

## **Chapter 9**

# **Artillery in the Assault on the Beaches**

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Self-Propelled Artillery in the Assault on the Beaches  
(Report No.1)

Employment of Royal Marine Artillery in Operation NEPTUNE  
(Report No.2)



# **Self-Propelled Artillery in the Assault on the Beaches - 3rd Canadian Infantry Division Sector**

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## **Operation NEPTUNE**

### **CONCLUSIONS**

1. The SP Artillery on the 3 Cdn Inf Div sector followed the procedure laid down in their "The Use of SP Artillery in Support of a Beach Assault." The drill was found to be satisfactory and no amendments are considered warranted.

2. In general regimental fire fell in an area 400 to 700 yds wide and 400 to 600 yds deep measured from the forward line of enemy defences.

3. The maximum crater density in every case was plus of the target from 100 to 200 yds, and within 200 yds of being correct for line.

4. Correction of the fall of shot was apparently carried out by observing the effect on buildings in rear of the defences. These were extensively damaged, showing shell holes through the walls above the first floor and through the roofs in many cases.

5. No serious damage was done to any of the defences by SP artillery fire. Communication trenches were collapsed in several cases but this did not affect enemy fire power.

6. The degree of neutralisation achieved was extremely difficult to assess. In general, German defences were constructed to provide a relatively narrow arc of fire, mutually supporting between strong points, along the beach. Very few weapons were capable of firing directly seaward. It is therefore not clear whether fire was held due to neutralisation or because weapons would not bear. In no case was there evidence that fragments from SP artillery shells had penetrated the defences through the embrasures.

7. Mortar emplacements were of concrete and built flush with the ground with a minimum sized aperture through which the weapon was fired. To achieve neutralisation it was therefore necessary for fragments to strike down through the opening with lethal effect or to depend on a direct hit. There was no evidence that either of these possibilities had occurred.

8. The German troops opposing the landing were members of 716 Div, consisting of category and over and under age troops with a foreign element of 15% to 20%, and with NCOs from other theatres sent

to Normandy for rest. As a consequence a greater degree of neutralisation may have been achieved than would have been the case had more resolute troops manned the defences.

9. It is safe to say that a degree of neutralisation was achieved, as there were several instances of weapons which had ample ammunition and had not been fired. No individual element of the fire plan can be said to have had a material effect, but the SP artillery in contributing to the cumulative effort which did produce a degree of neutralisation, performed a most useful role.

## GENERAL

Information has been gathered from the source indicated as to the effect of SP Artillery in the assault during Operation NEPTUNE. This investigation has been confined to 3 Cdn Inf Div Sector as being representative of the SP operation. The target areas were visited and the effects of the fire assessed. Owing to the elapsed time, the type of fire, the nature of the target area, and the fact that certain sections of it had not been cleared of mines when the examination was made, it was difficult to fix the Mean Point of Impact and to determine accurately the fall of shot in each case. However, it is felt that the views expressed are approximately correct and a sufficiently firm basis for appraising the effect of SP fire in an assault of this nature. Certain opinions are included, representing the views of the officers quoted only, which may be of interest in future planning.

The drill employed was that developed by the 3 Cdn Inf Div and opinion was unanimous that this was sound and would be difficult to improve.

For Regiments in this area the OO called for ranging to commence at 10,000 yds approx. H-35, and fire for effect at 9,000 yds approx H-30, continuing to the touchdown of LCA at H+5 or when within 1,500 yds of the beach, whichever was the earlier.

## Description of the Assault and Its Effect by SP Artillery Regiments

The following section describes the individual procedure followed by SP Artillery Regiments in the assault as obtained from the officer indicated, together with an appraisal of the result achieved as disclosed by a study of the regimental assault area.

