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(1)

21 A.Gp/15002/WTSFF

SUBJECT: Special Observer Party. Beach Report.

G(SD)
HQ 21 A.Gp.

1. Further to the Report under ref. above dated 19th June 1944, the report on the Beach Assault Fire Plan Results is attached.

2. It represents a detailed study of the actual effects of Naval and Army Fire and R.A.F. bombing on the beaches in the Assault phase of "Overlord". In view of the occupation of the areas concerned by troops, storm damage and weathering it represents all that is likely to be collected in this respect.

It is more particularly concerned with the British Beaches.

3. It is understood that this will provide an aspect of the final report on the whole operation which will eventually be provided by 21 Army Group.

4. I would like to record the enthusiasm and energy put into the project by those responsible, viz :-

Lt.Col. C. Le R. Salter, R.M. of COHQ.
Lieut. Gaskell, R.N.V.R. of COHQ.
Lieut. A.F. Huxley, R.N.V.R. of DGD Admiralty
Major F.W. Anderson, Hamps. of A.E.A.F.
Major J.F. Fairlie, RCA of A.O.R.G.

5. Arising from this report I suggest the following points require further investigation or development before a similar operation is planned.

(a) The application of oblique fire, instead of frontal fire, to emplacements.

(b) The time taken to clear obstacles in more adverse circumstances.

(c) The neutralisation required during the period from the lift of the fire preparation to actual touch down.

(d) The more extensive use of Air Burst H.E. and Nose Inst. bombs.

(e) The conventional signs on maps should indicate the centre of probable arcs of fire of guns and the dissemination of this information should be made as wide as possible.

(f) The framing of Interrogation Questions to P.O.W. to elicit the effects of our fire.

Colonel
DD of A.

No. 20 WTSFF,
Main HQ Second Army,
B.L.A.

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COHQ Special Observer Party.

1. This party, consisting of Lt.Col. C.Salter RN and Lt. T.F. Gaskell, RNVR with 1 SBA was instructed to proceed to France on D + 14 (Tuesday 20 Jun 1944) by .L.S.T. from West India Docks.

2. The broad terms of reference given verbally to the party were to study the effect on the ground of the various support and arty weapons employed in the initial assault in order that deductions could if possible be made as to which weapons were effective against typical German defences found in the area and conclusions reached as to the line along which development should proceed for future amphibious attacks against heavily defended beaches.

3. A Special Observer party consisting of the following representatives had landed on D + 6 with the object of "getting information on any new enemy developments and to assess the effect of our weapons on the enemy during the assault and after".

Col. A.G. Cole	No. 20WTSPP	MCRA 21 Army Gp.
Major M.C. Brownlow,	RE	CE 21 Army Group
Major F.W. Anderson.	Hamps	AEAF
Major J.F. Fairlie.	RCA	CRE
Capt. T.L. Kinton.	RTR	MGRAC
Lt. A.F. Huxley.	RNVR	CASR Admiralty.

4. This party had completed its investigations and with the exception of Major J.F. Fairlie had returned to U.K. to submit a report (21 A Gp/15008/WTSFF dated 19 Jun 44).

5. When arrangements were made with Brig S.D. 21 Army Group (Brig Herbert) and CE to C-in-C 21 Army Group (Brig Schenland) for the special observer party from COHQ to proceed to France it was anticipated that Col. Cole and Lt. Huxley would still be in that country, and instructions were given for the COHQ officers to report to Col. Cole on arrival.

6. Owing to delays due to bad weather and time taken to make necessary passage arrangements, the special observer party had in fact completed its mission and returned to U.K. Furthermore due to weather the sailing of the convoy containing the COHQ party's vehicle was delayed 48 hours. It was therefore arranged that the officers should proceed by despatch boat as soon as the vehicle was loaded in LST 293 in order to make contacts and avoid any further delay. It was fully appreciated that the time lag which had already occurred would inevitably result in much of the evidence on the ground being expunged(?), and all effort was made to begin the investigation as expeditiously as possible.

7. On arrival in France on Thursday 22 Jun the party reported to G(SD), Second Army HQ Main, and were informed that the original S.O.P. had returned to UK leaving Major Fairlie and Lt.Col. Johnson to complete specific tasks on the instructions of Brig. SD 21 Army Gp. Arrangements were made for accommodation to be provided with Second Army HQ Main.

8. After discussion with Lt.Col. Johnson and Major Fairlie it was decided that as the instructions given to the latter were similar to the terms of reference of the COHQ party, though they covered certain beaches only, much assistance would result and time could be saved if the COHQ party joined forces with Major Fairlie and worked as a team. This arrangement was therefore made as far as the specific beaches on which Major Fairlie was working and these were taken as the primary task. Subsequently, the remaining British beaches were covered by the COHQ party.

9. On Tuesday 26 Jun a WT Section under Col. Cole and CRS joined Second Army HQ and it was agreed that the COHQ party would submit any report to Col. Cole for approval before rendering it to G(SD) 21 Army Group.

Arrangements were also made for a signal to be sent to Lt. Huxley informing him that the COHQ observer party were now studying the area in greater detail and anticipated returning to UK on or about 3 Jul to complete their report which would be rendered in conjunction with him. Col. Cole also recommended that no further report should be made until after the return of the COHQ party.

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REPORT ON SPECIAL OBSERVER PARTY INVESTIGATING THE EFFECT OF FIRE PREPARATION IN OPERATION 'NEPTUNE'

Introduction.

1. The investigations were carried out in two stages, initially by a party who landed on D + 6 to conduct a rapid general survey in order to "get information on any enemy developments and to assess the effect of our weapons on the enemy during the assault and after." Subsequently by a further party who made detailed study of the effect of the various support and artillery weapons employed in the initial assault in order that deductions could, if possible, be made as to which weapons were effective against the type of German defences found in the area and conclusions reached as to the line along which development should proceed for future amphibious attacks against heavily defended beaches.

2. In view of the period which elapsed between the assault and the detailed investigation it has been necessary to depend on deduction and reconstruction in appraising the events as they occurred. Evidence was obtained from a number of eye witnesses but the investigation was rendered difficult due to the fact that there had been a severe storm lasting several days, that numerous beach clearing operations had been performed and that many of the fortifications and living quarters had been occupied by our own troops.

Arrangement of report.

3. The report consists of a covering paper containing general remarks on the defensive system, information obtained in the course of the investigation, conclusions reached and recommendations, followed by a series of appendices giving factual data and photographs of the localities visited.

General remarks.

4. The following general remarks appear relevant and are based on the evidence collected in the vicinity of the British beaches.

(a) The German coast defences can be divided into three main categories:-

(i) Beach obstacles such as Element 'C', Tetrahedra, hedgehogs, stakes with teller mines, curved rails, etc.

(ii) Beach defences comprising systems along the coast line, extending to about 100 - 200 yds. in depth and consisting of massive concrete emplacements housing 75 mm. or 88 mm. guns sited to give maximum protection against direct fire from seawards and covering the beaches in enfilade, smaller reinforced concrete gun shelters housing 5 c.m. A/Tk. guns disposed to give arcs of fire and protection in a similar manner and elaborate trench systems connecting underground reinforced concrete living quarters with the Tobruk type Mortar and M.G. post.

(iii) Gun batteries of two classes:-

I. Anti-ship guns in massive reinforced concrete gun houses, observation posts and control positions together with similarly protected gasproof living quarters and ammunition magazines. These batteries, sited with view to seaward, were being made into heavily defended localities by minefields, wire and a local defensive system of trenches, Tobruk type mortar and M.G. positions and in some cases A/Tk. gun emplacements and including Flak defence (order of 3 - 2 cm. guns).

II. Small field guns and howitzers (7.5 cm. and 10 cm.) without special control arrangements and usually without a view to seaward. In some cases, these guns were in massive reinforced concrete casemates; in the others they were in open gun pits.

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(b) In the British area visited the Beach defences were generally completed though work had begun on additional 5 cm. structures. It was noted that at Quineville, north of Utah beaches, the Tobruk type emplacements had been made even less vulnerable by mounting on top 3.7 or 4.7 cm tank turrets from French tanks. This provided an armoured position of small silhouette having a M.G. and cannon.

(c) The coast defences visited in the British area were in no instance complete and the state of progress was difficult to understand and indicated that some disruption of plans had probably taken place, possibly due to our anti-communication bombing. In one case the living quarters, ammunition magazines and control positions were complete and F.C. instruments and ammunition on the site, but gun structures had only just been started and guns had not been supplied. In another, guns and ammunition had been supplied, gun houses completed but control positions and living accommodation had only progressed to a minor extent. All the heavy batteries were in this unfinished condition, though in many casea alternative open gun pits and less robust living structures had been in use previously. Evidence from captured documents indicates that the intention of the German high command who anticipated several waves of heavy bombing of important positions to take place before any attempted landing, was to provide bomb proof structures for the personnel to occupy during such attacks, bomb proof gun houses to prevent damage to the weapons and to issue instructions that the guns would be manned on the conclusion of such attacks.

(d) From detailed observation of the effect of attack by weapons and bombs on the various types of structures it appears that:-

(i) the heavy reinforced concrete emplacements both of the coast defence batteries and those included in the beach defences are practically immune from any existing form of long range attack from air or guns except direct fire through the embrasures or direct hits with battleships' main armament guns. The effect of instantaneous bombs has not yet been assessed. Close range attack from the rear by troops armed with special weapons and charges appears to be a possible method. This sytem of attack by S.S. tps assisted by A.V.R.E.'s was successfully employed against the strong point holding out at Douvres. A 75 mm gun in an emplacement at the East corner of Asnelles was similarly destroyed by the petard of an A.V.R.E. firing in from the rear. The heavy and concentrated bombing to which some of these batteries were subjected might have disrupted internal communications and control systems but the actual emplacements were virtually unaffected. No comment or opinion is offered on the morale effect of this type of attack except to suggest that the calibre of the defending troops is likely to be of paramount importance. In this connection the most modern type of emplacement inspected at Cherbourg had the gun embrasure sealed with heavy armour plate and the 4.7 cm. gun was mounted so that the muzzle was flush with a spherical fitting in the centre of the plate. Even a direct hit on this plate which was a very small target, might not put the gun out of action. It is not known whether a similar type of ball mounting could be used for larger calibre guns and in any case many of the emplacements appear to be designed so that standard field mountings can be used and these will require the open type of embrasure.

(ii) The smaller type of reinforced concrete emplacements, as used for the 5 cm. A/Tk. guns in the beach defences present a very small target from seaward and are immune from direct hits except by large calibre weapons (estimate 6" and above) from that direction. Direct hits or very near misses by heavy bombs may destroy these positions. From the sides and rear the positiongs are vulnerable to attack by infantry or artillery weap

/(iii)...

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(iii) The M.G. and Mortar Tobruk type emplacements together with the defensive systems of communicating trenches and underground living quarters generally constitute a large area target with very few and small vital points. In several places these defence positions had been well sited among houses which undoubtedly assisted by breaking the effect of artillery fire in their upper stories. In the main these targets were engaged by area artillery and rocket fire. In the whole area visited only one of the emplacements had received a direct hit in the opening, but the evidence indicated that where adequate density of fire had been put down a period of neutralisation of up to 40 minutes had resulted. This is borne out by the result of rocket and area artillery fire on S Beach where a greater density of fire was put down than anywhere else, and where partial neutralisation appears to have been obtained till H+20. On some of the other beaches it was reported that heavy M.G. fire was encountered by the first wave. The calibre of the manning troops appears to have been low and may have contributed to this neutralisation but there is reason to believe that the amount of protection afforded in these systems, while decreasing casualties from fragments may not prevent a period of "punch drunkenness" if the density of attack is really high. The use of air burst H.E. or flame composition should increase the chance of obtaining direct entry of lethal fragments or burning material into the actual emplacements. Incidentally in most of the emplacements seen there were large quantities of combustible material. Pattern bombing with medium bombs should also neutralise and possibly destroy these defences, but accurate aim, which depends on suitable weather conditions, is essential and the effort involved may not justify its use. At Asnelles several lightly constructed M.G. Posts had been destroyed by aerial bombardment.

(iv) Non-Tobruk type on sea front can be neutralised by any direct hit from piercing ammunition 6-pdr. and above.

5. The following information which has a bearing on the terms of reference given to the party is also of interest.

(a) Discussion with G(I) 2nd Army reveals that this sector was defended by tps of the 716 Div. This fmn was largely composed of category tps diluted with 15 to 20% foreigners and was considered to be of low fighting calibre and probably below establishment. Events appear to substantiate this as several strong points surrendered on being surrounded and other position were reported to have contained weapons which had not been fired during the battle and with no crews nearby.

(b) P.O.W. interrogation reports have been examined but contain practically no conlusive references to the effect of our fire preparation or information as to the reaction of the enemy when the landing became imminent. In general the dislike of our naval and artillery gun fire appears to be far greater than that of bombing attacks.

(c) Except in a few isolated cases where weapons had been put out of action by direct hits through the embrasures (it is not possible to establish the actual time when these were made) the beach defences were unaffected by the fire preparation. Reports have been received from all except S Beach that the defences generally were still in action when the fire plan had been completed, and while tps were being landed. Any neutralisation during the run in may have been due either to the

/morale...

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morale effect of the bombardment or to the fact that until the leading waves were close in shore the defences could not bear or had insufficient range. All evidence shows that the defences were NOT destroyed. The majority of defences appear to have been overcome eventually by infantry infiltration from the rear assisted by A.V.R.E's. and tanks. The majority of guns destroyed were put out of action by direct hits from A.F.V.s. A number of guns were also destroyed by their crews by using special demolition charges.

(d) The number of A/Tk. guns in the beach defence system appears to be inadequate against an assault on the scale of that employed by our forces.

6. It is not proposed to analyse the degree to which the fire plan contributed to the success of the Neptune landings. But there would appear to be no doubt that the unfinished state of the coast defences coupled with the low calibre of defending tps and overwhelming scale of our attack did contribute considerably to our achievement. Captured orders indicate that assuming the German High Command instructions to have been carried out a materially different and increased scale of defence and obstacles would have been encountered had this operation taken place even a few weeks later. It would seem fundamentally unwise therefore to base recommendations solely on what existed in Normandy and very great care is required before drawing any basic conclusions. In support of this contention, it is pointed out that in three months at the beginning of this year the scale of assumed beach obstacles was modified by 21 A.Gp. from two lines of wire to a full array including Element 'C', Hedgehogs, mines, curved rails, etc.

In view of the speed at which the defences can be augmented and the time it takes to mount an Operation of any size, long range vision is necessary. It is unlikely that the enemy will not also have benefited by his experience in this attack.

SUMMARY.

7. To summarise, a study of the attached Appendices and foregoing paragraph, reveal certain fundamental facts:-

(a) The beach defences were not destroyed or even structurally damaged to any marked degree by the fire preparation.

(b) Neutralisation for an acceptable period appears to have occurred, if at all, on S Beach only. On this beach the rocket & S.P. fire was heavier than anywhere else.

(c) The weight of fire power in tons per acre in no instance equalled the amount stated by the Graham Committee to be required. This is largely accounted for by the absence of the pre-H hour bombing.

(d) The defending troops were of low calibre.

(e) The scale of beach defences without the assistance of coast defences were inadequate to deal with an attack on the scale employed by us.

(f) The coast defences were unfinished but would not have been put out by the air attack to which they were subjected. Internal communications would probably have been disrupted and the guns would then be able to fire in local control only.

(g) The Intelligence reporting the location and type of defence was uniformly of an extremely high order.

It is not known whether the implications of the facts mentioned in paragraph 6 were known and fully appreciated before the Neptune plan was finalised and put into action, but as it appears unwise to base any recommendations on the assumption that the defences would be partly unfinished and not manned by resolute and seasoned troops, the following recommendations endeavour to take into account the additional effect of those two factors.

/Conclusions...

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Conclusions.

(a) Short term.

(i) The area fire from S.P. artillery and rocket craft should be of as high a density as possible, and should not be less than that employed on 'S' beach, where S.P. guns and L.C.T. (R) engaged an area about 600 yds. by 200 yds. The density of fire, including small bombs, should, if possible, be that given in the Graham Committee report.

(ii) Since many machine gun and mortar posts are open at the top but have strong sideways protection, consideration should be given to the use of air bust H.E. from S.P. guns. Fragments entering the tops of open positions may damage guns and mountings, even if personnel are safe under cover.

(iii) When engaging strong concrete gun emplacements, with open embrasures being along the beach, fire should be directed if possible to targets on the flank rather than to ones ahead. The disposition of fire support craft should be such that it is possible to hit strong points on the embrasure side, rather than on the seaward side where the concrete is too thick for 4.7" guns to penetrate.

(iv) It is suggested that defence maps should, where possible, show arcs of fire of all gun positions, in order that naval guns may be directed to hit the vulnerable parts.

(v) In view of the fact that the control of the majority of guns was by local control (using gun sights) further use of smoke, particularly in the flanks might well be found of value.

(vi) Since A.F.V's appear to have proved effective in neutralising most of the strong points, in any future operation it may be advisable to employ more of them. The technique of moving A.F.V's through the barrage of S.P. and rocket fire as already tried out with Churchill tanks and 25 Pdr. barrage in land warfare should be investigated further.

