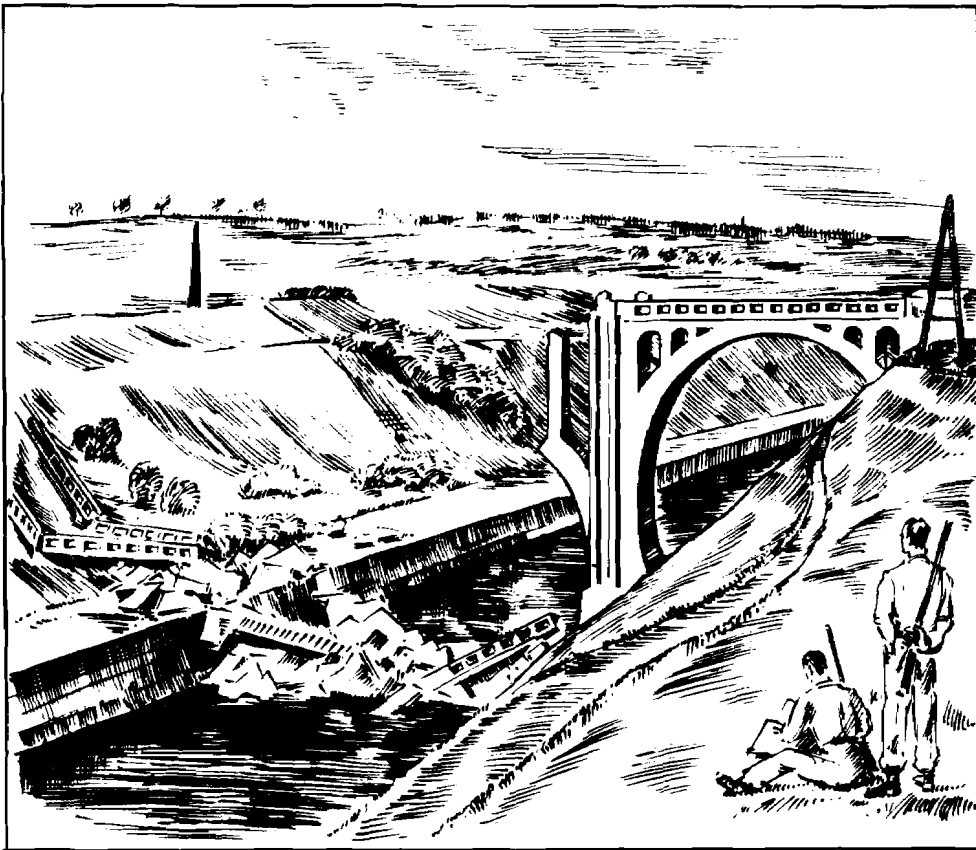
### FT. EBEN EMAEL, BELGIUM.

September - 1944

Fort Eben Emael figured spectacularly in the news when captured by the German Army during the first surge of Nazi power. Its recapture by the American Army in 1944 was reported merely as one of many points taken in the rapidly advancing allied front. However, the Engineer operations in this vicinity were so extraordinary as to deserve special attention.

The XIX Corps entered Belgium on September 3d, 1944, near St. Amand after a rapid advance - in fact a pursuit of the enemy - from the Seine River. With scarcely a pause the pursuit continued towards Maastricht with the St. Trond - Tongres - Maastricht highway as the main axis. The pursuit was so long and so rapid that adequate supplies could not be kept up. Gasoline became more and more critical. First the Corps artillery was left behind. About half way across Belgium a large part of the Armored Division was out of gasoline and out of action. The 30th Division, on the right of the Corps sector continued by marching and by shutteling with such vehicles as could be kept operating while the 1104th Engineer (C) Group with the Corps Cavalry and some Corps AA Artillery took over the left sector from the armor and pushed on. The corps continued on its mission of pursuit to the limit of its ability. As the Albert Canal was approached, the enemy rear guard delaying action stiffened materially and considerable opposition developed. On the right flank the 30th Division had sufficient strength to reach the Meuse River without great difficulty. They were supported by the 1115th Engineer (C) Group which was prepared for an immediate river crossing.