### 12 Fd SP Regiment, RCA

Beach:	MIKE RED
Sector:	7 Cdn Inf Bde
Centre of Target:	965858
Nature of Target:	4 x 75 mm guns

FCO - Major BAIRD, 2 i/c 12 Fd SP Regt. RCA

1. Ranging was commenced at H-35 and 10,600 yds. The Mean Point of Impact was reported on the target by the FOO and fire for effect was opened at H-32 at 9600 yds, and continued with one correction of 2° to 1500 yds at H+7, when ammunition was expended. Approximately 100 rpg were fired from 24 guns. Craft then circled out. The shoot was considered to be the best ever conducted by the regiment in this type of operation. One German 75mm gun and MGs on left flank were considered silenced. The rounds fell in an area estimated to be 400-600 yds wide and 600 yds in depth.
2. Seasickness was experienced by 10% of personnel but had no effect on servicing the guns.

3. Regimental salvo ranging would have been of value in distinguishing artillery fire from other bombardment.
4. Coloured smoke would have been of value in separating fire of adjacent regiments.
5. The FOO party should not have been placed in the bow of LCA. Two FOO parties were lost through LCAs hitting mines.
6. There was no close support bombing from H-30 to H-15.
7. Rockets were late and fired to the left of the target. Rockets should have been ahead of SP artillery, under control of and deployed by SNO in ML to afford maximum value.
8. The hedgerows were not observed in action but they passed SP artillery around H-15 in some confusion.
9. There was not sufficient liaison between the flails and SP artillery.
10. The urgency of getting SP artillery ashore and into action was not sufficiently appreciated. All guns were not ashore until H+7 hours.
11. Communications were extremely good and no breakdown occurred.
12. Infantry casualties would have been greatly reduced had other supporting weapons been able to conform to the timings of the fire plan.
13. The operation was sound in plan but owing to the weather, DD Sherman tanks, rockets, AVREs, and Marine Artillery were late.

#### Effect of fire from ground study

1. It was particularly difficult to assess the fall of shot in this area as the terrain is sand with few buildings and the entire area is occupied by bivouacked troops who have obliterated all evidence of shell craters. Further, certain areas had not been cleared of mines and could only be examined with binoculars.
2. All buildings in the area show the effect of shell fire with large holes in the outer walls and internal walls and flooring had collapsed.
3. No damage was done to any of the concrete defensive positions, although communication trenches had been collapsed in some places from shell fire. There was evidence of SP fire having struck the masonry sea wall in several places.
4. The maximum crater density is estimated to have been approximately 200 yds plus of the target and 100 yds to 200 yds east for line. The area in which rounds fell was estimated be 500 yds wide and 400 yds deep measured from the line of defences. It was impossible to appraise rounds landing on the beach owing to the elapsed time.
5. The claim of the FCO that MGs and a 75mm gun were silenced appears optimistic although the crews may have been neutralised, but this appeared unlikely.

#### 13 Fd SP Regt. RCA

Beach: NAN GREEN  
Sector: 7 Cdn Inf Bde  
Centre of Target: 972856  
Nature of Target: Strong Point 972857  
4 x 75mm guns.  
FOO - Major GOLDIE, 2 i/c 13 Fd SP Regt. RCA  
Bn HQ - Lt.-Col. WEBB, CO 13 Fd SP Regt. RCA

1. Fire was opened with troop smoke salvos at 9700, 10,000, 10,300, and 10,600 yds. Rounds at 10,000 yds landed on shore at H-35. Approximately 100 rpg were fired from 24 guns until within 1800 yds of the beach, when the Navy stopped fire in order to circle out. The Mean Point of Impact was considered to be a little plus of the target. The shoot was considered to be the best ever conducted by the Regiment. A 75 mm gun was claimed to have been put out of action.
2. The sea was rougher than had ever been experienced and seasickness was a considerable factor, rendering the briefing of personnel extremely difficult.
3. There was no apparent aerial bombardment although visibility was bad and bombs may have landed inland.
4. Rockets were late but fired landing well inland.
5. The hedgerows worked well but the effect on targets could not be seen.
6. The infantry behind time and were approximately 1,000 yds from the shore when firing stopped.
7. Communications worked well and no breakdown was experienced.
8. Infantry casualties would have been greatly reduced if the Infantry had touched down on time and DD tanks, Air Force, Rockets, AVREs, and Marine Artillery had arrived as scheduled.
9. Guns landed at H+75 and went into action on the beach firing link shoots on call for FOOs.
10. The planning and conduct of the operation was considered excellent.