(vii) Extension of the use of aircraft R.P. attack against the embrasures of main coast defence positions.

(viii) The use of instantaneous fragmentation bombs from which fragments may enter embrasures and destroy the weapons and of a longer delay fuse to the heavy type bombs should also be investigated.

(ix) P.O.W. interrogation questionnaire should include paragraphs dealing with the effect of preliminary bombardment and firing during the approach, the distribution of the fire plan of the enemy and any orders as to the manning of guns or taking cover during aerial and gun bombardment.

(b) Long Term.

(i) In view of the invulnerability of the more modern defences in Cherbourg, it is considered that the tactics of assaulting such localities should be reviewed. The long term technical and material developments will depend to a large extent on the findings of such review.

(ii) In addition to the existing H.E. head for 5" rocket, alternative types should be investigated to fulfill the general requirement of producing sustained neutralisation of the area. In this connection the possibilities of a higher H.E. content with less fragmentation and liquid or gel. incendiary fillings should be included particularly in the period between the lifting of the fire preparation and the actual touch down.

(iii) A precise long range weapon capable of knocking out strong points

/with...

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with 7' reinforced concrete walls plus earth banking is a requirement for beach assault. The weapon should be capable of being used from beached landing craft or A.F.V's. A development of the Petard, the Burney gun, or Ardeer Aggie might be suitable.

(iv) Since it is necessary to come within a few hundred yards of gun emplacements in order to shoot into the entrance, and since at close range most armoured vehicles will be penetrated by enemy fire, it may be advisable to sacrifice armor for speed. Consideration might be given to a fast moving vehicle carrying a good anti-tank gun, that can be landed quickly, and in large numbers (either by air or sea, or both The vehicle should be able to manoeuvre quickly and should, if possibl be able to fire accurately when moving at speed.

(v) Investigation of all methods of getting fighting vehicles ashore on a broad front should be continued, since many defence positions have blind spots and these can most readily be exploited when the attackers approach from both flanks.

(vi) The use of high concentration of special incendiary bombs might be considered for attack on open positions and trenches.

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REPORT OF SPECIAL OBSERVER PARTY INVESTIGATING THE EFFECT OF FIRE PREPARATION IN OPERATION "NEPTUNE".

C O N T E N T S

General report

(1) Introduction
(2) Arrangement of report
(3) General Remarks
(4) Conclusions
(5) Recommendations (a) Short term
(b) Long term

Appendix I — Description of assault beaches and immediate hinterland and general notes on the effect of fire preparation.

Appendix II — Details of strong points and damage observed.

Appendix III — Pro forma giving details of positions visited, damage observed and apparent cause.

Appendix IV — Details of major coast defence positions.

Appendix V — Maps showing locations of positions referred to in Appendix II.

Appendix VI — Photographs.

Combined Operations Headquarters,
11 Richmond Terrace,
Whitehall, S.W.1.

July, 1944

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APPENDIX I

Description of assault beaches and immediate hinterland and general notes on the effect of fire preparation.

1. Locality — St. Aubin-sur-mer

"MAN RED"

Map ref

1/12500 Sheet 84. 015850 to 006853

2. General description

Village composed mainly of masonry buildings with slate or tile roofs. There was no evidence of concrete reinforcement. The walls are of local lime or brick 18" to 2' thick giving reasonable strength as bearing walls but little resistance to shell fire. Internal walls were lathe and plaster offering negligible resistance to shell and small arms fire. Several of the houses at the Western end of the village had all windows and openings to seaward bricked up. Some of the houses had walls and windows strengthened by internal sand-bags at floor level beneath first floor windows to provide facilities and cover for snipers. In general the defences consisted of a series of earthen strong points from which M.Gs could be sited, linked by an intricate extensive system of communication trenches. Concrete shelters in the trench system partly roofed over with 8" concrete slabs covered with masonry and earth were provided throughout. At critical points with exceptional command of the beach, elaborate and very strong reinforced concrete portions housing the main weapons and command posts were constructed. (See details attached Appendix). Extensive underground living quarters with electric light and in some cases running water were provided close to the main strong points, with 6' deep trenches con concealed by overhead camouflage connecting. None of these quarters were gas proofed. The structures generally were of concrete presumably heavily reinforced with walls and roofs estimated to be 3' to 5' thick. Numerous mortar positions existed consisting of concrete chambers with magazines attached built flush with the ground and on top of heavy concrete living quarters. Wire was used extensively along the sea wall and around areas marked as mined. Mines were also marked between houses and a field between the sea wall and beach road. All defences were well blended with the general character of the locality and concrete defences appeared to have been standing for some time. Defences at the Eastern end of the town were in a disused and overgrown condition.

3. Artillery and other preparation

(a) Weapons used

2 L.C.G.(L)
4 Destroyers
1 Reg't S.P. (24-105 mm)
DD Sherman 75 m.m.
Centaur 95 m.m.
2 L.C.T.(R)

(b) Details of assault Firings

The only evidence obtained was from 19 Cdn S.P. Reg't as follows:

/FOO ...

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FCO - After ranging fire was opened at 9000^{x} and continued to 2500^{x} when firing ceased due to conjestion of forward troops. F.C.O. landed approx 100 rds fired from 24 guns. The M.P.I. was considered to be on the target and it was assured that 70% of the rds fell in the target area. The area was considered to be neutralised during the run in period.

FOO - Fire was considered to be on the target and good observation was available. No firing was experienced from Mortars until the troops had landed. It was recognised that few casualties were caused but neutralisation was considered to be obtained. The only fire received by the village was considered to have been from the SP Regt. The air force apparently dropped 2/3 bombs in the sea with 1/3 well concentrated on target. It was felt that if rockets and airforce had been on target according to plan the neutralisation obtained would have been greatly improved. The SP Reg performed their task according to plan.

[illegible]
The zone in which rounds fell was calculated to be 6 0^{x} wide by 3 - 400^{x} deep. Strength of enemy in St. Aubin estimated to be between 75 and 100. Enemy mortar fire was accurate and extremely lethal against troops and equipment on the beach,

4. Observed effect of preparation

In general the buildings along the sea front were 90% destroyed. By this is meant that the walls were breached and inner dividing walls and floor had collapsed. The destruction was such that the buildings were rendered untenable for snipers during the bombardment though they would have found suitable cover subsequently. The remainder of the town was estimated to be between 30% and 40% heavily damaged. The damage appeared to have been caused mainly by shell fire and was not due to fires. It was impossible to estimate the position of the MPI but from the evidence of damage it would seem that adjustments of MPI were made by observation of the effect on buildings rather than on the actual target area. This is probably due to the poor command of FOO in LCS(M) and resulted in a large number of hits on the upper portion of the buildings. The rounds were therefore plus and did not land on any of the concrete defensive positions. It can be said that none of the prepared positions, slit or communication trenches were damaged during the bombardment. Details of the damage observed is contained in Appendix I together with an opinion as to the probable cause. Rockets were observed to have fallen west of the town in the area between 013850 and 003853. Damage from aerial bombardment was confined to a cluster of houses at 01453500 and in the area 022846. The information on the defences as shown in the over-printed maps is considered to be excellent. In general the position of the defences was accurate but details of weapons and arcs of fire were misleading and sometimes inaccurate. The German policy was to provide infilade fire from seaward, with mortars sited in well protected flush emplacements secured from observation and a short distance back from the sea front.

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Locality - Berniere-sur-Mer.

1. MAN WHITE.

Map Reference 1/12500 Sheet 84 999855 to 993855.

2. General description.

Village lays back 2 - 300[X] from the sea front. The buildings are similar in construction to those in St. Aubin but more dispersed. There was no evidence of any reinforcement by concrete. Windows to seaward were bricked up in most cases. The majority of defences were along the sea board and consisted of a series of concrete emplacements along the sea wall which was 6' - 10' high. These emplacements were well connected to sleeping quarters and each other by means of communication trenches 6' deep and well camouflaged. In addition to a number of typical MG posts, there were two 50mm anti-tank guns housed in normal concrete emplacements with arcs of fire along beaches and to rear and well protected from direct fire from seawards and the other on a wheeled carriage and enclosed in a heavy log emplacement. Two mortar positions about 150[X] back from the beach were interconnected and included deep living quarters. The area between the sea wall and main road was extensively mined.

3. Artillery and other preparation.

(a) Weapons used:

2 LCG (L)
1 Destroyer
1 Regt SP Mts (24 - 105mm)
2 LCT (R)
DD Sherman
Centaur 95mm

(b) Details of assault firings:

The only evidence obtained was from the 14 Cnd SP Regt as follows:-

FOO - After ranging fire to effect was commenced at 9000[X] and continued to 4000[X] off beach at H - 10. Owing to a message notifying the post-ponement of the hour not being received, cease fire was given at H - 5 in accordance with the current schedule. When the message was finally received it was too late to reform as craft had started to circle out. Approx. 80 RPG were fired from 24 guns. Owing to the tide carrying the craft to the east the MPI was 100[X] - 200[X] left of point intended. Rds were well grouped and were considered to have fallen slightly plus. Acting OC considered that although fire could have been continued had communications not broken down, this would have been only for a short period due to restricted depth of beach and danger to own troops. Rocket fire was not observed and the air force did not bomb this area.

4. Observed effect of preparation.

Effect on buildings similar to that at St. Aubin and it is estimated that 90% of the buildings between the railway and sea were destroyed. The remainder of the town was estimated to be between 30 - 40% heavily damaged. Damage due to shell fire and not to fires. The MPI was plus of the target (line of defensive positions) by more than 200[X]. None of the prepared positions, slit or communication trenches were damaged during the bombardment. For actual damage to beach defences see appendix 2. There was no evidence of aerial bombardment. Numbers of rockets were observed to have fallen in the area of defences and along a belt approx. 300[X] back from sea wall with its MPI at 996852. Damage was done to dividing walls and roofs in the vicinity but of no tactical significance.

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Location - Courseulles-sur-Mer (East)

1. NAN GREEN.

Map reference 1/12500 Sheet 84 976856 to 970857

2. General description.

Buildings are similar in construction to those in St. Aubin. The village is disposed in depth with comparatively narrow sea frontage. To the west of the village there are two basins with minor port installations and about 500[X] of wharfage. The numbers of windows bricked up was noticeably less than in other villages. The defences were disposed along the seaboard to a distance of 500[X] from harbour entrance and consisted of a series of heavy fortifications includi heavy, wooden, concrete gas-proof living quarters, at the east end of town centred around a 75mm gun which was sited to fire seaward along the beach and a 88mm gun housed in heavy concrete emplacement at the harbour entrance shooting along the beach. These two positions were linked by extensive trench systems with a number of flush type concrete emplacements. Guarding the E bank of entrance was a 50mm gun. No concrete reinforcement was observed in any of the houses. The area did not appear to be as heavily mined as other localities. A stick of bombs had fallen in the area 971856 demolishing 3 or 4 complete houses. A battery of five electrically operated flame throwers in fixed positions and pointing inland were found. None of these had been fired.

3. Artillery and other preparations.

(a) Weapons used:

2 LCG (L)
1 Destroyer.
1 Regt SP Arty (24 - 105mm)
2 LCT (R)
DD Sherman.
Centaur 95mm.

(b) Details of assault firings:

Evidence was obtained from 13 Cdn SP Regt as follows:

FOO & CO (Bde HQ)

Fire was commenced at 10000[X] and continued approximately to 1800[X] when it was stopped by navy in order to circle out. The infantry were behind time due to rough sea, approx 1000[X] from shore when fire ceased. Approx 100 RPG were fired from 24 guns. The HPI was considered to be slightly plus of target. Rocket salvos were late but fired landing well inland. No bombing by air-force was observed as visibility was very bad but some may have fallen inland.

4. Observed effect of preperation.

Effect on buildings similar to that at St.Aubin approx 90% along the sea front being destroyed. The remainder of the town was heavily damaged, the effect declining rapidly with distance from the sea. The HPI was apparently plus of the target but some rounds had hit the sea wall and fallen inside the area of defences. Some of the communication trenches had been damaged but no effective damage had been caused to defensive installations. For actual damage to beach defences see appendix 3. Evidence of rocket fire was distributed across the area with the HPI well back from the beach. There was no evidence of aerial bombardment in the assault area.

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APPENDIX I

Locality Courseulles-sur-Mer (West)

1. MIKE RED
Map ref: 1/12500 sheet 84 969058 to 955861

2. General description

The area has relatively few buildings and consists mainly of sand dunes backed by marshes and the curve of the river Soulles. It is connected to the village of Courseulles by bridges over the Soulles and harbour basins. The defences were widely scattered from the sea to the river Soulles from the west bank to a distance of 700[X] and to a considerably greater depth than was far encountered. They consisted of main groups of defences housed in heavy concrete containing respectively a 75 mm and a 50 mm gun each, with gas proof sleeping quarters and interconnected by an extensive system of flush concrete and mortar positions linked by communication trenches in the sand dunes. Some older temporary emplacements had been superceded by these heavy emplacements but were still available in the area. Between the two right hand positions there was an area with strongly protected observation posts, one of which was probably occupied by the coast defences area commander.

3. Artillery and other preparation

(a) Weapons used :

1 L.C.G.(L)
3 Destroyer
1 Regt. SP (24 - 105 mm.)
DD Sherman 75 mm.
Centaur 95 mm.
2 LCT (R)

(b) Details of assault firings:

Evidence was obtained from 12 Cdn SP Regt. as follows:
FOO

Fire was opened at 9600[X] at H-32. HPI was reported on target by FOO. Fire was continued to 1500[X] at H+7 when ammn. was expended. Approx. 100 HPG were fired from 24 guns. Area in which rounds fell was estimated to be 400-600[X] deep.

4. Observed effect of preparation

There was less evidence of fire effect owing to lack of buildings in the area. Sand did not disclose the fall of shot. The heavy gun positions were hit in several places by naval gunfire and S.Ps on the seaward side but the guns were undamaged. One 5 cm in an open concrete pit may have been put out of action during the bombardment, but this is not certain as the gun fired several rounds subsequent to the landing of troops and when inspected it was not possible to access the cause of damage. Two M.G. positions had slight chipping of the concrete but there is no evidence as to what weapon caused this damage or whether it silenced the weapons. One gun pit had the concrete chipped and MG mounting damaged but all evidence pointed to the fact that this position was not manned.

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APPENDIX I

1. Locality. OUISTREHAM. (La Breche)

"QUEEN WHITE"
"QUEEN RED".

Map ref.
1/12500 Sheet 86.093805 to 080811.

2. General description.

This beach was backed by the Western portion (La Breche) of the village of OUISTREHAM. It consists mainly of masonry buildings with slate and tile roofs and of rather larger dimensions than those on the Nan and Mike beaches. The walls were of local limestone or brick 18" - 2' thick and main internal dividing walls were frequently of two brick thickness. The outer walls were strong but offered little resistance to shell fire. With the exception of one concrete strongpoint, which was admirably disguised as a small house, there was no evidence of concrete reinforcement. This 'house' commanded the main coast road by machine gun fire. In general the immediate defences consisted of a number of heavy concrete emplacements backed by a number of Tobruk type mortar and M.G. emplacements with 2-5 c.m. A/Tk. concrete gun pits apparently linked together by an elaborate trench system and provided with strong concrete living quarters or shelters. (See details attached Appendix 2.) Both to the East and West of the selected landing beaches at about 1500[X] - 2000[X] from the side limits of the beaches, there were strong points containing heavy machine guns and light field or A/Tk. weapons which could bear on to the assaulting forces. There were two first class lateral roads, one at the top of the beach, and one parallel and about 150[X] inland.

3. Artillery and other preparations.

(a) Weapons used.

13 Destroyers.
3 L.G.G.(L)
5 Rgt. S.P. (72 - 105 m.m.)
A.A. Sherman.
5 L.C.T.(R)
L.C.T.(A) carrying Centaur 95 m.m. tanks.

(b) Details of assault firings.

No evidence was obtained from individual commanders, nor was contact made with the assaulting troops other than 1 S.S. Bde. part of which landed at H+30. From conversations with many officers including H.O.i/C and Acting F.B.M. it appears that the fire plan was carried out according to intention and that the fall of shot of both the Rocket craft and S.P. Artillery was on their targets. Examination of the ground appeared to confirm this impression. There seems to be no doubt that the high density of fire in the assault area did achieve a considerable morale effect since the opinions obtained were unanimous that the assaulting waves landed without very serious opposition and it was not until about H+20 to H+30 that the full force of the defenders was felt. Fire from the flanking defensive positions at Clos Colas continued to be troublesome until D+2. Fire from the Eastern flanking position at was directed at the support craft on that flank but could not bear on to the assault beaches.

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4. Observed effect of preparation.