On the left, the 1104th Engineer (C) Group with the cavalry and AA detachment had heavy going for the last ten miles while much the 2nd Armored Division still awaited gasoline. This task force however succeeded in



No 1

Highway Bridge over Albert Canal

on the Tongres-Maastricht highway demolished by the German Army.

The roadway here is some 200 feet above the water which is typical of this section of the canal.

reaching and holding a line along the Albert Canal on the front and left flank. As soon as the supply of gasoline permitted a portion of the 2d Armored Division came up on the left flank, crossed the canal at Hasselt ran into heavy opposition.

This phase of the operation provided the first of several unusual Engineer problems in the vicinity of Eben Emael, unusual in the formation of an Engineer - AA task force operating as infantry against scattered resistance. The cooperation was splendid, the AA quadruple mount machine guns gave excellent machine gun support, and the 90MM's served admirably for quick artillery support. This task force was so highly successful it served as a model for numerous future operations.

The result of this phase of the operations was to place the 30th Division along the Albert Canal (from the Tongres - Maastricht Road) to join VII Corps on the right, just north of Liege. The Engineer - AA - Cavalry task force held the line along the Albert Canal to the front while the withdrawn left flank was covered by a portion of 2d Armored Division. The center of the Corps sector was then only a few hundred yards from Netherlands territory. Fort Eben Emael fell to the 30th Division on September 10th. The fort itself proved to be far less an obstacle than the surrounding territory. For their operations in Belgium the 2nd Armored and 30th Divisions were decorated with the Belgian fourreguerre. It is not our present purpose however to discuss divisional operations but to point out specifically Corps Engineer operations in this vicinity.

Fort Eben Emael is a large, modern, concrete fort, topping a commanding hill, and situated at the junction of two canals - the Albert and the Willems. The deep, almost vertical, but of the Albert Canal forms the forward wall of the fort. The Albert Canal curves to the right (South) at the foot of a steep hill and parallels the Meuse River (called "Meuse" in Belgium and "Maas" in the Netherlands). The section at the canal from Ft. Eben Emael to the north is constructed almost entirely through a deep cut for more than one purpose. It skirts a bulge in Netherlands territory, just a few hundred yards within Belgium, and so avoids international complications in barge shipments. This site was chosen also to take full advantage of the military defensive value of such a canal and every effort was made to develop its defensive capabilities. The canal location, the steep cuts, the

fortifications, all make this canal an exceptionally impregnable military barrier, far more formidable than a natural river line.

The Willems Canal passes through lock gates with a head of about thirty feet at the junction with the Albert Canal. (3) This Canal continues parallel to the Mess River and on through the city of Maastricht about three and a half miles down stream. This formidable Albert Canal and adjacent network of canals and rivers lay precisely in the center of the XIX Corps advance.

The problem now facing the Corps was to cross these water barriers, enter the Netherlands, capture Maastricht and continue the advance in the direction of Aachen, Germany. A glance at the map shows what a tremendous problem was presented. All bridges in this sector were demolished. Only in the vicinity of Canne (5) did the Albert Canal pass through a cut sufficiently low to make crossing approaches at all practicable. But this short area of low cut was dominated by the enemy on the high banks of the deep cut both on the right and left. Three water ways lay directly ahead, the Albert and the Willems Canals and the Maas River. To encircle Maastricht's left flank involved crossing five waterways and this flank was still wide open, friendly troops on that flank being far behind. To encircle the right flank involved crossing both the Albert Canal and the Meuse River. However, here both waterways lay in the river valley, had low banks and VII Corps had reached Liege. The XIX Corps held high ground dominating the river valley from Fort Eben Emael to Liege. Enemy pressure was lighter on the right front than on the left flank. All of these factors favored a crossing through the right sector but the problem of protecting the left flank caused much concern. VII Corps on the right captured a bridge in Liege not completely demolished and soon had a crossing. XIX Corps promptly secured permission to send their Cavalry over the VII Corps bridge at Liege with orders to turn north and clear a bridgehead at Hermallesous-Argenteau for a XIX Corps crossing. The Corps Cavalry moved off, the 30th Division made their plans and the 1115th Engineer (C) Group moved in to bridge the Albert Canal (1) and the Meuse River (2) near Hermalle-sous-Argenteau. Meanwhile some of the Corps troops and the remainder of the 2nd Armored Division had received gasoline far in rear and commenced to close up. The crossing at Hermalle-sous-Argenteau proceeded smoothly as planned.