#### Effect of fire from ground study

1. Approximately 90% of the buildings were destroyed along the sea wall and to a depth of 200 yds and the remainder of the town was severely damaged to a depth of 600 yds and with 30 to 40% of the buildings affected. The buildings were of brick and masonry construction with tile or slate roof. The outer bearing walls were from 18" to 24" thick offering little resistance to shell fire. The inner curtain walls were of lath and plaster with negligible resistance to shell and SA fire. In most cases the inner fabric of the building had collapsed in whole or in part. The destruction was such that snipers would have been forced to evacuate buildings during the bombardment although the ruins would subsequently offer some cover and protection. There was no evidence of concrete reinforcement of the buildings.
2. The adjustment of Mean Point of Impact was evidently carried out by observing the effect of shot on buildings. Numerous instances of buildings being hit by SP fire high up and on the roofs were noted. The maximum crater density was estimated to have been approximately 200 yds plus of the target and correct for line. The area in which rounds fell was estimated to be 500 yds wide and 600 yds deep measured from the line of defences. It was impossible to appraise rounds landing on the beach owing to the elapsed time.
3. No damage was done to any of the concrete fortifications or communication trenches and there is no evidence of the SP artillery having caused any casualties, although some degree of neutralisation was undoubtedly achieved and snipers positions in buildings were rendered untenable. The gun claimed as put out of action was apparently damaged by a DD tank, since the shell in question was of AP type fired from the shore.

## 14 Fd SP Regt. RCA

Beach: NAN WHITE  
Sector: 8 Cdn Inf Bde  
Centre of Target: 997855  
Nature of Target: Strong Point 997855.  
FCO - Major DOGOOD, 14 SP Fd Regiment RCA  
Acting CO - Major YOUNG, 14 SP Fd Regiment RCA

1. Ranging was begun at 10,000 yds and H-40 and was directed at the junction of sea wall and beach. Two salvos were observed as minus and the third as plus. Fire for effect was begun at H-35. The tide carried craft to the left requiring a change of course. Approximately 80 rpg were fired from 24 guns, and fire was stopped 4000 yds from the beach due to notification of a postponement of H hour not being received. When it was received, craft had started to circle out and it was too late to reform. The Mean Point of Impact was estimated by Major DOGOOD to be 100 to 200 yds to the left and just plus, the rounds falling in an area 400 to 600 yds wide by 400 yds deep.
2. The beach depth was only 100 yds instead of 300 and fire could not have been continued to touchdown of infantry without inflicting casualties on our own troops.
3. The Air Force did no bombing.
4. Communications on the whole were good. A breakdown did occur between two 68-R sets and messages had to be passed through a troop. Fire could have been maintained longer as the acting CO of the SP Regt. was the Battalion Commander and could have adjusted the timings. An extra 509 set or 19 set, as mounted in ML, would have been of value in order to reach FCO.
5. Experience showed that two FOOs were definitely required.
6. The taut wire device for measuring progress of LCTs performed excellently.
7. The drill was soundly founded and could not be improved.

### Effect of fire from ground study

1. The buildings in BERNIERES-SUR-MER are similar to those at COURSEULLES-SUR-MER, although more widely dispersed in the immediate coast area. Approximately 90% were destroyed in the first rows of buildings and the remainder of the town was severely damaged, with 30 to 40% of the buildings hit to a depth of 400 yds.
2. There was no evidence of concrete reinforcements of the buildings.
3. The maximum crater density was apparently east of the target and 100 yds plus. The area in which rounds fell was estimated to be 700 yds wide and 500 yds deep measured from the forward line of defences. It was impossible to appraise rounds landing on the beach owing to the elapsed time.
4. No damage was done to any of the defensive positions or communication trenches as the fire landed well plus and its effect in the defence area was not great.