In general the row of houses along the sea front were about 90% destroyed. The density of rockets and S.P. gun fire was greater than on any other beach. The pattern of the rockets appears to have been about 500[x] to the West of the intended M.P.I. It satisfactorily enveloped the area between the two lateral roads. Direct hits from either rockets or 105 m.m. gun may have been responsible for putting out of action of one 81 m.m. mortar and one 5 c.m. A/Tk. gun in the open gun pits between the two main lateral roads. Apart from an O.P. which was knocked out and one 75 m.m. gun in a heavy concrete emplacement which may have been put out of action by fire from seaward, the strong points and emplacements were materially unaffected by the fire preparation. Most of these positions were subsequently silenced either by infantry from the rear or by tanks shooting at close range into the embrasure. In the area between the two roads there were many craters about 15' diameter and 3' deep in the soft sand with no residue to indicate their cause. A number of 105 m.m. shells had failed to fragment properly. The fuse in use was the M.46.

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APPENDIX I

1. Locality La Riviere

KING GREEN
KING RED

Map ref.

1/12500 Sheet 83. 913870 to 926868

2. General description

Along the top of the beach runs the main coastal road which is backed by marshes extending to 300 to 400 yds. inland. At the eastern end of the sector was the village of La Riviere which consisted of the same type of houses as found on Nan and Mike beaches. The front at La Riviere consisted of a wall backed by a road. Some of the houses had been lightly reinforced and provided with weapon slits for firing to seawards. On the intended landing beaches there were no defences, these being concentrated in La Riviere, where there was one heavy concrete emplacement containing an 88 m.m. gun firing to the westward and an open pit containing a 5 c.m. A/Tk in addition to a number of small concrete M.G. posts of the Tobruk type; the village of Mont Fleury on the hill above La Riviere around the lighthouse where there was a strong defensive locality with a 5 c.m. and 7.5 c.m. gun in open pits and a number of concrete M.G. and mortar posts heavily wired and mined in; and a small strong point about 400 yds. west of the assault sector probably consisting of 2-5 c.m. guns in concrete emplacements strongly protected for seaward with two open M.G. pits of the Tobruk type. A coastal defence battery at 917861 was incomplete but the guns, 12.2 c.m., were in pits in rear of the position, except for one which had been installed in its proper emplacement.

3. Artillery and other preparations

(a) Weapons used

6 Destroyers
3 L.C.G.(L)
4 L.C.T.(R)
24 S.P. 105 m.m.
L.C.T.(A)
D.D. tanks

(b) Details of assault firings

No evidence was obtained from individual commanders about details of the assault firings. In the coastal area very little evidence remained when the defences were inspected on D+25 owing to R.E. demolitions and conversion of strong points to other uses.

4. Observed effect of preparation

The houses and the sea wall in La Riviere had been hit many times from seawards but the strengthened lower parts of the houses had not been affected. The 5 c.m. A/Tk gun in open pit in La Riviere had been knocked out probably by fire from L.C.G.(L). The 88 m.m. emplacement had been hit but was unaffected and it was reported that the gun was in working order when captured by infantry. The 5 c.m. guns at the western end of the assault beach had both been knocked out but it was impossible to assess the cause or time at which this occurred owing to subsequent demolitions by R.E. personnel.

/At ...

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At Mont Fleury, the position had been subjected to heavy bombing attack which had destroyed two lightly constructed living quarters and partially demolished two of the surrounding buildings. A small minefield also appeared to have been detonated by one bomb which fell in the sector: There was evidence of gunfire in other of the buildings. Neither the 75 m.m. or 5 c.m. guns had been affected in spite of a 20' diameter bomb crater only 20 yds. away.

One small concrete emplacement had been destroyed by a direct bomb hit. Apart from this the defences were structurally unaffected. It was reported that with the exception of an M.G. post situated at the S.E. corner of the lighthouse buildings the defences were unmanned. This was substantiated by the fact that the guns still had muzzle cover on and no empty cartridges were seen.

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APPENDIX I

1. Locality Asnelles

"JIG GREEN"
"JIG RED"

Map ref

1/12500 Sheet 83 878867 to 895869

2. General description

Immediately behind the beach were low sand dunes separated from the main lateral road by about 150 yds. of marshy ground. There were no buildings in this area, but the village of Asnelles which contained a large and strongly constructed hospital and a number of heavily built houses was situated at the western flank of the beach. A series of strong points were situated in the sand dunes in the centre of the assault beach where a road led inland. A 5 c.m. and 37 m.m. gun were in open emplacements and there were a few M.G. posts and a good trench system with several small concrete two man weapon pits and a number of flame throwers. At Asnelles there was a strong 75 m.m. position facing Eastwards. Along the top of the sea wall westwards from this strong point were M.G. and observation posts built into the sea wall structure. To the Eastward of this 75 m.m. position there was a strong defensive system consisting of a number of M.G. and Mortar posts and one 5 c.m. position.

To the west of Asnelles there was a 5 c.m. gun protected to seaward and a few strong M.G. posts but these could not bear on to the assault beach. About 2000 yds. to the Westwards of Asnelles on the forward slope of the hill by Cabane were a 75 m.m. and 88 m.m. gun facing East in strong concrete fortifications. These guns could not be laid direct on to the assault beaches but could engage ships approaching.

3. Artillery and other preparations

(a) Weapons used

7 Destroyers
3 L.C.G.(L)
L.C.T.(A)
4 L.C.T.(R)
48 S.P. 105 m.m.
D.D. tanks

(b) Details of assault firings

No evidence was obtained from individual commanders, but information was obtained from some of the Beach Groups who landed at approx. H+30 to the effect that the landing took place to the Eastern part of the assault beach. They also stated that while open gun pits did not give trouble, there was considerable opposition in the form of M.G. fire from pill boxes and fire trenches on the beach and that fire from Asnelles village continued to be troublesome until the afternoon of D day. They were of the opinion that all rocket fire had fallen short into the sea. It was also reported that guns situated at 881862 was not neutralised by the bombardment and caused considerable trouble.

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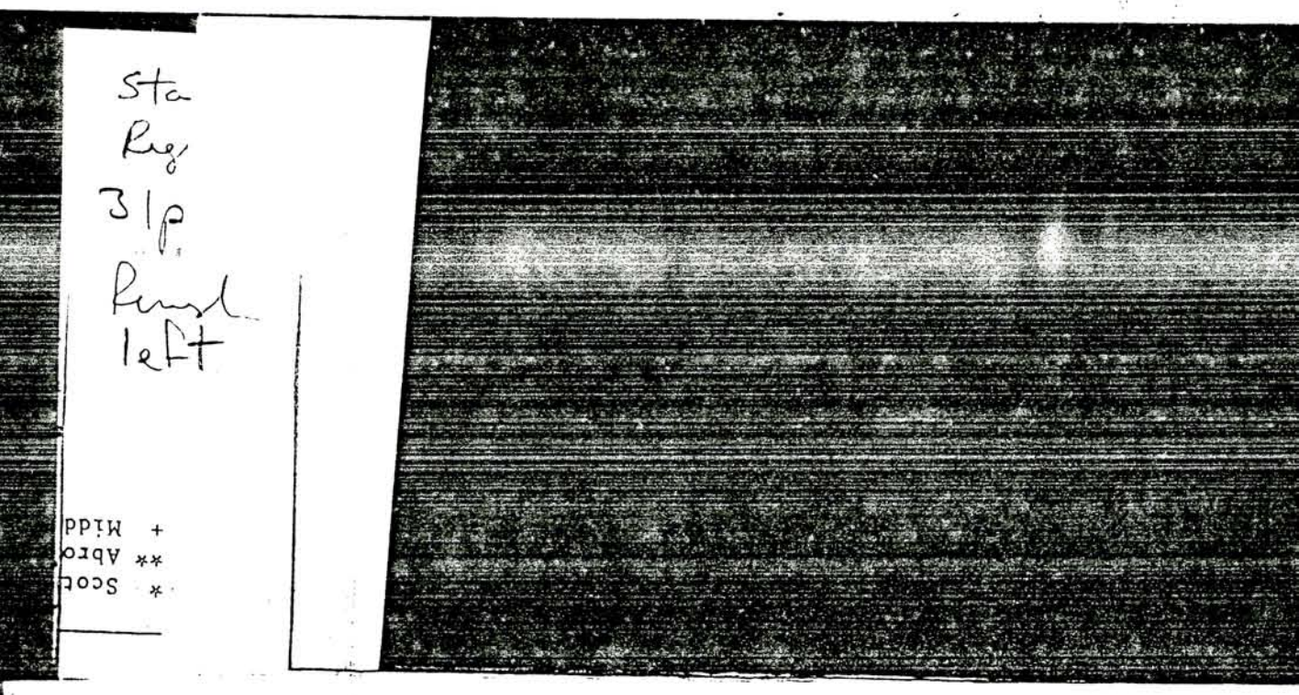

4. Observed effect of preparation

The village of Asnelles had been heavily bombed on both sides (E. & W.) and as a result 3 or 4 M.G. and possibly one 5 c.m. gun position were destroyed by direct hits. A number of large craters had been made in the lateral road. There was the usual evidence of gunfire in the village but apart from the bombing, no structural damage to the defences had resulted. The guns in the strong points in the centre of the assault beach were undamaged but were reported to have been unmanned when the first wave landed. The concrete emplacement of the 75 m.m. gun had been hit near the embrasure but this had not put the gun out of action as there was evidence of firing through the rear entrance which set fire to the ammunition in the gun house and destroyed the gun. There was no trace of rockets observed in this area.

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APPENDIX NO. 2 DETAILS OF STRONG POINTS AND DAMAGE

A JUNO Beaches

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(1) St. Aubin

St Aubin 1

Gun emplacement for 5 cm and machine gun -

5 cm area of fire 337° - 82° (grid bearings), but on W side only about 10% effective because of house and sea wall. Machine gun along E beach only. Concrete reinforced with 10" spaced ½" steel. Emplacement octagonal with seaward walls 5 ft thick.

Damage to emplacement -

Bullet holes on seaward side; shell (95 mm hit concrete on east inshore side, fired from shore; gun shield top RH (seen from behind gun) 1 ft square missing (shield was double ¼" steel with 1¾" air space); muzzle brake of gun was dented. No appreciable damage to gun also shelters or MG post. About 70 empty shell cases near emplacement - no live rounds (someone may have collected).

St Aubin 2

Circular machine gun post 8' internal diameter, 7' high inside, concrete 2½' thick. Two holes for firing being approx 102° & 348° (grid bearings) with about 30° angle of fire either side of those bearings.

Damage -

Large shell (4.7 (bigger than 95mm) had hit near N embrasure and flaked off part of embrasure, probably killing gun operator (blood inside). The post was still perfectly adequate for continued operation if new guns and troops were available.

St Aubin 3 & 4 -

Machine gun and observation post built in behind sea wall with earth filled wooden boxes 2ft thick. Communication trenches joined all posts along sea wall, and also behind the main road at the back of the sea wall. These trenches were dug in the soil and were 1½' wide, 6½' deep, they were all usable after bombardment. In a few cases small earth falls had taken place, but it was still possible to keep under cover communication.

St Aubin 5 -

Contral shelter and central point of system of trenches and machine gun points to guard road block. German map marks machine gun arcs of fire as shown. The overhead thickness of cover was 1 ft concrete and 5 ft earth, the trenches were 1½ ft wide and 6½ ft deep and were open. The shelter and trenches were intact when inspected. A similar shelter point was about 60 yds to the E of No 5 connected by trench.

St Aubin 6 -

Concrete observation post on top of sea wall, with dug out living quarters (comfortable, wash basin etc) below. The OP about 7 ft cube, with 1 ft concrete and 1 ft earth on roof. Viewing slit about 1 ft deep and giving 180° vision. Concrete about 1½ ft thick on sides. Position camouflaged. The OP had not been hit and could have controlled mortar fire to cover beach both E and W (292° - 120°).

St Aubin 7 -

Circular MG post (like St Aubin 2), fitted on top of cliff (about 25 ft high). Embrasures probably 320° and 074° (grid bearings) with 60° angle of fire at each arc. This MG post had been hit and had fallen down the cliff and was quite unserviceable as a concrete fire point. There was no evidence as to what had caused the damage, but the fall of the post was due to bad placing, too near the cliff edge, probably combined to some under-mining shots.

St Aubin 8 & 9 -

There were mortar positions built on Tobruk shelter style with 50° diam hole for observer or MG. The concrete lip of water hole was about 1 ft thick, and the dug out below was covered by 1 - 2 ft concrete and 1 - 2ft of earth (about 3 ft in all). Both positions were completely

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St.Aubin 8 & 9 (Cont.) undamaged and about 12-15 empty boxes (10 rds each) of amn were in each. No unused amn was found and it is possible that the posts gave up when amn was finished. The mortars had been removed, but had been using 8-14 cm amn.

St Aubin 10 - Anti-tk gun position at N side of road - open top, hole about 5 ft diam 3ft deep, with soil banked up all round. Camouflaged with wire net on [illegible]. No gun in position and no damage to site.

St Aubin General -
(a) Houses all along front badly damaged by gunfire. Roofs in many cases had collapsed, most houses showed several holes in walls. Second row of houses about 40% damaged. Some damage (10-20%) of houses in town south road which runs behind the block of houses on the sea front.
(b) Barbed wire on the front, not noticably removed by bombardment.
(c) Traces of rockets around area 014830
(d) Some MG posts probably knocked out from seaward. Remainder and mortars probably captured by infantry. Anti-tank gun shot by tank from inshore.

(ii) Bernieres

Bernieres 1 - Light machine gun and mortar post on top of sea wall (about 8-10ft high wall), Tobruk type 5 ft diameter and 4½ ft from floor to top of open hole. No damage to this post or to two other possible observation or MG posts made of wooden boxes filled with sand and fitted in behind parapet of sea wall. Reported that MGs in this area kept firing until infantry scaled cliffs, when enemy took to shelters.

Bernieres 2 - Octagon type emplacement for 5 cm gun, as St Aubin 1. The top of 3ft skirting wall for gun level with parapet of sea wall. Gun could fire through about 250° from approx 60° to 310°, this was along the beach to westward, inshore, and along the top of the sea wall to the east. The concrete protection to seaward was 5-6 ft thick and probably reinforced with the usual ½" steel at 11" spacing. The gun had been removed but was reported to have been undamaged and not fired by the enemy.

Bernieres 3 - Small MG and OP with 10 inch concrete roof. A small opening to the west gave about 30° angle of fire along the beach (250°-280°). The observation slits covered 90° either side of a line perpendicular to the breakwater.

Bernieres 4 - Joins No 3 by small concrete passage (2-3 ft) and is a Tobruk type MG post about 5 ft diameter at the top of circular rim. All round fire was possible and the rim of the concrete was level with the parapet of the sea wall. The forward protective concrete was about 2 ft thick, as both this position and the OP No 3 were undamaged.

Bernieres 5 - Wooden box, sand filled (2 ft thick) no roof, built up against sea wall. Probably superceded by new concrete Tobruk type posts. No damage.

Bernieres 6 - Standard 3 ft diam Tobruk type MG post, with all round fire and 18" concrete. This was close to underground living quarters with 5 ft soil and 1 ft concrete cover. There was no sign of damage to either gun position or shelters.

Bernieres 7 - Standard 5 ft Tobruk type, fitted for MG and undamaged.

Bernieres 8- Square hole 4 ft across, 3 ft deep; possibly dump for ammunition. Not damaged.

Bernieres 9- Tobruk type 3 ft with steel top to take MG. Concrete on seaward side 5 ft thick. Bullet marks on concrete outside and on steel shield (1" thick) but no appreciable damage.

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Bernieres 10 and 11 -
Anti-tank gun on wheels with log shield (15" diam logs) to seaward. Arc of fire 60º about mean position of 90º. Nearby is concrete slope to shelter apparently for the wheeled gun. One gun was not seen but reports suggest it was not fired.

Bernieres 12 and 13-
Tobruk type mortar posts 5 ft diam with underground shelters alongside and fitted with 8-14 cm guns. Local report said that guns had not been fired, were in good condition, well greased, with plenty of spare ammn and two spare (unmounted) mortars. It was also reported that only defence was from MGs along front, which caused some trouble on the beach but gave up when infantry got on top of sea wall. These were completely untouched by bomb or shell fire.

Bernieres 14 -
Tobruk type, 3 ft diam, MG post, undamaged.

Bernieres General -
(a) Houses that have clear view to seaward all damaged by shell fire.
(b) Shell fire did not appear to be in area between railway and seawall, but possibly because no houses to show it up. Two houses forward (995854) were badly damaged)
(c) Rockets were found by sea wall and 300 yds back in line 997 and along beach road on line 854. Probably centred on 995853.
(d) Reports that anti-tank guns and mortars had not fired. MG posts captured by infantry. It is possible that very good tactical surprise was achieved here.

iii) E. Courseulles

Courseulles 1 & 2 -
Large concrete emplacement about 30' x 30' external housing 75 mm gun on wheels. Concrete reinforced 11" square with ½" steel and about 3' thick on sides and 7' thick roof supported on steel beams. The roof was made to look like roof of tiled house and had camouflage windows painted on sides of concrete. The gun fired out of a window 6' by 3' and had an arc of fire from 285º to 330º, that is along the beach to the west. The gun had fired many rounds (estimated 200 empties) and was put out of action by a direct hit which penetrated the gun shield making a hole 3" by 6". A mark on the wall behind the gun about 6" deep and 2' across was probably caused by another shell and there are many marks of shell splinters on the concrete. It is probable that the gun was put out by a direct shot from a DD tank. There appeared to be no ill effects from these hits and the gun had to be put out by accurately aimed, close range fire from armoured vehicles.