Simultaneously with the decision to cross the 30th Division it was decided to prepare a crossing at Canne (5) for the 2nd Armored Division when it should arrive in order that it could clear the island (as this area between the canal and the river in the immediate front was called), cross the Maas River at Maastricht and continue the advance. It might at first appear that the role of these two divisions was reversed but it must be remembered that the armor was lacking gasoline when the crossing started and in the meantime the 30th Division was moving, bridges were being built and the task force continued to hold the left flank.

In describing this operation it is necessary to describe successively details which were actually going on simultaneously. The Canal crossing at Canne (5) was far more complicated than the crossing at Hermalle-sous-Argenteau. Opposite Fort Eben Emael vertical cliffs rose sharply from a point at the junction of the Albert and Willems Canals. As a direct assault crossing at Canne proved impossible, due to the dominating high ground held by the enemy, it was decided to attempt to cross a party to the east of Fort Eben Emael, seize the lock gates at the head of the Willems Canal, (3) scale the cliffs and work to the north west along the Canal until the Canne crossing site was cleared. This was clearly a most hazardous mission. By the time this operation got under way the overextended 30th Division was thoroughly involved at Hermalle-sous-Argenteau. A special task force was created to carry out the Canne-Eben Emael crossing. This task force was placed under the command of the 1115th Engineer (C) Group commander, Colonel William R. Shuler, and consisted of three Engineer (C) Battalions with bridge companies and one Infantry Battalion of the 30th Division and one Artillery Battalion (both attached). Unusual, here, was the attaching of other combat units to Engineer Command for an assault crossing.

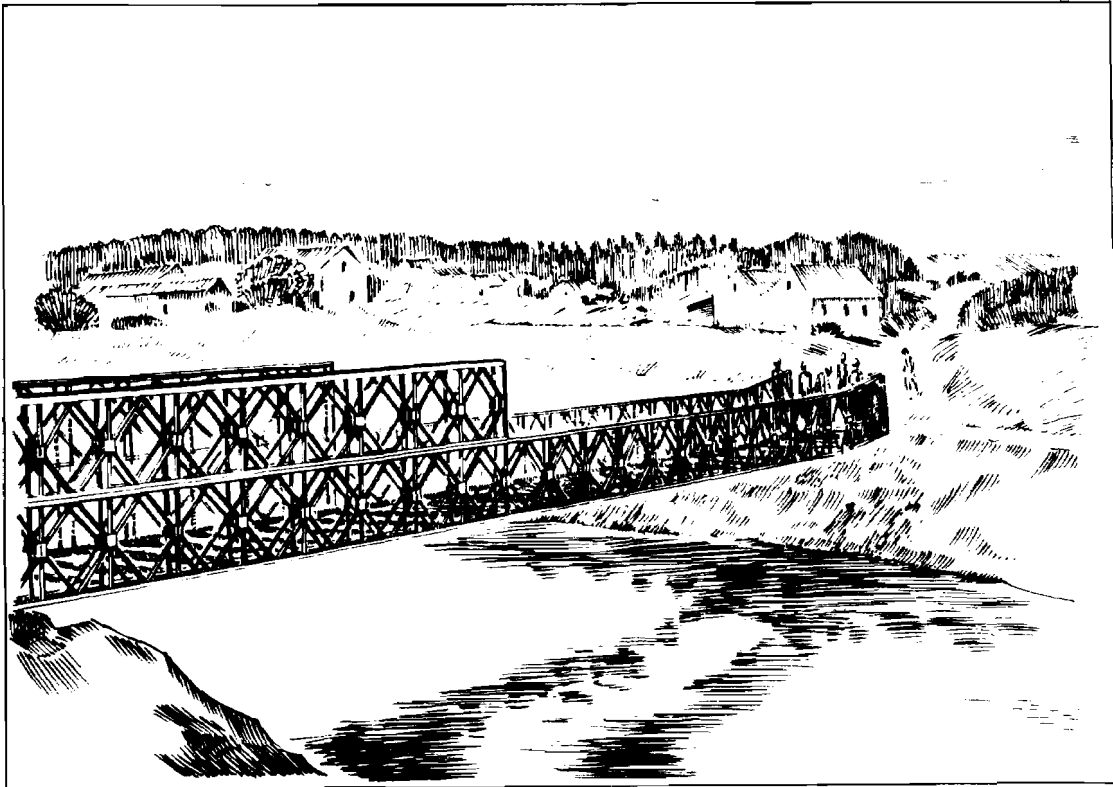
Success in this enterprise was achieved through a combination of daring, good fortune and aggressiveness surprising to the German defenders. An infantry patrol less than a platoon in size, crossed the Albert Canal east of Fort Eben Emael in assault boats without opposition and reached the locks at the head of the Willems Canal unseen. (3) They had just set up their machine guns when some thirty Germans came boldly down the road from the north. This narrow road was closely flanked by cliffs on the left and the canal on the right. There was