19 Fd SP Regt. RCA

Beach: NAN RED  
Sector: 8 Cdn Inf Bde  
Centre of Target: 014850  
Nature of Target: 1 x 75 mm at 014852  
1 x 75 mm at 015845  
Strong point at 014851

FCO - Major PEENE, 2 i/c 19 Fd SP Regt. RCA

1. Fire was opened at H-35 at 1000 yds east of target due to the course being set on steeple of church in LANGRUNE. Approximately 30 rpg were fired, rounds falling in the area 022547 and starting three fires. The course was altered and, after dropping range twice by 400 yds, fire was reported on the target by the FOO. Approximately 100 rpg were fired from 24 guns and fire was stopped at 2500 yds on orders reputedly from the FOO. The FOO did not send this order but fire would in any case have had to cease due to congestion on the beach. The MPI was estimated to be 200 yds plus of the target and rounds fell in an area approximately 600 yds wide by 300 to 400 yds deep.
2. The artillery bombardment went according to plan.
3. The Navy landed SPs 300 to 400 yds east of scheduled position, which made it difficult to get off the small beach. Severe mortar fire put three guns out of action.
4. Communications by 509 set from ML to FOO were good. Control to guns by 68R failed but this was replaced by a spare 68R set without interruption to communications.
5. Artillery could have debarked at H+120 as no fire was called for by FOOs for three hours.
6. The area was considered effectively neutralised.

FOO - Major STRONACH, 19 Fd SP Regt. RCA.

1. The FOO was in agreement with the FCO.
2. The procedure laid down by 3 Cdn Inf Div was followed exactly except that the spare FOO was given a 509 set.
3. No casualties were caused to the enemy but some neutralisation was achieved.
4. Practically the only fire received by the town was from SP artillery.
5. Two thirds of the Air Force bombs landed in the sea. One third was well concentrated on the target area.
6. The rocket craft fired, rockets landing 500 yds west of the target area.

Effect of fire from ground study

1. The buildings in ST. AUBIN are similar to those in COURSEULLES although more compactly built along the sea wall. Approximately 90% of the buildings in the front row were destroyed and the remainder of the town was heavily damaged with 30 to 40% of the buildings affected.
2. The maximum crater density was again plus of the target an estimated 200 yds. Rounds fell over an extremely large area approximately 700 yds wide and 300 yds deep measured from the forward line of defences. Fire had apparently been corrected by the effect on buildings.



3. There was no evidence of concrete reinforcement in any of the buildings although in two places sandbags had been placed inside buildings to give protection for snipers. Slots for snipers had also been cut beneath window boxes at floor level on the first floor so as to conform with the general appearance of the buildings. These buildings had all been destroyed apparently by SP fire.
4. No damage was done to any of the defensive system. The fire in general landed well plus and its maximum effect was not developed in the defence area.

## Discussion of Observations

1. In general the Germans depended on massive reinforced concrete fortifications connected by communication trench systems with elaborate living quarters. Concrete varied in thickness from 3 to 7 ft, was of good quality, amply reinforced, with a low silhouette and camouflaged to conform with the general character of the locality. Coast defence systems were not in depth but were rather a fringe along the sea wall.

Communication trenches were unlined and at least 6 feet deep with occasional concrete bays roofed with a 9-inch concrete slab. Gun and MG positions were mutually supporting with comparatively narrow areas of fire, sited to bring fire on the beach. Relatively few guns were capable of firing directly seaward because of massive concrete protection against frontal fire. Weapon slits were of minimum size.

Mortar emplacements were also heavily constructed of concrete with the mortar, magazine and living quarters an integral unit. The aperture through which the weapon fired was 3 to 5 feet in diameter and flush with the ground.

There was no evidence of any of the hastily constructed defences having been used. In many cases they were overgrown with vegetation suggesting that they had not been occupied for some time.

The problem of neutralisation of these types of defences by orthodox methods is extremely difficult because in the case of guns and MGs the embrasures are to the side or rear with a heavy buttress to the sea immune to direct hits and fragments.

Defending personnel are therefore vulnerable only to those rounds which fall to one side of the position and slightly short for range, because of the pattern of fragments from a bursting shell. The fact that guns were not distributed in depth made the required zone for lethality very narrow and required the Mean Point of Impact to be definitely on the defences to obtain any substantial degree of neutralisation against resolute troops. The likelihood of seriously affecting crews or weapons in mortar positions depended on fragments falling with lethal effect through the weapon apertures or on a direct hit through the apertures or on a direct hit through the aperture. The chance was therefore small.