Adjacent to the 75mm emplacement, to the NE was a circular gun platform with a concrete breastwork 2' thick and 2½' high. This gun was on the level of the back of the beach and had no gun of its own. It may have been a temporary housing for the 75mm, or an alternative site to enable the gun to fire eastwards.

Courseulles 3 -
Very strong, new, concrete shelter about 35' square and with top 10' above ground. Earth and sand banked to 45º all round to give camouflage and extra protection. Roof was 7' thick concrete and outer walls 6-7' thick, with 2' thick internal walls. The entrance led down about 8 steps and could be covered by a small steel window in a heavy steel door 1¼" thick. The bulk of the living room was underground and the whole place was fitted to be gas proof and was equipped with pumps and filters to draw in fresh air from outside; the date mark on the filter pump was Dec 1943 indicating recent installation. A small window about 3" by 2" facing 130º could be used for observation and small arms fire. A Tobruk type 3' diam light MG emplacement was on the roof on the SE corner, and reached by steps from outside the main shelter, but protected with 2' concrete. A small port 12" high by 9" wide cut in a steel panel 2" thick, fired about 120º and was probably designed for use with a heavy machine gun, a mounting, but as gun was observed, the angle of fire was probably about 15º either side of the 120º. The shelter was equipped with periscopes. This shelter was equipped with a well for water supply, and was no doubt expected to

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E Courseulles 3 (Cont'd) -
hold out for some days. The defenders surrendered when the shelter was surrounded by infantry.

E Courseulles 4 -
Gas proof shelter, about 30' square outside with 6' wall and 5' roof, built on same lines as No.3, but smaller, and with a 3' Tobruk type MG position in the SW corner of the roof. This MG position is reached as in No.3 from outside the main shelter. Neither this position nor No.3 was hit by any form of bomb or shell.

E Courseulles 5 -
Concrete MG post with all round fire for MG. A broken searchlight was lying inside and this post may have been an observation post, it was undamaged.

E Courseulles 6 -
Tobruk type MG post 5' diam with central pole for MG undamaged..

E Courseulles 7 -
Tobruk type 3' diam probably used as observation post since small searchlight lying nearby. No damage.

E Courseulles 8 -
Strong 88 mm gun position, 35' by 40' roof 7' thick concrete, walls 6-8'. Gun fitted with muzzle brake and a solid rubber tyred wheels. Gun aperture 8½' wide, 6½' high. Gun bearing 095° with 25° either side. About six hits marked the concrete round the gun aperture, probably some from destroyers and LCG(L)s (which came in to about 1000 yards from back of beach) and some from DD tanks. The gun was probably silenced by direct hits with guns from DD tanks, but the gun shield was badly pitted by shell splinters, probably from 4.7 shots which hit gun emplacement aperture and these may have been sufficient to kill gun crew. It was reported that 7 shots were fired after naval bombardment had finished. At the west side of this position a circular open gun position like that at E Courseulles No.1 was in course of construction.

E Courseulles 9 -
Tobruk type 3' diam, walls 2' thick. Not damaged. Trench system leading to positions to E used sea wall as its part. This wall was 1' masonry reinforced in parts to 3' with concrete and had been broken in three places possibly by naval gunfire.

E Courseulles 10 -
Circular concrete 11' diam outside, 1½' thick, used as observation post. Field of view 180° to seaward by means of 3 slit windows 6" deep, roof 1' to 1½' thick with about 1 ft turf on top. Considerable damage had been caused by a shell hit between the seaward and northward facing windows making a 1' deep hole 4-5' wide in the pill-box (over-lapping onto the eastern window), and damaging the top three feet of the 6' masonry sea wall behind which the pill-box was situated. The damage may have been caused by 4.7 naval gun-fire; it appeared rather extensive for tank-fire, and no trace of deep hole produced by AP projectile was visible. The position was still quite serviceable as an observation post but there must have been considerable destruction to personnel inside when the shell hit. Communication with shelters in the rear was possible by open trench.

E Courseulles 11 -
Tobruk type 5' diam, MG position flush with back of beach (no sea wall) with sand piled in front. Many (over 1000) empty cartridge cases were in the post and the post was undamaged.

E Courseulles 12 -
Underground living quarters with 3-4' sand and wood roof at back of beach with two MG and OP made of two ft thick sand filled boxes. This defence system was probably obsolescent but could have been used since it was undamaged.

E Courseulles 13 -
Tobruk type 3' diam MG post - at back of beach with sand banked up in front. The concrete rim had been chipped and it is probable that the post had been put out of action. However, the damage to the position

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E Courseulles 13 (Cont'd) -
was so minor that a new gun could have been mounted at once if required. No evidence as to cause of damage was found.

E Courseulles 14 -
Open 50 mm gun (Kw.K) with no muzzle brake, protected by breastwork 3' thick, 3' high and octagonal shape with 4'3" side (inside). Living quarters below had an 8" concrete roof, with 2½' concrete over the sleeping part. The gun was connected to the remainder of E Courseulles defences by a trench 2' wide and 6½' deep. The field of fire was all round, and the gun had been put out by direct hit; a 1' diam hole through the shield (2¼" plate separated by 1¾" air gap), and two smaller holes were probably caused by aimed fire from tank at short range. There was no damage to concrete breastwork or living quarters; there were several empty ammunition cases.

E Courseulles 15 -
Tobruk type 3' diam MG post with all round fire. No damage.

E Courseulles general -

(a) Houses much damaged by shell fire. Nearly all houses visible from seaward had several hits. Damage was apparent all through the town, but was much less than on houses facing the sea.

(b) There was some trace of rockets in this area, but no concentration in the area of MG posts, which would be a good target; they are unprotected from above, but require a concentrated fire to hit their small appertures.

(c) Five flame throwers were situated between 25 and 60 yds west of position No.1, on the sand dunes at the back of the beach. They all fired inland (either 140° or 250° bearing) and were fitted for electrical firing. The capacity was about ten gallons and the throwers were fitted with the muzzle projecting out of the sand and the main can buried. None had been operated.

(d) The strong points in the area on the sea front were not put out of action by fire from the sea with the possible exception of one MG post. The guns had fired a considerable quantity of ammunition and were put out of action by accurately placed fire from close range by tanks. Strong points behind the seafront were surrendered to infantry when surrounded.

(iv) W. COURSEULLES.

W Courseulles 1 -
Concrete emplacement about 33' square (external) with large buttressed corners, housing a 5 cm anti-tank gun. The gun was fired through a window 12' by 2½' facing west along the beach, and had an arc of fire of about 40°. The concrete roof was 4' thick and the main walls about 5' thick. Buttresses about 8' wide on the corners provided extra strengthening. The reinforcing was ½" steel at about 11" spacing. The gun could also fire from a similar window eastward. A shell had knocked off a corner about 3' by 3' of the SE buttress at A. Above the west gun window a shell had made a 5 ft diam, 2½' deep hole. The emplacement was sited on top of the breakwater, and this had been hit. A hit on the seaward side of the post had penetrated 1½'. One hit at A was probably caused by fire from seaward. That at B may have been from sea but it is more likely (from the symmetry of the hole) to be a shot from directly in front of the gun window by a tank. There were no hits on the embrasures, except for a few hits on the east side window, and it was reported that the gun was fired until surrounded by infantry.

W Courseulles 2 -
Small OP built into sand dune at the back of the beach, with 4" thick 5' by 5' steel roof and 6" slit window facing to cover 180° to seaward. Not damaged.

W Courseulles 3 -
Living quarters about 40 yds behind the back of the beach, with 1½' concrete roof, 1½' sand. Not damaged by gunfire or bombing, but front pushed in by traffic on exit from beach.

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W Courseulles 4 -
Strong point built into back of sand dune about 20 yds behind back of beach. This is equipped with comfortable living quarters, a hemispherical periscope housing, and a small (3' diam) Tobruk type MG post. The position was gas-pr and of typical heavy construction (7' concrete roof). The top of the roof w flush with the ground level, so that strength in front was provided by 20 yd sand. The periscope housing was hemispherical, 5' diam external, and of steel 9" thick. Three periscopes were fitted to look out of small slits 1" by 6" and could be traversed to cover a full 360° between them. The entrance to th MG post was outside the main gas proof shelter, so with similar positions at E Courseulles. The position was completely undamaged.

W Courseulles 5 -
Small MG post (form of Tobruk 3' diam type) with ½" thick steel cupola on t A hit on the steel cupola had made a hole about 1' by 1'; this would have put the position out of action. The cause of the damage was not found.

W Courseulles 6 -
Deep 5' Tobruk type concrete emplacement built at back of beach. Position w similar to other 5' Tobruk types in having walls 2' thick, but was 10' deep with a wooden platform at 4½" below the surface. This gave a living space directly below the gun platform rather than below and to the side. There was slight spalling of the concrete on the lip of the post, but there were empty cartridges suggesting that the machine had been fired.

W Courseulles 7 -
Two small OPs dug in the sand, each with 8" thick concrete underground shelte with 2½" steel cupola 1½' high, projecting above the surface of the ground. The first had 180° vision seaward, and the second all round vision by 5 slots 72° spacing and 4" by 1". There was slight evidence of damage on the first OP but not sufficient to put it out of action, and no damage to the second OP.

W Courseulles 8 -
Strong concrete 75mm gun position, with roof about 7' thick, seaward walls 6- thick with sand ramped up in front. The top was about 10' above ground level one gun fired out of a window about 8' by 3' to westward, with an arc of 20° either side of bearing 315°. A shell probably 4.7" from seaward direction an shown by part where extra deep penetration had allowed, had made a crater abo 1½' deep, 5' in diam above the gun window, but this may not have put the gun of action. The gun was hit on the barrell just forward of the breech mechani by a shell, reported to be from DD Tank but possibly from a 4.7" shell which was embedded in the wall inside. Several hits around gun window were pr b produced by tank fire. The 75mm gun had been fired as empty shell cases were seen, and reports were obtained from people who were present on D day. It wa reported that several casualties by MG fire were suffered by infantry who tri to assault the position from seaward. The eastern side of the gun emplacement had an entrance through which the gun was wheeled. This entrance was covered heavy (1-1½' diam) logs. Near this entrance was an open circular gun platfor similar to that at E Courseulles No 1

W Courseulles 9 -
Two 5 cm mortar positions; about 60 yds behind the back of the beach, screene by sand dunes from the beach. The posts were Tobruk type, 3' diam (Hexagon shaped top instead of the usual circular type), and were undamaged. Many emp ammunition boxes were in the vicinity).

W Courseulles 10 -
Tobruk type 3' diam MG post with no damage.

W Courseulles 11 -
Tobruk type 5' diam MG post, similar to E Courseulles No 6. All round fire w possible as always with Tobruk type, but removable steps had been placed to f firing at the 75mm gun position to the east. The seaward edge of the concret lip had been hit and a few inches of concrete had been removed. The steel gu mount had a small hole produced by a shell splinter. The camouflage netting had not been much displaced from this post, and it is possible that it was do manned.

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SECRET

7 Courseulles 11 (Cont'd) -

If it had been manned it would have been put temporarily out of action by the shell hit, but the damage was not sufficient to stop a new crew and gun from operating.

7 Courseulles 12 -

Tobruk type 3' diam MG and OP. No damage.

7 Courseulles 13 -

Small OP with 6" viewing slits all round, which had suffered a direct hit from seaward, possibly 165 mm. The post was still usable as a sheltered OP, but anyone inside when the shell hit would almost certainly have been killed.

7 Courseulles 14 -

A gasproof, new type strong point (similar to E Courseulles 3) fitted with air-conditioning pumps and periscopes. Sleeping accommodation was available for 9 men, and 20 were reported to have surrendered. A heavy machine gun could cover the beach to the west, firing through a small hole, 12" by 9" in a 2½" thick steel shield. A 3' diam Tobruk type MG post was fitted flush with the roof, with access from outside the main shelter. A 3" flat concrete top had been placed over the circular hole and the post probably used for observation rather than MG. The main entrance to the shelter was on the shore side, and connected by trench systems to other posts. The roof of the shelter was level with the top of the dunes at the back of the beach. There was no evidence of damage to this shelter. This shelter probably was air raid shelter for nearby posts 15 and 16.

Courseulles 15 -

Situated about 20 yds to the SSE of the shelter No 14, and a few ft above it was a normal 5' type MG post, with all round fire. This had been hit a glancing shot in front, causing splintering inside. This position may have been knocked out by gunfire from seaward. It was reported to be out of action by at least H+20. The damage was not such as would impare the performance of the MG post with new gun and operator.

7 Courseulles 16 -

Open pit for 5 cm anti-tank gun with all round fire (a stop was able to be fixed to avoid firing into the 75mm gun to the east. The breastword was 2½' high, 2½' thick octagonal with 3½' sides (inside) and showed spalling in many parts. The gun may have been put out by fire from the sea, but it was reported that the gun fired, so that it probably was in serviceable condition after the fire from sea finished. The gun shield was badly broken, probably by close range fire from a tank.

Courseulles 17 -

Anti-tank position in rear behind river. Not inspected because mines not cleared, and reported flooded.

Courseulles 18 -

Big open pit for 75mm like the one near W Courseulles No 8. There was no trace of gun, and it is probable that this was only a temporary site.

Courseulles general -

(a) There were only a few houses in the rear of this sector, but those showed signs of gunfire from the sea. It is probable that as high a density of shells fell on this sector as, say at St Aubin, but they did not show up on the fields and marshy ground as on houses.

(b) There were traces of rockets in the back of beach area around 960 but not to the east of the West Courseulles area. No great density indicating MFI was observed.

(c) Big guns in this area were probably all put out of action by close range tank fire, and the machine gun and mortar positions gave up when surrounded by infantry.

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B SWORD Beaches

(i) Ouistreham

Ouistreham 1 -

Five centimetre anti-tank gun in open octagonal pit (like East Courseulles No.14) with 4-foot sides; i.e. about 9-foot 6-inches internal diameter. Walls 3-foot high and 3-foot thick with sand banked up to 3-yards in front. The gun had all round fire and had been hit on the gun shield, making a hole 1-foot 6-inches in diameter; the gun had been jammed by this hit. There were a few empty shell cases in the vicinity but it is probably that the guns were put out of action by S.P. 105 mm fire from seaward. The damage did not appear to be extensive enough for a 4.7 mm shell, but this is not certain. The underground shelter 15-yards to the south-west of number 1, with light concrete and earth roof, was undamaged.

Ouistreham 2 -

3-foot diameter Tobruk type machine gun post. No sign of damage to trench and shelter system in this area.

Ouistreham 3 -

3-foot diameter Tobruk type machine gun post with $\frac{7}{8}$" thick steel cupola. This post was sited on a sand dune at the back of the beach with 2-yds of sand in front. A few hundred empty light machine gun cartridge cases were inside. There was no damage to this post.

Ouistreham 4 -

Heavy emplacement about 25 ft square with protecting buttress on seaward side. Roof approximately 8 ft thick; walls 6 ft thick with a 45° slope of earth on the seaward side up to a height of nine to ten feet above beach level. The doorway at the back of the shelter; through which the gun could be wheeled, was protected by logs piled up to a height of about 10-feet and width 4-feet. The 75 mm gun fired through an embrasure facing westward, bearing about 320° with an angle of fire about 30° either side. The embrasure had been hit on the top south corner by a fairly heavy shell or possibly a potard which had cut the girder which runs along the top of the embrasure and had spalled away concrete on a circle about 5 ft diam centred on the top south corner of the embrasure. 1 ft of concrete had been stripped off this part of the embrasure which was about 3 ft thick. The gun barrel was cut to the inner lining in several places; one wheel was broken. There was no round in the gun breach and about sixteen empty shell cases in the vicinity. The embrasure was also hit on the northward side and the concrete inside the post was chipped in many places. It is probable that the gun had been put out of action by a heavy shell (4.7inch) from seaward, although it is possible that the damage was done by a mixture of armour piercing and H.E. fire from tanks or S.P. guns.

Ouistreham 4(a)

Adjacent to No.4 on the south side was a light machine gun position consisting of a 10 ft diam pit protected in the front by the 75 mm gun house, and,

/at the back.....

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at the back by a 45° slope of sand from ground level up to the lip of the pit which was 10 ft above ground level. The pit was about 1 ft deep with a 3 ft diameter hole in the centre of depth 5' for the gun operator. The machine gun was fitted onto a board which could be slid about in the gun pit on casters. A large number of empty cartridge cases were in this post and the lip of the pit had been slightly damaged, probably by a shot from inshore.

Ouistreham 5 -

Between numbers 4 and 5 there were two or three old overgrown and disused light machine gun or observation posts made of wood and sand. At number 5 there was no trace of any strong concrete emplacement, but a shelter with a 1 ft roof and 2 ft thick walls was undamaged.