no chance for the German troops. They were annihilated. Judging by equipment carried, this was evidently a demolition party sent to demolish the locks. Had the American platoon been five minutes later the story would have been reversed.

Although it appears impossible on the map, and seemed more so on the ground, these men did scale the cliffs opposite Fort Eben Emael and a toe hold was established across the canal. Our troops in the Fort gave support by firing across the canal. More troops followed and pushed to the north eventually clearing a bridge head at Canne. The first phase of this crossing was achieved.

Unexpected good luck so far was now counteracted viciously by bad luck in the next phase. Due to the steep canal banks it was decided to construct a Bailey bridge at Canne, a 140 foot double double bridge. Although casualties were taken on the job construction moved along rapidly until the launching nose was firmly on the far bank. Then the bridge suddenly collapsed. Later detailed inspection revealed that the cause was due to a faulty steel section in the launching nose previously damaged by shell fire. The bridge was constructed precisely according to the book, it was the only one know to fail in the entire campaign, no one was to blame, but the hard facts remained; the bridge had failed and the Engineers were on the spot. This sudden unexpected problem had to be solved at once. The road approached the canal on a fill and no other site for a Bailey bridge was possible. The entire bridge had to be removed, a much harder job than the original erection, and rebuilt on the same site. The Corps Engineer's decisions on the spot were two. First, to start immediately to remove and then rebuild the Bailey bridge. This bridge would be required eventually and if no more rapid solution developed at least something was progressing toward a solution. News of the Bailey failure spread throughout the Corps. The safety of all bridges was suddenly questioned. To meet this situation it was decided to anchor a nearby Dutch barge in mid-stream under the bridge and crib up to within four inches of the Bailey truss to make the bridge look very safe. But to go back, the second decision of the Corps Engineer was to start at once a treadway bridge nearby at a rather poor site. At the moment this looked impossible due to lack of treadway bridge material but it was started nevertheless. Bulldozers were started on approach work and messages were sent to Hermalle-sous-