In no case were the defences apparently affected by SP fire. Naval fire was also ineffective and in only one or two cases were positions seriously damaged.

The defences were overcome by DD tanks, engineer, and infantry assault. The degree of neutralisation actually achieved is difficult to assess because of the method of siting guns to enfilade the beach area only. As few guns could fire to seaward, it is difficult to say whether the delay of the enemy in opening fire was due to neutralisation or to the fact that guns would not bear. In any event the defences were substantially intact when the infantry touched down and the enemy were able to deliver lethal fire in great quantity against our troops.

While it is apparently possible to say in this Sector that aerial bombing was ineffective, that Naval bombardment achieved little success, that rockets and SP artillery landed plus of the target, it is certain that considerable effect was achieved and it is difficult to say if any of the programme could be eliminated.

2. The enemy troops occupying these defences were members of the 716 Div which is understood to have been largely composed of category troops with a large foreign element of up to 15 to 20%. The NCOs were understood to have been veterans from other theatres sent to this sector for rest. Several instances of officers fleeing in civilian clothes are reported. Weapons were discovered with plentiful stocks of ammunition which had not been fired. Other weapons had put up only token resistance. However, many of the positions had been defended to the last.

From these reported facts it would appear that morale was bad. It is felt that the lavishness of the defences and living quarters generally could not have failed to engender to some extent a Maginot line complex because of the apparent immunity from successful attack.

Apparently the Germans expected a prolonged bombardment for several days during which the massive fortifications could have been justified and then an assault, by which time reinforcements would have been available to meet it.

The degree to which SP fire neutralised snipers in buildings is unknown. If snipers were in the buildings during the bombardment undoubtedly a number were forced to retire. It is probable that snipers did not exist in numbers until street fighting started and very few of the buildings appeared to have been used, although two or three had sandbag reinforcements to provide additional safety.

# **Employment of Royal Marine Artillery During Operation NEPTUNE**

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The R.M. Artillery were allocated as follows:

- One regiment of 8 tps to 3 Cdn Div.
- One regiment of 8 tps to 50 Div.
- One independent bty of 4 tps to 3 Br Div.

In general, the role assigned was to provide:

1. Direct fire on the beaches during the run in.
2. Close support fire for the infantry while the SP artillery were being disembarked.
3. Indirect fire from the beaches as called for by FOOs.
4. Thickening up of artillery fire under command of field regiments to which Marine regiments were allocated.

The following is the role actually performed in the operations as obtained from the sources indicated, together with certain opinions deemed of value.

**RM Artillery Regt. in support of 3 Cdn Inf Div.**

CO RMA Regt. - Lt.-Col. JOHNSTON.

26 Centaur and 7 Sherman tanks were landed on D-day, one troop at H+10 mins and the remainder at H+120 mins.

4 Centaur and 1 Sherman tanks were landed during D+1 day.

2 Centaurs returned to UK.

**Direct Fire on the Beaches During the Run-in**

No direct fire was employed during the run-in on orders of GOC 3 Cdn Inf Div, owing to obscurity of targets and to lateness of arrival.

**Close Support Fire for Infantry while SP Artillery were being Disembarked**

Very useful close support was given and the guns were used extensively in eliminating snipers and strong points.

### Indirect fire from beaches

No indirect fire was provided from the beaches owing to:

- a) the lateness of arrival.
- b) casualties to FOOs.
- c) one troop being beached in very deep water when SPs were arriving, requiring the rapid clearance of the beach.

### Initial Period Under Command

On the evening of D-day, three troops were placed under command 4 SS Bde, 47 RM Cdo, and performed very valuable services for the Commandos in street fighting, destroying enemy strong points at point blank range and leading commandos down uncleared streets using Besas.

Remaining troops moved forward under the command of RCA regiments, two troops per regiment. Owing to the fluidity of the Canadian front and the fact that FOOs were pre-occupied with SP guns, the Marine artillery was not employed until D+3, when they assumed their normal role in close support of the infantry.