Ouistreham 5(a) -

Part of the trench system a few yards to the east of number 5 had been destroyed and there were signs of the wreckage of a weakly constructed observation or machine gun post consisting of a 1 ft concrete slab laid as a roof on a shelter of sand, wood and light steel shuttering. It is probable that this damage was caused by the bombardment from the sea.

Ouistreham 6 -

Strongly built gas proof type (like that at East Courseulles numbers 2 and 3) with 5-ft thick roof and walls 4 to 5 ft thick. A 37 mm gun was sited to fire eastward along the beach with an approximately 60° arc along a line bearing 110°. The gun was mounted to fire through a hole 1½' diam in an 8½" thick steel plate. The gun barrel had heavy protection to cover direct fire through this hole. The roof of the post about the gun was made of 8" thick steel plate. This allowed the gun to be sited a few feet above beach level with ut the main roof of the post being more than 4 to 5 ft above ground level. Alongside the 37 mm was a small window through which a machine gun with a 90° arc could fire. Both gun embrasures could be shut by running the guns back and sliding thick steel shutters across. No trace of used ammunition was observed by people who were there on D-day and it is probable that these guns had not been fired. The seaward side of this post had been hit twice making holes about 3' diam and about 1' deep. These hits did not appear to have done any damage inside.

Ouistreham 7 -

Lightly built shelter with 1½' stone and plaster walls and roof with 1' of concrete and 1' of earth. This shelter had been hit on the south-east corner and splinters had made holes inside. Personnel inside would probably have been killed but the shelter was still usable after this damage. It is possible from the existence of showers and medical supplies that this was a light shelter for decontamination or first aid. On the opposite side of the road to number 7 were two stronger type shelters with 4' thick concrete roofs and 1" thick steel doors; these shelters were undamaged. It is probable that much S.P. artillery fire fell in this area because there were many 105 mm. shells which had not completely fragmented (in many cases the bottom half of the shell was quite intact).

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Ouistreham 8 -
A 5 cm gun in standard octagonal type open pit with 3' thick walls; top of concrete flush with ground. The gun had all round fire and overlooked the road running parallel to the beach. There was a hit on the shield below the gun and a small hit below the barrel. It is probable that the gun was put out of action by fire from tanks but the damage might have been done by S.P. artillery, since a great many S.P. shells had fallen in the vicinity. The concrete emplacement was not damaged. Approximately sixteen empty shell cases were in the vicinity.

Ouistreham 9 -
A concrete shelter with 4' thick roof and steel doors, almost flush with the ground and undamaged. 15 yds to the east of this was a 3' diam Tobruk type machine gun or observation post; this had a 4" thick concrete lid on top of the open pit with an 8" wide slit for observation or shooting.

Ouistreham 10 -
Octagonal pill box; 7' diam inside, with 10" thick concrete roof and walls 1' to 1½' thick used as an observation post, with a slit 8" wide giving an 180° vision to seaward. This post had been hit from seaward almost centrally right in the opening. The observation post was fitted with a periscope which had been knocked on to the floor by the direct hit but was not damaged. It is not certain what hit the observation post but it is almost certain that it was a shell fired from the sea and was either 4.5 or 105 mm. The post was entered by an underground passage with a strong concrete shelter in the rear (not gas-proof) but fitted with beds, telephones, wardrobes etc. and it is probable that although the hit damaged or killed personnel manning the post, replacements could move up from the shelter at the back.

Ouistreham 11 -
Concrete living quarters about 15' by 7' inside. One foot concrete, one foot earth roof; not damaged.

Ouistreham 12 -
25' square 5 cm. gun post. Roof 4' concrete, 1' earth; top being flush with the ground at the back of the beach; sand and turf piled up in front. The concrete was about 5' thick to seaward. Hit above the west embrasure had spalled the concrete off the sill of the embrasure; there were traces of splinters on the roof. Near the south end of the east embrasure the gun was lying outside but there was no evidence of what had put it out of action. The crew had probably been killed by a direct shot from a tank, or by splinters from the hits on the embrasure.

Ouistreham 13 -
Observation or machine gun post made of sand and turf; probably disused. Not damaged.

Ouistreham 14 -
Tobruk type 3' diam machine gun post sited just at the back of the beach in front of small dunes. 1½' of concrete to seaward. Not damaged; no evidence of firing.

Ouistreham 15 -
8.1 cm mortar post, 9' diam, with stone walls 1½' thick and 4' high with the top flush with the ground. All round fire. Not damaged; evidence of quite a large amount of fire; plenty of ammunition left.

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Ouistreham 15(a).

Similar to No.15; no evidence of firing, not damaged. Plenty of ammunition left.

Ouistreham 16.

Tobruk type machine gun post with all round firing. Emplacement not damaged but shell splinters on gun barrel had probably put the post out of action. This shell splinter was probably from 105 mm. artillery since there were many traces of these shells in the vicinity.

Ouistreham 17

Mortar position, probably like No.15, but completely demolished. The remains of this position were covered by sand and it is not certain what the exact strength was. This post was in the area of 105 m.m. S.P. artillery fire and may have been demolished by this type of fire or by heavier gun fire from seaward.

Ouistreham 18.

Tobruk type 5-foot diameter machine gun post undamaged. No evidence of firing.

Ouistreham 19.

Observation post with light 8-inch concrete roof and 1½-foot thick walls; demolished, probably by shell fire.

Ouistreham 20.

Concrete gun post approximately 20-foot by 30-foot housing a German P.a.k.40 75 m.m. gun facing westward bearing 310 degrees with about a 60-degree arc of fire. Roof 7-foot thick and walls to seaward about 6-foot thick. Sand banked to seaward up to the top of the roof, which was 10-feet above ground level. There was no damage to the gun embrasure but it was reported by a doctor who arrived at H + 2 that the crew had been killed by a shell from a tank which exploded inside. The gun was undamaged and had fired a great deal.

Ouistreham 21.

Strong point, about 15-feet by 30-feet, two stories high, by the road 200-yards from the back of the beach; camouflaged to look like a small house. Roof was two to three feet of concrete on heavy steel joists. The walls were two to three feet thick, windows for light machine guns faced to south and south-east and a Tobruk type 3-foot diameter machine gun post was sited on the east side of the building. This post could be reached from inside the building. The top storey (i.e. above the thick concrete roof) had been destroyed by gun fire; the main strong point had been hit by shell fire from the south and it is reported that the post surrendered after being shot at by a tank.

Ouistreham 22.

Open type mortar position about 9-foot diameter; 4½-feet deep. Platform for mortar was 3½-feet diameter raised 3-feet off the ground; [illegible] piled up all round. General level of shelter was 3-feet above ground. Not damaged.

Ouistreham 23.

Machine gun post dug in the sand; 7-feet diameter with 8-inch diameter wooden post 3-feet high for mounting a gun. Probably not used.

Ouistreham 24.

Small observation or light machine gun post made of logs and sand and turf with 4-feet x 2-feet opening to seaward. No trace of use and no damage.

/Ouistreham 25...

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Ouistreham 25.

Sand, turf and wood post in sand dunes. Not damaged and probably not used.

Ouistreham 26.

Wooden log post just by exit from beach. This had been Bulldozed out of existence to make an exit from the beach.

Ouistreham 27.

Sand and turf gun pit with 4½-foot high walls; 6 to 7-feet thick at the base and 2 to 3-feet thick at the top; 14-feet diameter inside. Crews dug-out living quarters nearby. No sign of gun or ammunition and not damaged.

Ouistreham 28.

Three mortar positions in field about 100-yards from the back of beach. Made of turf, sited in the sand with top flush with ground level. Mortars were probably 8.1 centimeter but a British 3-inch mortar was found near one pit. A certain amount of damage had been done to the trench system connecting this trench pit, but since these were inspected on D + 25 it is probably that considerable pushing in of walls in the sand had been caused by troops walking and digging in in the area. There were traces of rockets in this area and the trenches may have been damaged by these.

Ouistreham 29.

75 mm. gun on wheels in open pit. Sand and turf walls were 4½ feet high; 6 to 8-feet thick at the bottom and 2 to 3-feet thick at the top. The gun had been hit on the right hand wheel and side but there was no sign of what had caused the damage; it may have been gunfire from seaward, but local report suggests that it may have been knocked out by a flail. The sand-dune to seaward of this pit was ramped as if something had moved off the beach to the gun pit.

Ouistreham 30.

A round open pit with 8-inch thick concrete breastwork, 3-feet high on seaward side and flush with the ground at the back. No sign of gun, ammunition or damage.

Ouistreham 31.

6-foot square turf and sand machine gun post built into the back of the beach with 4-foot thickness of sand in front. The gun was fixed on a wooden board pivotted on 9-inch diameter log pole in centre of pit. A few used cartridge cases and plenty of unused ammunition were in the gun pit. There was no sign of damage.

Ouistreham General

(a) There was considerable damage to all houses along the part between the beach and road parallel to the beach about 150 - 200 yards back. There were remains of many 105 mm. shells which had not completely fragmented in this area.

(b) Considerable concentration of rockets fell on the western end of the assault area (Queen White).

(c) A few lightly constructed observation machine-gun posts had been knocked out by gun fire from seaward.

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i) Defences near SWORD Beach

LES COLLS

There were some strong points in the coast and inshore on the west flank of 'S' assault beach; some of the guns were in a position to enfilade the 'S' beaches. On the coast a strong point in front of a house, and perched on top of a 20' high cliff, had been damaged by fire from the sea but was still usable. The machine gun post attached to this observation post and firing eastward, had not been hit. The machine guns in this post, and in the smaller open post, had fired many rounds. There was a 75 mm gun in an open position which may have fired.

Houses in this area had strengthened basements and appear to be capable of strong defence; there were many interconnecting and firing trenches, both in the front and rear of these houses. The houses had been shot badly from both sides but the strong points were undamaged. One machine gun had been hit from seaward but was still usable as a pit provided a new gun and crew were available. The trenches were all in good condition.

Inland a 5 cm gun and Tobruk type machine gun and mortar positions had been constructed to guard the roads leading from the beach and running eastward and westward. It was reported that mortars and machine guns fired from this position were a considerable nuisance to those on 'S' beach for the first few days of the assault. The positions were all taken by attack from the land side.

E. ROUND 107800

Several strong points were sited to the east of the 'S' assault beach and were not included in the detail of 'S' beach because the guns could not bear on to the beach, except near the low water mark.

The guns consisted of two 75 mm in strong points, and 5cm protected from seaward and firing both east and west along the beaches and inshore. A strong periscope cupola with two guns, and eight rocket launchers were also in this area; also a few mortar positions.

The 75 mm guns were in strong concrete emplacements, of a superior type to those seen in other parts of the beach defences. The roof was of steel, so that strength was obtained without the high silhouette produced by the 6-8 ft. thick concrete roofs. In general the locality was much more strongly defended than other beach areas, and it appears that the Germans put their greatest effort into ports (vide Cherbourg), and left open beaches to defence by obstacles and a limited number of guns. The guns had fired many rounds, and it was reported that they had engaged support craft on the East flank of S force rather than the landing craft on the assault beaches. The guns had been spiked by the enemy by the removal of essential pieces of the mechanism, and had probably been deserted when it was discovered that successful landings had been made on the flank.

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C GOLD Beaches

(i) La Riviere

La Riviere 1 -
Heavy 25' square gun emplacement with 6' thick walls; 5' thick roof. Gun was probably 75 mm but no signs of it were seen and the evidence of damage at this post was spoilt by R.E. demolition work which had occurred before it was visited by special observer party. The gun was facing eastward on bearing approximately 090. The seaward side of the emplacement had been hit by shell fire but had not been demolished. The top had marks, probably caused by bombs and the roof had sagged at one corner but was still held up by the reinforcing. It was reported that the gun crew had been killed by concussion from the bomb or aerial bombardment. This emplacement was more damaged than any others on the coast that had been inspected but it is difficult to assess how much was done by bombardment and how much by R.Es. About 150 yds to the west of this position was a smaller strong gun emplacement under construction; it would have faced westward. Also in the vicinity was a smaller emplacement which was probably to be a 5 cm gun protected to seaward.

La Riviere 2 -
Probably machine gun post; completely destroyed either by hit from destroyer or by a bomb. Sea wall has been pushed outwards for 15 yds in the vicinity of this position and has been hit several times on the seaward side by shells.

La Riviere 3 -
Open position about 8' across on top of the sea wall with 2½' of concrete to seaward; probably for 5 cm anti-tank gun. A few hits on the front had spalled off a little of the concrete and it was reported that an L.C.G.(L) had dealt with this position. Trench system behind this and number 2 was undamaged.

La Riviere 4 -
Small machine gun emplacement behind 2½' thick lip of sea wall well built up to 3' high. No signs of damage. There was no evidence of firing of machine gun but this post was occupied by a beach group; it had been cleared up so that no evidence of guns etc. was missing.

La Riviere 5 -
Light machine gun or observation post with 1' thick concrete roof and sides and three slits 4" high to cover 180° fitted to view to seaward. Slight damage to front slit but no evidence as to its cause.

La Riviere 6 -
Strong emplacement for 88 mm. gun firing westward on bearing 285. Walls to seaward 6 to 8-feet thick; roof 5-feet thick. The wall to seaward was built up to the sea wall and a small breastwork had been built on the roof. Gunfire from seaward had pitted the seaward wall and knocked a few stones from the breastwork on the roof. There was no evidence of damage inside and it was reported that the 88 mm. gun had not been damaged. It is probable that this post was captured by infantry.

La Riviere 7 -
About 20 yds to the south west of number 6 was a shelter for troops which was undamaged. Also an open mortar position with an arc of fire from 145° to 055°; there was no damage to this and no evidence of firing.

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La Riviere 8 -

Standard 5 cm gun position protected from seaward by concrete wall (like that at St Aubin 1). The concrete to seaward showed marks of several shell hits but the good protection from seaward still remained. The gun was undamaged, and the concrete on the inside had not been spalled off, although the hit to seaward had produced slight cracking. The firing circuit and battery had been removed. It is probable that the gun crew left after the shell hits, but the gun could have been used.

La Riviere 9 -

Open 5' machine gun position with 1' thick concrete and reinforcement of corkscrew pickets. There was much used machine gun ammunition by this position. The post had been thoroughly destroyed and there was no evidence to show whether this had been done by the R.Es or by gunfire.

La Riviere 10 -

Pill box type machine gun post with embrasures about 8" deep facing east and west along the beach. The roof was about 1½' thick concrete, and the walls were 3' to seaward and 2' at sides and back. The pillbox had been put out of action by a 4.7" shell which had penetrated the pill-box and had burst inside. The East embrasure was blocked by fallen concrete. The main structure of the pill-box was intact and could have been used by a new crew and new guns.

La Riviere 11 -

Open machine gun pit with 1' thick concrete walls. A hit had spalled concrete off the inside of the seaward side lip. It is probable that this post had been put out of action by fire from seaward but as with all the places in this vicinity there was no proper evidence because much clearing up and demolition work had been done subsequent to the assault.

La Riviere General -

(a) Houses on the front at LA RIVIERE and in the village at Mont Fleury had been damaged by bombing and by shell fire.
(b) Some large bomb craters (30-40' across and filled with water) were in the marshes at the back of the beach in this sector.
(c) A few traces of rockets were found in the area west of La Riviere (926867).

(ii) ASNELLES

Asnelles 1 -

Machine gun post with 2' thick walls; 3' thick roof and embrasures facing west and east along the beach and inland. This post was not damaged by bombardment and it was reported to have been captured by infantry; after it had produced considerable harassing fire to troops on the beach. It is probable that this was the central control post for the defences in this area for the many wires in the area.

Asnelles 2 -

5 cm anti-tank gun in open octagonal pit with breastwork 3' high and 3' thick and all round fire. It was reported that this gun had not been fired because the crew had been sheltering from the bombardment, and the crew surrendered after hand grenades had been thrown inside. The 5 cm gun had been hit by a few shell splinters but was virtually undamaged.

Asnelles 3 -

Open gun position dug in sand and providing the end of the trench system in connection the positions in this area. It was reported that no fire had come from this position but that much light machine gun fire had been directed from the trench system and small concrete one man pits just behind the trench system. The bombardment had not damaged the trench system and had clearly not neutralised the personnel manning them for a long enough time to allow the assaulting infantry to take over the position without opposition.

Asnelles 4 -

37 mm. gun on fitted carriage; housed in small garage and able to be wheeled out and fired from an open pit. The gun was found in the garage with the muzzle facing shorewards and it is clear that the bombardment had stopped the enemy from wheeling the gun and from using it.

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Asnelles 5 -
Open pit machine gun post with sand and turf walls. No damage by shell fi and reported to have been used against assaulting troops.

Asnelles 6 -
Small machine gun post not damaged by bombardment and reported not to have been used.

Asnelles 7 -
Large gun emplacement for French 75 m. wheel gun with wheels removed and fitted on to a swivel mounting. The gun fired eastward along the beach with an arc of fire about 60° centre on bearing 050. (The position was like that at East Courseulles 1). There was slight damage on the top scu side of the embrasure causing by shell fire from the sea or tank fire fro the beach. It was reported that this gun had been very damaging to tank the beach and was finally put out of action by a tank which came round th back and detonated the ammunition in the emplacement by firing a petard through the back door. Inside the emplacement showed signs of fire and explosions. Two of the crew were said to have survived and continued sni until the afternoon of D-day.