No 2

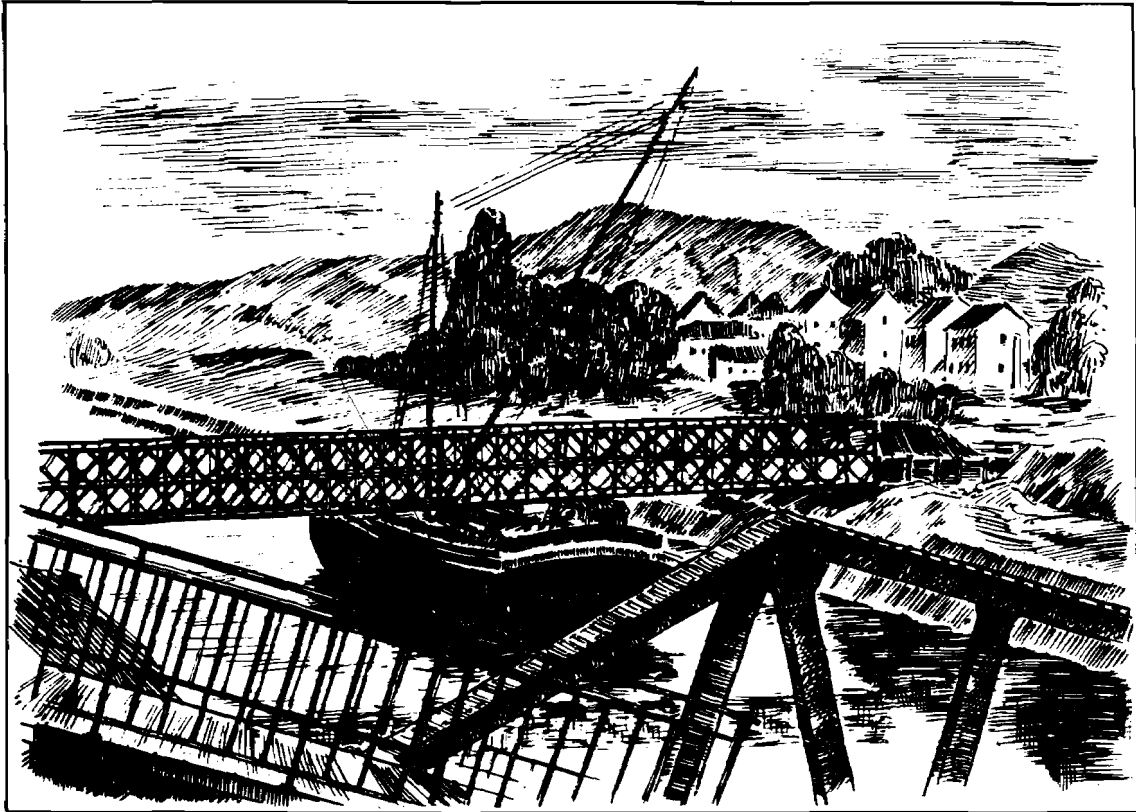
First Bailey Bridge at Canne was a 140 foot double double Bailey bridge (site 5 of map), shown here during launching. Failure occurred due to buckling of third section of the launching arm after contact with far abutment and load came on this member. Direct cause was faulty section damaged by shell fire.

After collapse this bridge had to be entirely removed and rebuilt at the same site as shown in drawing No 3.

Argenteau for every available bit of bridge material. Due to favorable conditions there the bridge reserve was out to zero and all available bridge material was sent - but it lacked two sections of being enough - and hence there was no bridge. But many things were happening concurrently. Let us leave this situation for a moment and check in at Corps headquarters as of a time prior to the failure of the Bailey bridge.