On D+4 three troops in support of 46 RM Commando performed an independent operation providing concentrations on ROSEL and ROTS for 7 minutes. Subsequently, three troops were again used on ROTS when a heavy and very useful concentration was laid down.

### BM RCA, 3 Cdn Div

Marine artillery performed according to plan but, owing to lateness of arrival of the bulk of the guns, were unable to provide maximum effect. A very useful role was performed at ST AUBIN-SUR-MER in clearing out the garrison.

### RM Artillery Regt in support 50 Inf Div

CO RMA Regt. - Lt.-Col. BESSETT.

Of sixteen LCTA, three beached on time, one on 69 Bde sector and two on 231 Bde sector. Between D and D+2 four LTA arrived which had been delayed by heavy weather. Four LCTA returned to UK and the fate of five other LCTAs is as yet unknown. In addition to the severe weather the convoy speed was apparently excessive from the departure.

### Direct fire on Beaches during Run-in

No targets were engaged on run-in, on either brigade sector.

### Close support fire for infantry while SP artillery were being disembarked

At H+6, three LCTAs were ashore carrying six Centaurs and one Sherman, but two mechanical breakdowns occurred due to clutch and track failure. The Sherman was hit and burnt out on the beach. Besa and 95 mm fire was directed against targets of opportunity but, owing to the small number of the Centaurs available, the effect was small.

### Indirect Fire from the Beaches

No indirect fire was provided from the beaches as no Sherman command tanks were available for communications.

#### Initial period under command

At H+7 three Centaurs under command 147 Fd Regt fired 33 rpg supporting the attack of 47 RM Commando on the LONGUES battery, providing useful neutralising fire. They then proceeded to LA ROSIERE in the evening but were forced to return to DUBOT owing to enemy action. On D+1 they returned to LA ROSIERE and took up anti-tank positions, but did not see action in this capacity. Approximately 10 rpg were fired against a gun on the cliff in the area of square 7887 providing adequate neutralisation for the infantry.

Five Centaurs on the left flank went under command of 86 Fd Regt instead of 147 Fd Regt and were able, with the subsequent arrival of LCTAs, to form two complete troops by the evening of D+1. The first shoot for these tanks, apart from using Besas against MGs and snipers in the area of 86 Fd RHQ on D day, was on D+4 as part of the regimental fire plan on AUDRIEU.

Following this, they were employed to thicken up artillery in front of field regiments.

It was felt that, had 32 tanks been landed with the FOOs available, a vital role could have been performed in assisting the infantry at LE HAMEL, which held out for the whole of D-day, and in coping with the numerous infantry and MG nests as well as two 88 mm guns on the NIEUVAINNE RIDGE, which were available targets. Great assistance could have been provided 47 Rm Cdo in operations against PORT-EN-BESSIN, had the necessary force been available. Very close artillery support was required and this could have been most effectively supplied by the Marine artillery.

#### Marine Artillery Ind. Bty in support of 3 Br Inf Div

Tp Offr - Ind Bty.

At H hour, eight Centaurs and two Shermans were landed on RED beach, but four of them were drowned, and four Centaurs landed on WHITE beach half an hour late without difficulty. One LCTA returned to the UK and one LCTA arrived at D+1.

#### Direct Fire on Beaches during Run-in

All craft fired on the run-in. Visibility was very bad on WHITE beach, but the beach was sprayed with Besas and a house occupied by snipers was set on fire.

#### Close support fire for infantry while SP artillery were being disembarked

On RED beach the infantry were hard pressed and suffering heavy casualties and Centaur fire was considered of great value. On WHITE beach there was very little to do as there were no emplacements to cope with. Some shelling was done against buildings occupied by enemy snipers.

#### Indirect fire from the Beaches

No indirect fire was provided from the beaches because of casualties to FOOs and Centaurs.

#### Initial period under command

BM RA, 3 Br Div.

Five Centaurs and two Shermans were placed under command 33 Fd Regt in a counter mortar role but were withdrawn to 4 SS Bde before employment.