Asnelles 8 -
Heavy machine gun position built onto building on the top of the sea wall with 2' thick concrete protection to seaward. Could fire along the beach towards the east. Reported to have been knocked out early; probably by infantry and tanks. There was a small hole in the concrete on the east s probably caused by a shot from a tank.

Asnelles 9 -
Command post with periscope fitted in 3' hole with all round vision to seaward - undamaged.

Asnelles 10 -
3' diam Tobruk type machine gun post with all round fire; no sign of empty cartridge cases and no damage.

Asnelles 11 -
It is possible that the observation or machine gun position existing here was completely destroyed by a direct hit from a bomb. The crater wa about 25' diam and 6 to 10' deep.

Asnelles 12 -
Bomb crater at the end of trench syster about 30' diam and 12' deep may h removed strong point marked on map of sector; if there was a strong point the destruction was complete.

Asnelles 13 -
Tobruk type 3' diam machine gun post undamaged. Reported to have fired. Large crater about 25' diam; 10' deep was 20 yds to the east of No.14.

Asnelles 14 -
Tobruk type 3' diam machine gun post. No sign of damaged; no evidence to whether guns had fired or not.

Asnelles 15 -
Possible remains of two positions. Around this point are bomb craters. Evidence as to what sort of strong points were originally there has been obscured both by the bombing and by the clearing up of the mess to make an exit from the beach.

Asnelles 16 -
3' Tobruk type machine gun post undamaged.

Asnelles 17 -
Strong concrete position with 5 cm gun (like St.Aubin 1) type. This gu could cover the beach to the west and the road running inland from Asne but could not bear on 'S' assault beaches. The gun was undamaged. It reported that the gun had fired and had been put out of action by infant attacking from the shore.

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APPENDIX III

NOTES ON PRO-FORMA

1. Of 11 5 cm, 75 mm. and 88 mm. in the British assault landing areas, all in strong roofed reinforced concrete emplacements and faling to enfilade the beach :-

5 destroyed by tank, 2 possibles
3 possibly destroyed by naval guns
2 taken by infantry
1 possibly destroyed by bomb.

2. Of 4 5cm. guns with strong protection to seaward:-

1 put out of action by tank
1 taken by infantry
2 taken by infantry or not manned because of support gun fire.

3. Of 9 5cm. and 75 mm. guns in open gun emplacements also in the assault landing areas :-

2 put out of action by tank, 2 possibles.
2 taken by infantry
2 put out of action by naval guns, 2 possibles
1 destroyed by bomb.

4. In places outside the actual assault areas, there were other gun emplacements, the majority of which had been abandoned by the enemy after spiking their guns. In the Ouistreham area pieces of the gun mechanism had been removed, while in other places it was usual to use standard gun demolition charges. Some of the guns in the non-assault areas had fired, and some had been engaged by naval guns (2 out of were put out of action by naval gunfire), but there does not appear to have been such stiff resistance from these guns as from those on the assault beaches. It is probable that in the non-assault areas the enemy retired after it was discovered that a breach in the coast defences had been made elsewhere.

5. Very few M.G. and mortar posts have more than superficial structural damage caused by naval bombardment.

6. Observation and M.G. posts facing on to the sea, with slits to seaward (as opposed to the Tobruk type with strong wall to seaward and opening upwards) have often been hit by naval gunfire. The damage caused is structurally insignificant, but would have been sufficient to neutralise observers.

7. A few M.G. and observation posts have been hit by bombing in the Asnelles area, showing that where accurate bombing is possible it can be effective against lightly built emplacements.

8. In some cases where positions are given as ultimately neutralised by infantry, it is possible that the enemy had deserted the position, and some credit is due to fire support from seaward.

9. Tobruk type positions are those with round emplacement flush with the ground, with concrete shelter underground and leading to the round emplacement. In some cases Tobruk typed were built into sand dunes or seawalls, and were protected to seaward by their concrete only; usually the protection is from the earth all around them as well as from the concrete.

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TOP SECRET.
APPENDIX 4.

BATTERIES.

(a) Anti-Ship batteries.

There were about 12 batteries of this class capable of firing at the assault areas or supporting ships. Of these, only 3 were in the British sector, namely:-

Riva Bella,	6 x 15.5 cm.	at 117797.
Longues	4 x 15 cm.	at 797871.
Mont Fleury	4 x 12.2 cm.	at 918861.

None of the anti-ship batteries appears to have been complete. All were at various stages of conversion to a more or less standard type, with the following features:-

Guns in heavy casemates.
Large control post, with optical rangefinder, plotting table and perhaps simple fire control table and probably long base rangefinder.
Guns fitted with sights and placed with a good view to seaward.
If on static mountings, fitted to receive bearing and range electrically.
Much ammunition held in [illegible] casemate.
Large embrasure, within wh[illegible] only protection is the gun shield.

The various batteries were incomplete in different respects. In at least two cases (Pointe du Hoe and Riva Bella) the guns were still in open emplacements and had been moved before D-Day because of air attacks. These guns did not fire. At Longues (a new battery) the guns were casemated but the control position was incomplete and no instruments were installed. In the three batteries outside the British Sector to the east, casemating was far from complete and it is not known whether the guns were moved as at Pointe du Hoe and Riva Bella.

Similar batteries near Cherbourg were definitely further advanced, and one at least appears to have been complete.

There do not appear to have been any specialised arrangements for blind fire. P/W reports suggest that the guns could fire on plots telephoned from nearby radar stations.

These positions were strongly defended against land attack. Defences consisted of minefields, wire, mortar and machine-gun positions, light A.A. guns, sometimes A/T guns. Positions overlooking cliffs had 11 inch shells suspended over the cliff edge ready to be dropped, although it is reported that when some of these were released they did not explode.

(b) Casemated Field Guns and Howitzer Batteries.

There were probably 8 4-gun batteries of this type. In two of these the guns were not yet in the casemates.

/As in the case.....

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As in the case of the anti-ship batteries, these were mostly incomplete although rather further advanced, perhaps because of their simpler and more standardised type. Again, batteries of this type near Cherbourg were further advanced than those in the assault area.

General features were as follows:-

Casemates were of reinforced concrete about 7' thick and faced seaward.
There was a large embrasure at the front (about 6' high x 7' broad) and a still larger opening at the back. In completed casemates the latter was closed by 2" steel doors.
Guns were on wheeled mountings and had only a very light shield.
Guns had only their normal field sights.
Batteries sited about 2,000 - 3,000 yds inland.
Battery probably in communication with an O.P. on the beach.
The original open emplacements were retained so that the guns could be brought out for all-round fire.
Light flak defence, about 2 - 4 2 cm. guns.

No serious damage had been done to the gunnery installations by bombing, but living accommodation had been completely wrecked in several cases.

(c) Open field gun and howitzer batteries.

There were about 12 4-gun batteries of this type bearing on the assault area and occupied.

In general, positions with concrete emplacements had been deserted, and the guns had been moved to earthwork positions. In many cases these were not detected by air photography and were therefore attacked neither by bombing nor in the prearranged Naval Bombardment. Only 1 of the 9 batteries of this type in the British sector was attacked from the air. These batteries were sited about 5,000 yds inland and probably had O.P's on the beach.

(d) Evidence from captured documents.

Evidence from captured documents indicates that the intention of the German High Command who anticipated several waves of heavy bombing of important positions to take place before any attempted landing, was to provide bomb proof structures for the personnel to occupy during such attacks, bomb proof gun houses to prevent damage to the weapons and to issue instructions that the guns would be manned on the conclusion of such attacks.

The following paragraphs are descriptions of the batteries visited in the British sector. All those engaged by ships in the prearranged programme, except Quistreham II (103779), were visited. Most of the occupied batteries of type (c) were not seen since their locations were not known.

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Vaux sur Aure 792831

This 4-gun open position was unoccupied on D-day and had been so for some weeks before. German documents quoted in Annexe II to Martian report No. 4 (new series) suggest that on D-day the guns were located at 794830 some 250 yds. S.E. of the main position. Only the main position was visited.

The position had been heavily bombed and there were about 14 large craters within the perimeter wire. One of the gun emplacements was severely damaged and another was 2 to 3 inches deep in debris. Considerable damage had been done to unoccupied living quarters and magazines in an adjoining wood.

The position was bombarded by H.M.S. Argonaut in 2 air-spot shoots on D-day. 13 craters were found within the perimeter wire, corresponding to a density of 1.9 craters per acre.

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Aromanches I (La Petite Fontaine) 848853

This 4 gun battery was sited round a farm, which was used for quarters. Two of the gun emplacements were concrete structures, camouflaged as hay or straw stacks. The other two were shallow earthworks.

When the battery was visited, the only gun seen was a French 7.5 c.m., whose breech had been blown by a demolition charge. The guns were reported as of 10.5 c.m. calibre in statements before D-day, and this appeared to be confirmed in the list of batteries in Martian report No. 4 (new series), compiled from captured maps.

The battery had been attacked from the air, but there were no craters near the emplacements.

5 Naval bombardments were carried out on D-day with air spotting. The density of craters around the guns was about 4 per acre. No evidence of material damage was seen, but fragment damage to the guns would not have been observed.

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Ver Sur Mer 917844.

This battery consisted of 4 - 10 cm Czech howitzers in heavy casemates. The latter are described as "under construction" in "Battery Photographs".

It was heavily bombed between H-30 and H-5 with 500 lb. and 1000 lb. bombs fuzed .025 delay. The main weight fell on auxiliary buildings behind the casemates, and did severe damage to them. The casemates and the guns inside were undamaged. All guns fired, about 35 rounds per gun.

The battery was bombarded by H.M.S. BELFAST on the morning of D Day. The density around the guns was about 1 - 3 craters per acre. No direct hits were scored on the casemates, and the only material damage caused was to a shallow underground ammunition shelter, whose roof was hit and blown in.

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Moulineaux I (Réviers) 972808

This was an open battery of 4 10 c.m. howitzers of Czech manufacture.

In "Battery Photographs" the guns are seen in 4 open pits in the centre of a field, centred on the point 972809. In the report on the state of batteries on June 1st, only one of these is said to be occupied, and no indication is given as to the whereabouts of the other guns. Presumably, for this reason, the position was not bombed.

On visiting the site, it was evident that the one "occupied" position had held a 2 c.m. A.A. gun, and that the howitzers had been moved to open positions in the hedge at the south side of the same field, around the point 973806. The guns had fired from 30 to 50 rounds per gun.

The battery was bombarded by H.M.S. Diadem in three shoots on the morning of D-day. The density of craters was 2.8 per acre around the occupied positions, and 3.9 per acre around the marked, unoccupied positions.

Two of the guns appear to have received fragment damage. A P/W statement suggests that this was caused by Naval gunfire, and put the guns out of action.

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MONT FLEURY 918861

Battery of 4 - 12.2 cm. Russian guns on wheeled mountings.

4 casemates were being constructed around 918861, facing rearward. Of these, the eastern two were complete, but only the second had yet had a gun installed. In the more westerly two, the structure was not ready for the concrete to be poured.

The other 3 guns were in the open at 915859, in quite unprotected positions.

The casemates were of a pentogonal shape, not seen elsewhere. Their dimensions and construction are described in Major Anderson's report.

The area around the casemates had been heavily bombed.

There was a direct hit by a 500 lb. bomb on the occupied casemate, on the S.W. corner above the shell room. The crater in the concrete was 12 ft. across and 4 ft. deep, but the shell room was not seriously damaged.

No bombs fell near the guns in the open.

Much damage was done to auxiliary buildings.

The battery was engaged by cruisers on the morning of D Day. The density of craters around the casemates was about 3-5 craters per acre.

Craters were not counted around the guns in the open, but the density was of the same order.

No material damage appears to have been done.

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Colleville-Sur-Orne
076785

This battery of 4 - 10 cm. howitzers was very similar to that at Ver-sur-Mer. Only three of the casemates were complete, however, and the fourth gun was not located.

Bombing had caused much damage to auxiliary buildings, but none of the casemates were affected. An open emplacement was seen with a bomb crater overlapping its edge, but it was not possible to ascertain whether the fourth gun had occupied this position, and if so, what damage it had suffered.

The battery was bombarded by H.M.S. DRAGON. Only a small number of shell craters was seen, and none of these appears to have caused material damage.

The casemated guns appear to have fired about 100 rounds per gun.

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APPENDIX 4.

Riva Bella. (Ouistreham). 117797.

This appears to have been a battery of 6- 15 cm. anti-ship guns. 6 guns are noted in "Battery Photographs" (Appendix 7, Annexure E, to O.N's). This number is reduced to 3 in the report on the state of Neptune Batteries on 1.6.44 (21 A.Gp/00/431/7/Ops(A)), and none were present when the battery was visited.

There was, however, a large stock of ammunition in the magazines, and the control tower was equipped with rangefinder (3 metre base) and plotting table.

The guns had been in open concrete emplacements, but 3 large casemates were under construction.

Other guns in the area were as follows:-

2 - 7.5 cm. in concrete casemates with 9" steel roof (1 still under construction but occupied).
1 - 5.0 cm. A/T gun in small casemate with wall to seaward only and roof.
1 - 2.5 cm. A/T gun in open emplacement.
1 - 7.5 cm. gun in open emplacement.
1 - 5.0 cm. A/T gun in casemate with two embrasures.

Four out of these six guns had fired a considerable number (40 to 200) of rounds. It is reported that these guns had attacked only the support craft. The open 7.5 cm. was destroyed by a direct hit, and the 2.5 cm. was left undamaged. The others were rendered useless by removing parts from the breech mechanism. Strong points, living quarters and magazines in the area were of very strong reinforced concrete (5-7 foot roof), gasproof type.

The scale of defence and the quality of the installations were altogether of a higher grade than was seen elsewhere in the British sector. The steel-roofed casemates for the 7.5 cm. guns were of particular interest in the following respects:-

(a) They were very low and well banked up with sand on the seaward side, making detection from seaward extremely difficult.

(b) Magazine was below the gun house.

(c) One of the casemates incorporated in its seaward wall a deep O.P. with periscope and a Tobruk type M.G. position.

A heavy concrete M.G. post was equipped with a large periscope, and its entrance below ground level was covered by a machine-gun embrasure.

The battery had been heavily attacked from the air, a total of about 700-tons having been aimed at it. The accuracy appears to have been poor compared with that seen at other batteries.

Material damage was slight, and probably would not have put any of the installations out of action, nor killed any personnel in the concrete shelters.

However, it seems likely that the air attacks were the reason why the guns were removed. It was also reported that the electric supply had been cut off by the bombing, and that the controlled minefields at the mouth of the Orne, which were operated from this strong point, were rendered inoperable because they worked off the mains.

/further details....

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(Further details of the bomb damage are given in Major Anderson's report.)

The battery had also been shelled, with the following results:-

Direct hit on 7.5 cm. gun in open emplacement, Gun out of action..

Hit on control tower immediately above rangefinder slit. This caused only slight spalling on the inside, and had probably not damaged the rangefinder. The slit would probably have been cleared if the battery had been in action.

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APPENDIX 4.

LONGUES. 797871.

This is a battery of 4 statically mounted 15 cm. Naval guns in heavy casemates. The guns are 350 yds. inland from the edge of a 200 ft. cliff, and there is a clear view to seaward from the gun positions.

Each gun was fitted with an elaborate sight bar, carrying laying and training telescopes, which were displaced from the cradle by appropriate amounts for elevation and deflection. No electrical receivers were fitted, but it is probable that this would have been done later.

An O.P. was under construction at the cliff edge. The structure was practically complete, but no instruments were seen and wiring had not begun. It was of the usual reinforced concrete type, with a slit for the rangefinder.

Living quarters were near the cliff and were sunk so that the roof was at ground level, but they were of light construction.

Other defences near the cliff top were:

1 M.G. position.
3 Mortar positions.
2 2-cm. flak positions.
1 searchlight.

Also 11 inch shells were suspended over the cliff edge on wires. It was stated that some of these had been released by R.E.'s and had not exploded. These defences were undamaged except for the searchlight, which was stated to have been hit by a Naval shell.

The position had been heavily bombed. Of the four casemates, only one (the second from the east) had been damaged by the bombing. Two direct hits by 500-lb bombs had knocked the roof through above the shell room, and a very near miss whose crater extended under the casemate had cracked the floor. However, the gun fired on D-day. The position was heavily cratered, and it is probable that if centralised fire control had been installed, it would have been destroyed by cutting of cables. As it was, the four guns were very independent and their capabilities were probably quite unaffected by the bombing.

Two of the guns were put out of action by direct hits from 6" piercing shell, which passed through the embrasures. This can only be regarded as a remarkable stroke of good fortune, since no other hits were scored on the casemates. The odds are about 50 to 1 against such an event (i.e. given a total of two hits on 4 casemates, it is fifty to one against one shell entering the embrasure of one casemate and the other entering the embrasure of a different casemate.)