Information at that moment was that the crossing of the 30th Division was proceeding splendidly. Advance elements of the cavalry and the 30th Division were across and advancing. The Division was starting to swing east to take the high ground east of the River. Just how far they had advanced at the moment was not known. Enemy resistance continued on the "island" between Canne and Maastricht. The corps commander desired to push the 2nd Armored Division, now coming up and supplied with gasoline, straight ahead through Canne and Maastricht. The 1104th Engineer (C) Group, under Colonel Hugh W. Colton, had been relieved from defensive positions on the left flank and front and was ready to move. The Corps Engineer faced the problem of two bridges for the 2nd Armored Division, the one at Canne (5) was under way but the site at Maastricht was still held by the enemy as far as was known at the moment. He decided as follows: To start the 1104th Engineer (C) Group forward echelon at once for Maastricht by way of the Hermalle-sous-Argenteau bridges (1) and (2) with both a treadway bridge and a heavy pontoon bridge and sufficient Engineer troops for local protection and bridge erection. Due to the great uncertainties ahead this was a risky decision but the desire to continue the impetus of the pursuit was compelling. The decision to send two bridges, the treadway actually about one hour after the heavy pontoon, might be questioned. However, at the moment there was a strong possibility of sending some armor across the Albert Canal well in the rear at Hasselt, where a bridge had been built previously then east across the Vaart Canal near Hochterveld and on to Maastricht and it was desired to have bridging available to come in from Maastricht to bridge the Vaart Canal. Enemy resistance on the left and other conditions later made this impossible but at the time of the decision this possibility remained.

The Corps Engineer, the Group Commander and advance party started off at once followed by Engineer troops and the bridge trains. The advance party reached Maas-



No 3

"Psychological" Bridge at Canne, reconstructed, a double double Bailey bridge, 140 feet long, built by the 82d Engr (C) Bn of 1115th Engr (C) Group.

In the foreground is the original civilian bridge demolished by the German Army.

This Bailey bridge was rebuilt exactly the same as that shown in drawing No 2 except that barge was inserted for the appearance of safety.

tricht safely although no infantry or cavalry were seen for the last mile. Fighting was going on in the hills east of the river road. As soon as the Engineer troops arrived they were sent out for local protection. A heavy ponton bridge site was selected at the south edge of town by the time the bridge arrived and construction immediately started. Fighting was still in progress on the "island" between Maastricht and Canne. It was decided on the spot to commit the treadway bridge also to the Maas River near the north edge of town. It now appeared that it would take considerable time to clear the north of the "island" which was necessary in order to make a crossing of the Vaart Canal feasible. Nothing was known of the roads across the "island".

As soon as the first bridge was started the Corps Engineer returned by way of Hermalle-sous-Argenteau to the bridge site at Canne only to learn that that bridge had failed a few moments before his arrival. His decisions at that time have been given previously.

The spot the Corps Engineer was in is now more apparent. After recalling from Hermalle-sous-Argenteau all reserve bridge he was still short two sections and all bridge equipment was committed; just one crossing ahead of the present emergency. No help from the rear was possible. To return the long way around, get the necessary bridge material from Maastricht and bring it all the way back took far too much time. The reconstructed Bailey bridge was still hours from completion. Again, what to do?