2 I/C 33 Fd Regt.

Marine artillery came under command at H+4 and went into action NE of HERMANVILLE. They were moved into the regimental area at H+12 and placed on regimental grid and frequency and fired two or three shoots on D-day. The only role performed was in thickening fire on LEON SUR MER, where they were extremely useful. They remained in reserve until D+3 when they were withdrawn. More use could have been made of the Marine artillery by allocating some strong point or village as their responsibility instead of leaving them in reserve.

CRA, RMA

Brig. SAUNDERS.

The role of the Marine artillery was seriously affected by the Navy's failure to land the LCTAs at the right time and place.

The bad weather caused disproportionate casualties, forcing a large number of craft to turn back to the UK, causing others to founder and seriously interfering with the timing so that a large percentage arrived late and were unable to fulfil their role as defined.

If there had been a high degree of resistance on the beaches, their use in the original role planned would have been extremely valuable. As there was not the resistance on the beaches that had been anticipated, they were used against targets of opportunity where 25 pdrs and SPs would have been adequate.

In subsequent operations they proved of great value in eliminating snipers and defended posts and as close support artillery.

Deputy CRA, RMA

Col. HARVEY

It is felt that the RMA should have landed their own FOOs at H hour as FOOs of SP regiments were fully occupied with their own units and were consequently unable fully to utilise Marine artillery resources. In addition, in later phases, tanks could have been allocated independently of SP regiments and greater value obtained from available weapons. This policy has subsequently been followed in 6 Airborne Division where three troops are being made up using Marine artillery equipment and available personnel and organised to provide two FOOs and the necessary battery staff. This will permit employment in an independent role under the direction of the CRA.

The present troop composition of one Sherman to four Centaurs appears satisfactory. It is possible that an M-10 chassis with 17-pdr mounted is warranted to obtain improved performance against armour and fixed defences.

In view of the susceptibility of the Centaur in forward areas to anti-tank attack with the need for close infantry support, it would be desirable to have increased range up to the limit of the 95 mm.

A carrier should be provided for each FOO, as at present he must go forward in a Sherman which may not be desirable.

One 15-cwt per troop is required for ammunition, water, and food to avoid administrative difficulties which are unavoidable when dependent on extraneous sources.

If employed in a limited role, provision for first line repairs should be made by the inclusion of a small REME detachment in a 15-cwt for each four troops to diagnose troubles and arrange for their treatment. Fourteen tanks have been abandoned owing to inadequate facilities for their repair and recovery.

# **Addendum**

## **Employment of Marine Artillery During “NEPTUNE” Operations**

### **General**

In the preparation of this report the following considerations governed the method of treatment and limited the amount of detail contained in it.

1. The Royal Marine Artillery was returning to the UK within two days from the time that the study was initiated.
2. Until the time of departure for the UK the RMA were engaged in operations in close support of infantry formations and, owing to casualties sustained in the assault, it was impossible to detach an officer from each Regiment to return to the assault area to reconstruct the action which took place.  
  
Even had this been feasible, it is doubtful if a complete picture could have been obtained without questioning each officer who had participated, a process requiring a period of time much exceeding that available.
3. It was understood that the information was required as quickly as possible by the BGS (SD), 21 Army Group.

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The beaches were visited with the intention of reconstructing as far as possible the effect which the Marine Artillery had achieved. The analysis was extremely difficult and no exact conclusions could be drawn for the following reasons:

1. Fourteen days had elapsed since the assault and much of the evidence had been removed or obliterated. Knocked out Centaur tanks, which would have disclosed targets on which their effect could have been studied, had been removed.
2. Many of the fortifications were in the process of being occupied by our own troops as bivouacs and in the course of this many changes had been made. Damaged enemy weapons had been removed, shelters had been repaired and the scene had changed very considerably. Extensive beach clearing operations had been performed, thus further complicating the task of assessment.
3. The involved nature of the fire plan, in which many different weapons had been employed and which in the target area had produced a similar effect, had created an area of destruction on an extensive scale which made it impossible to differentiate exactly between elements of the fire plan or to isolate the relatively small effect of the Marine Artillery.

In view of the above considerations the report is dependent on the information available from the participants and it is felt that it contains all the conclusions which are warranted.