The gun shields were thin - 1 cm. in front, and 6 mm. on the sides and roof.

The rear entrance of each casemate was small and was protected by a concrete porch.

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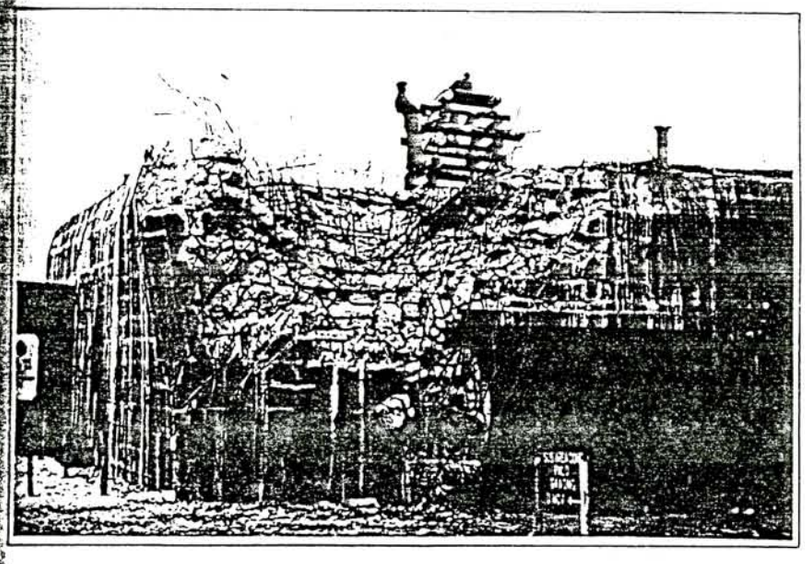
PENDIX VI

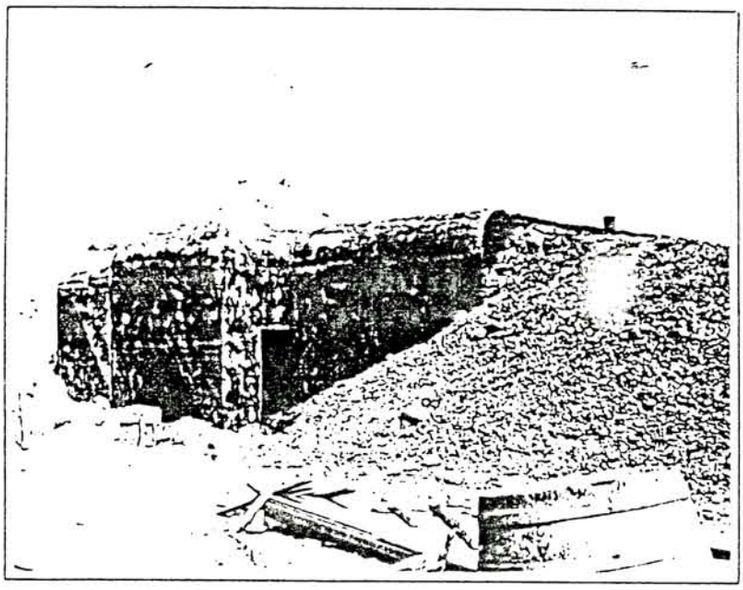
SECRET

MASSIVE CONCRETE POSITIONS

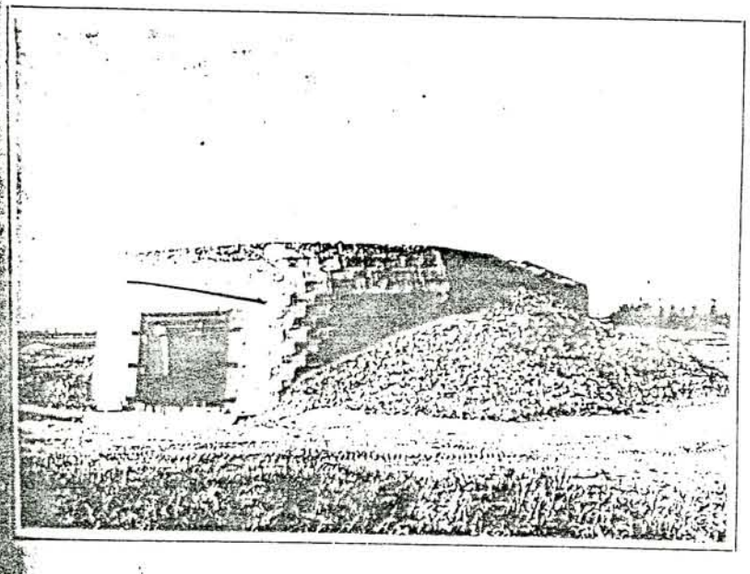
Page 1



Damage by bomb to gun emplacement at Mont Fleury (918861)



Rear entrance of heavy casemate at Longues battery (Naval 15 cms.)



Casemate at Ver-Sur-Mer. containing 10cm. Czech howitzer.

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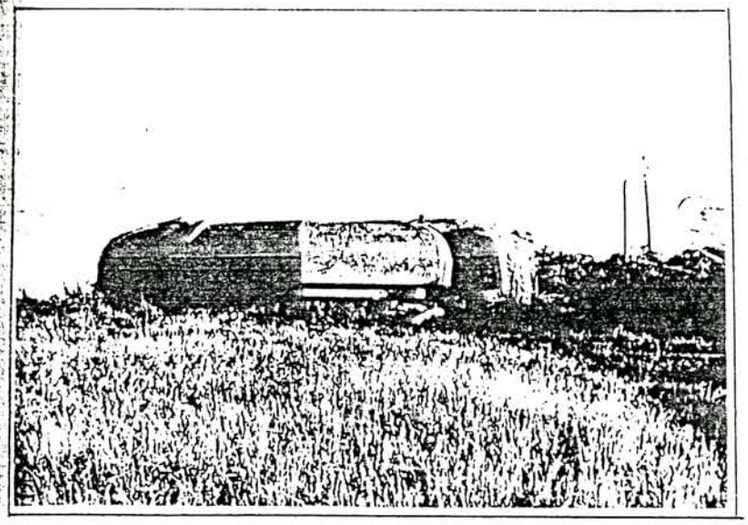
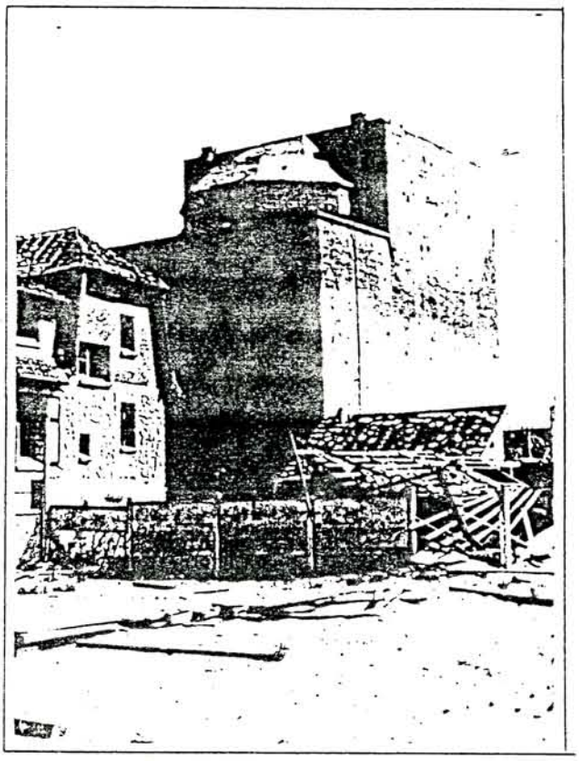
APPENDIX VI

SECRET

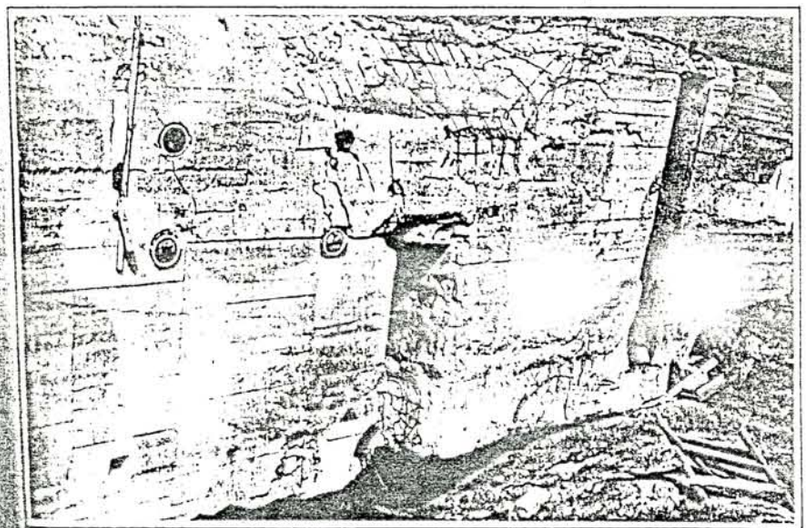
MASSIVE CONCRETE POSITIONS



Unoccupied O.P at 155 cm. battery between Cherbourg & Querqueville.



Direct hit near slit of rangefinder tower at Ouistreham coastal battery No internal damage had resulted.



Shelter at Ouistreham coastal battery. Bomb hit had damaged door and made crater about 30 ft. dia.

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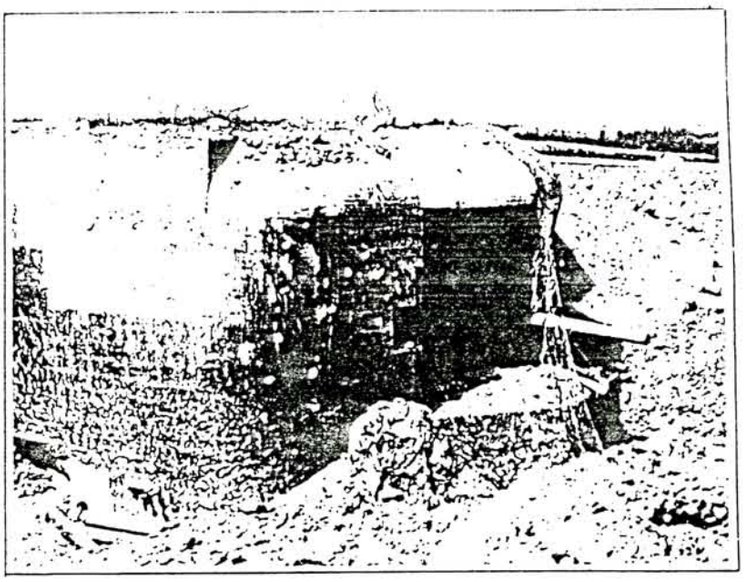
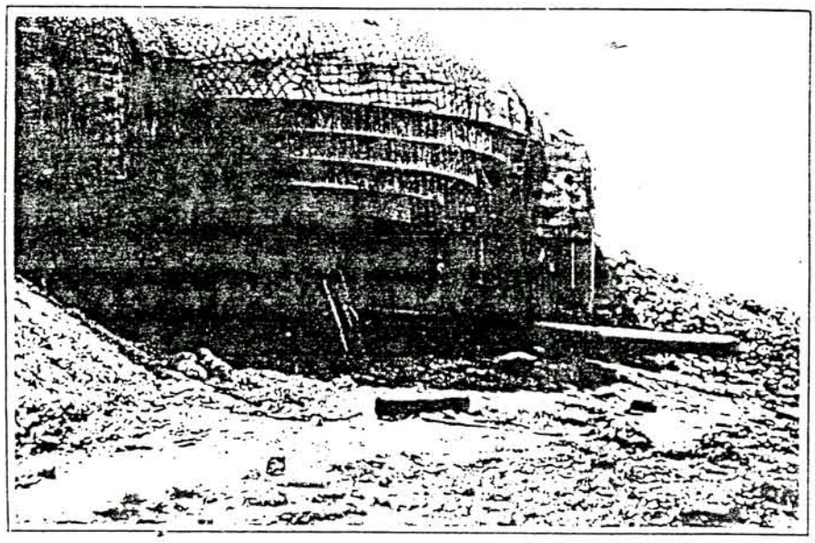
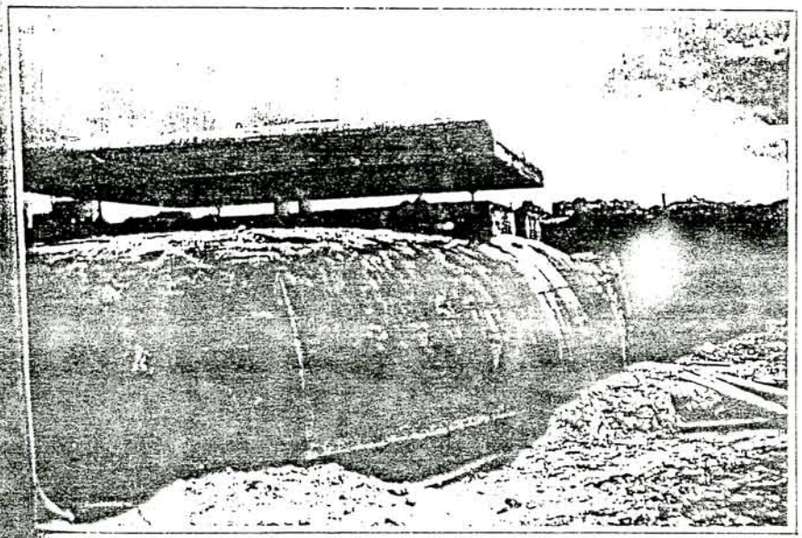
MASSIVE CONCRETE POSITIONS



Strong concrete gun emplacement with bomb craters. (Longues battery)



15cm. gun at Longues



Control tower at Longues battery from the front.

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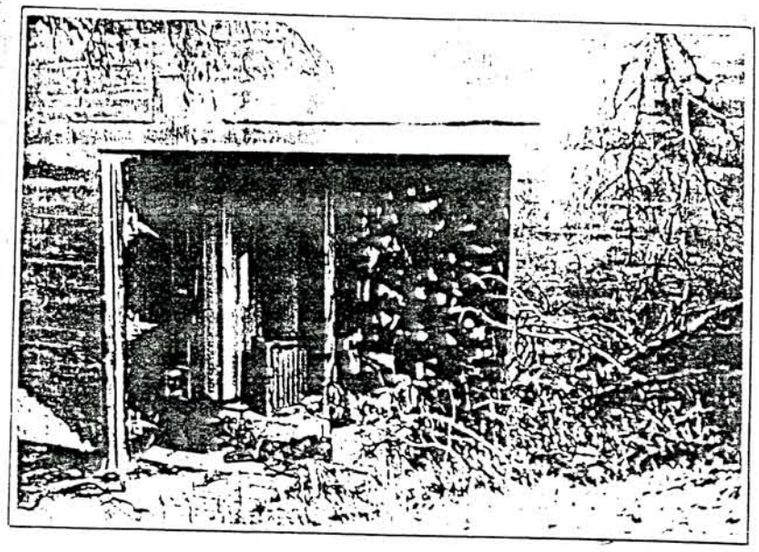
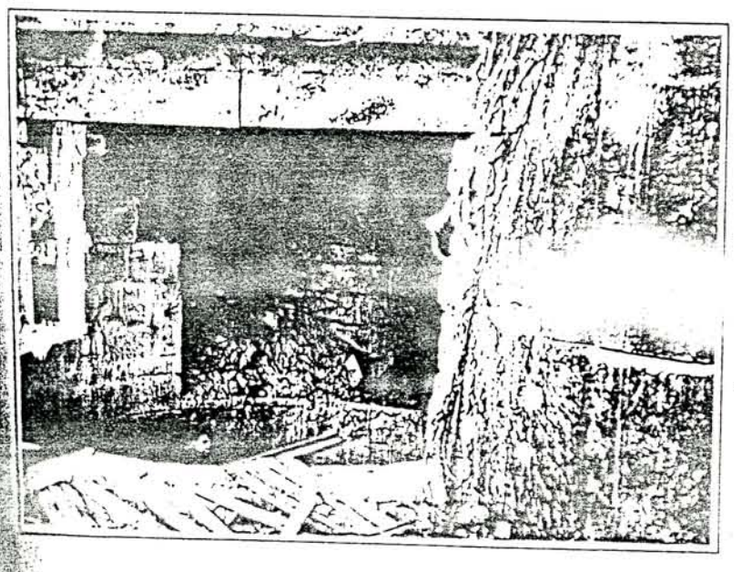
MASSIVE CONCRETE POSITIONS



Back of casemate at Digosville showing steel doors. Some type of casemate as at Ver-sur-Mer.



Interior of casemate defeated by battleship shell. Pt.-du-Hoe.