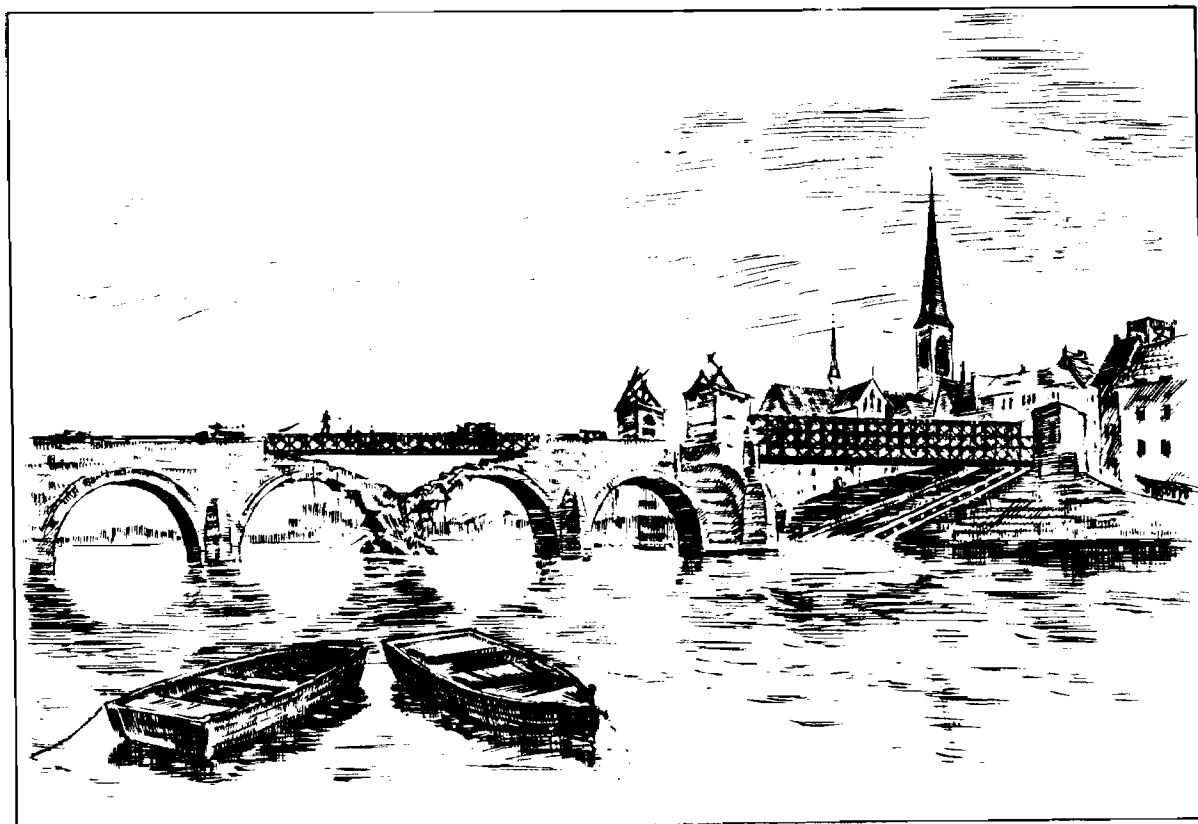
What was done was to ferry a jeep across the canal so that the Corps Engineer could drive direct to Maastricht. It was only  $2\frac{1}{2}$  miles but was the road open? No one knew. It was gratifying to find the road clear but not entirely comforting to learn that ten minutes sooner would have been too soon. No American (or German) soldiers were seen between the canal and the river although considerable firing was heard close by to the west and German artillery was landing in Maastricht.

Fortunately the heavy pontoon bridge (6) was practically completed and in a few minutes the necessary treadway was secured from the other site (7) which followed the Corps Engineer back to Canne.

That completed the problems for the day. The treadway was completed within a few minutes and the waiting Armor rolled on into the Netherlands at Canne and on through Maastricht. The reconstructed Bailey bridge was soon completed, exactly as before except that the large barge floated underneath. The cribbing on the barge never touched the bridge but it looked so safe no questions were ever asked and confidence in Bailey bridges was restored. The Engineers called this their 'psychological' bridge. The Armor now had two open roads across the "island"

There remained just one Engineer job to do in Maastricht, a large Bailey Bridge for more permanent use. The one erected consisted of one triple triple 190 foot span, two 110 foot triple single spans and one 40 foot single span. (9) This bridge remained in use for months as did the 'psychological' bridge at Canne.

The Corps was now entirely through Belgium and the momentum carried on across the tip of the Netherlands until solid German resistance was met just within Germany at the Siegfried line. The dash had been almost uninterrupted from the Normandy bocage to Germany except for a few days delay at the Seine River. The XIX Corps Engineers will long remember their experiences around Fort Eben Emael.



No 4

The Maastricht Bridge.

The original bridge over the Maas River at Maastricht in the Netherlands was demolished by the retreating German Army.

It was placed in use again by the erection of several Bailey bridges. The largest span, on the right, was a 190 foot triple triple span. The second span shown was a 110 foot triple single span.

This sketch shows only about half of the bridge. To the left of the part shown was placed a second 110 foot triple single span and still farther to the left was one 40 foot single single span.

These Bailey bridges were built by the 247th Engr C Bn of the 1104th Engr C Group.