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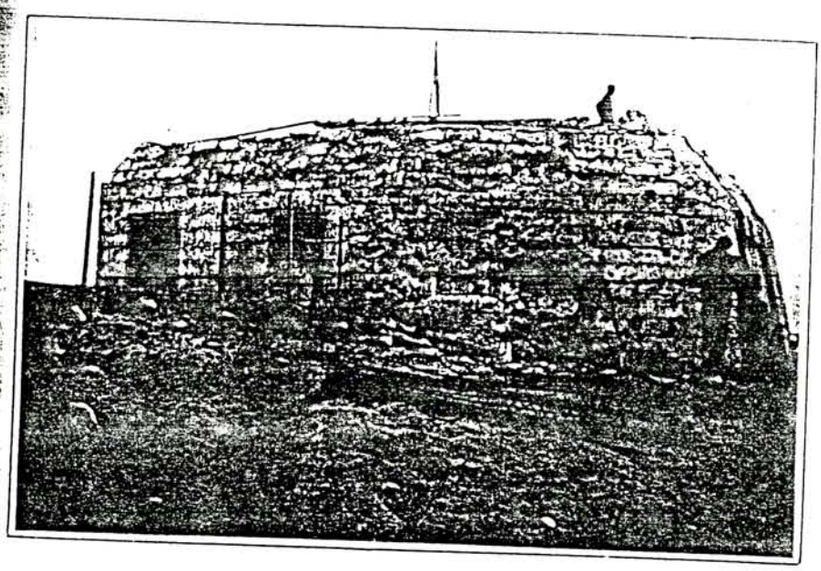
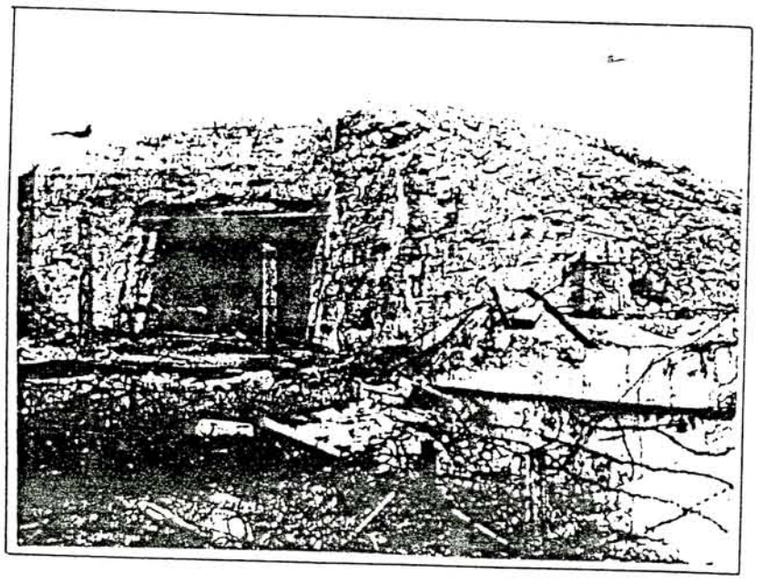
APPENDIX VI

SECRET

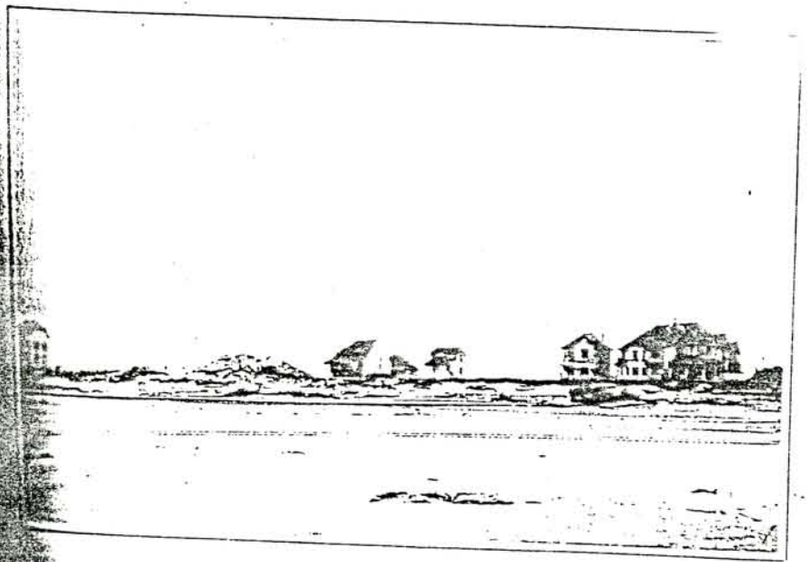
EXAMPLES OF HEAVY CONCRETE BEACH DEFENCES



75 mm. gun emplacement (E. Courseulles No 1 974856) showing hits on seaward side.



88 m.m. gun position showing effect of shell fire on emplacement.



75mm gun house from about 150 yds. to seaward. (Ouistreham No 20) 087807.

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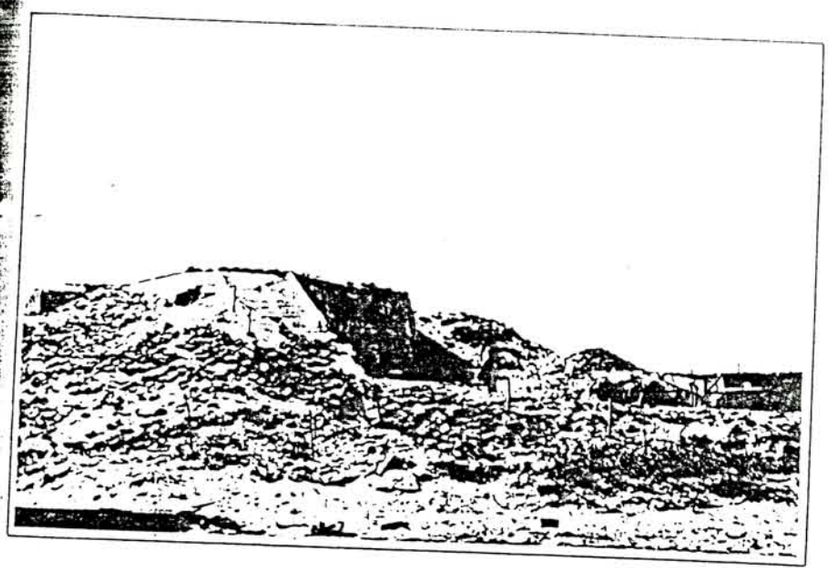
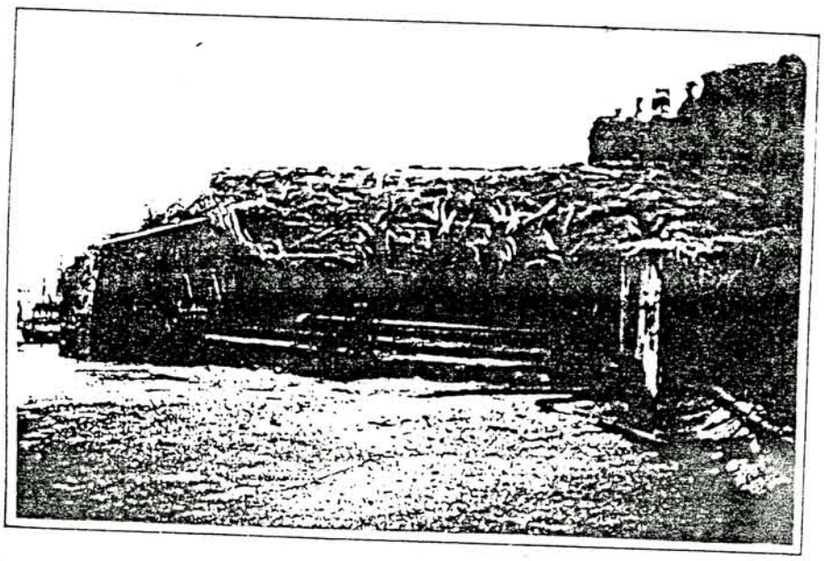
PENDIX VI

SECRET

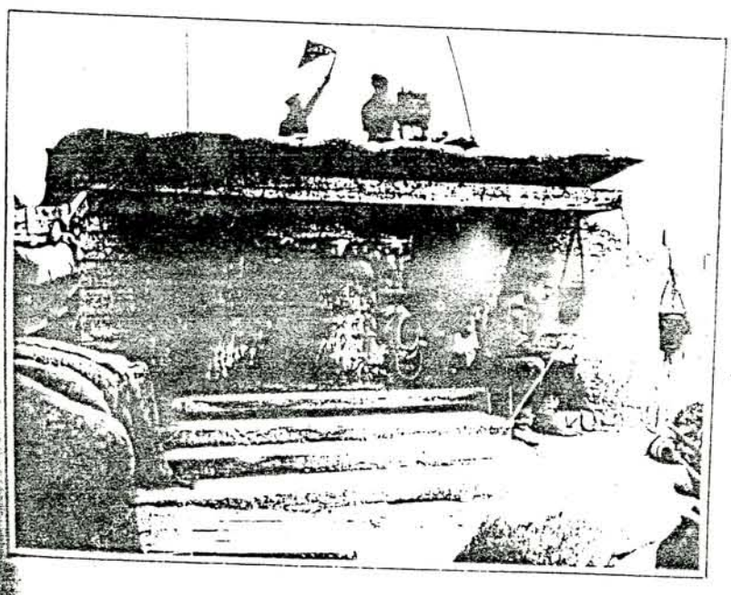
AMPLES OF HEAVY CONCRETE BEACH DEFENCES



W. Courseulles No 8
View from seaward
964858.



View from West of sea
Strong concrete
emplacement. (West
Courseulles No 1. 969858



Concrete & steel
emplacement showing
ball mountings of 3·7cm
& M.G.

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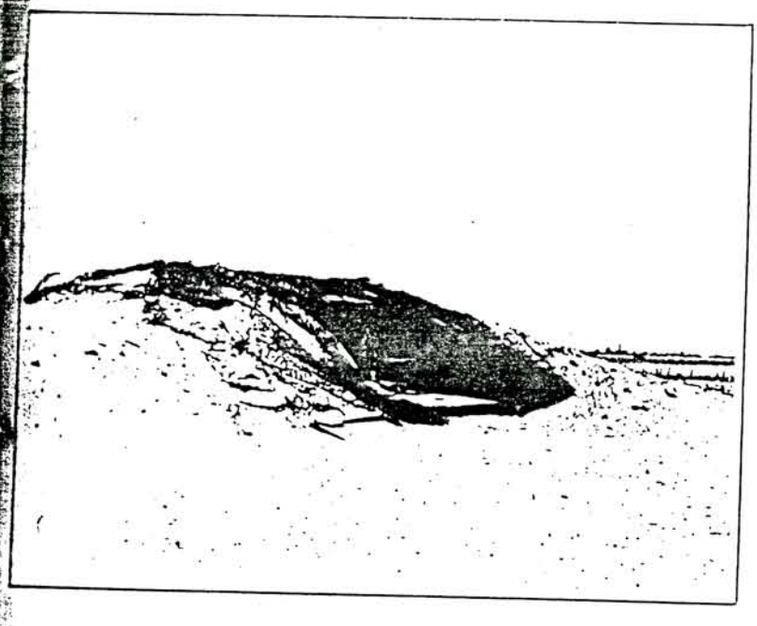
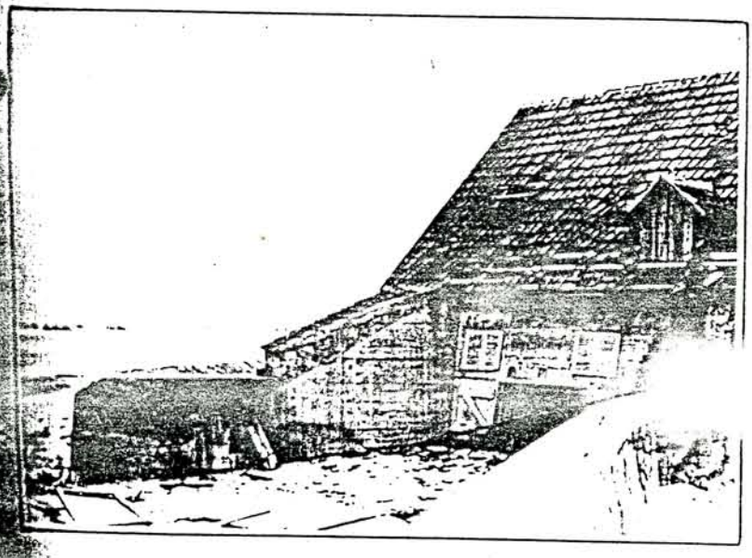
APPENDIX VI

EXAMPLES OF HEAVY CONCRETE BEACH DEFENCES



Concrete Casemate on beach (Roof not yet fitted,) is 9" steel.



Front of 75 c.m. casemate at [illegible]inéville.

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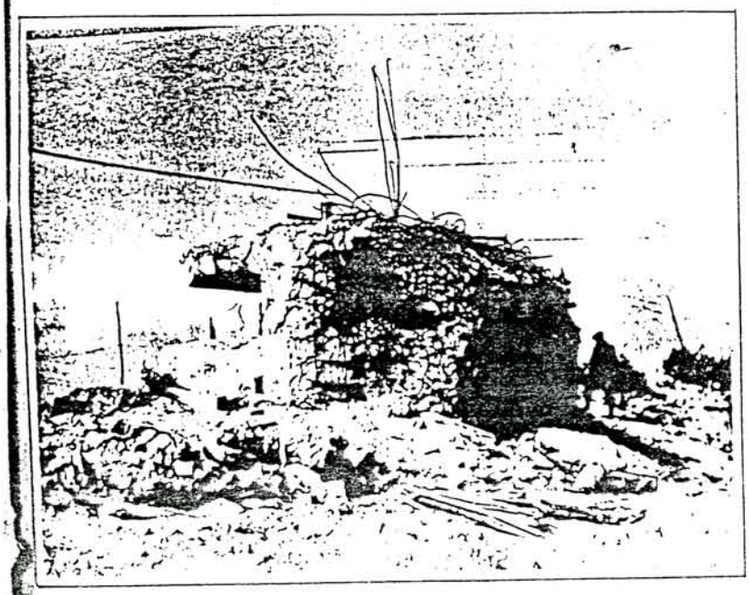
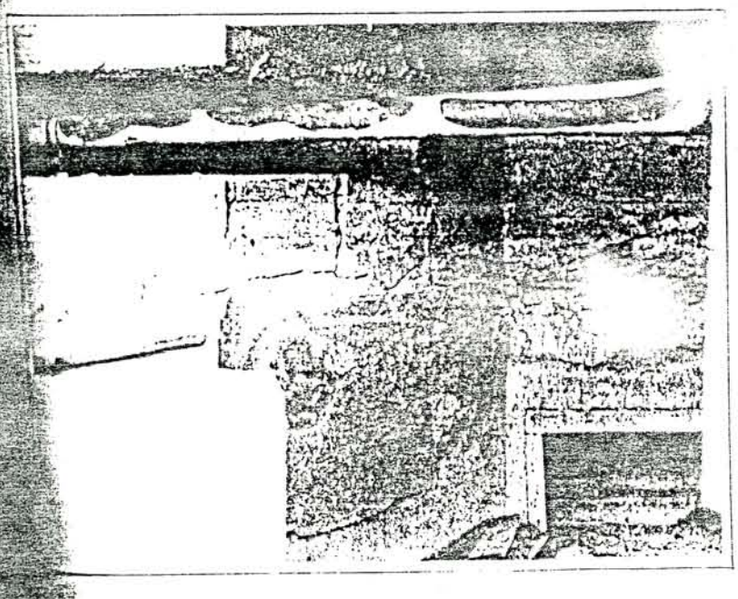
EXAMPLES OF 5CM. A.T.K. POSITIONS

5cm. gun emplacement at La Riviere, showing hits on seaward side.



5cm. gun position at La Riviere showing damage.



5cm. gun at La Riviere showing slight cracking on inshore side caused by 4·7" shell.

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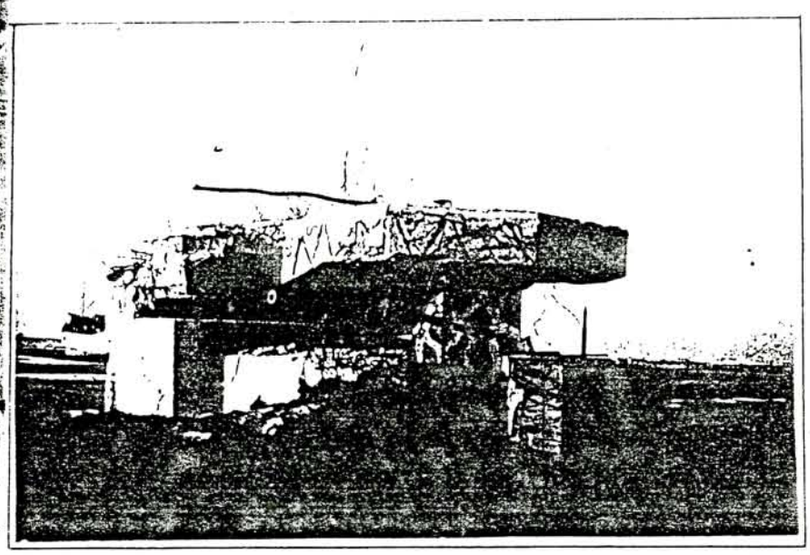
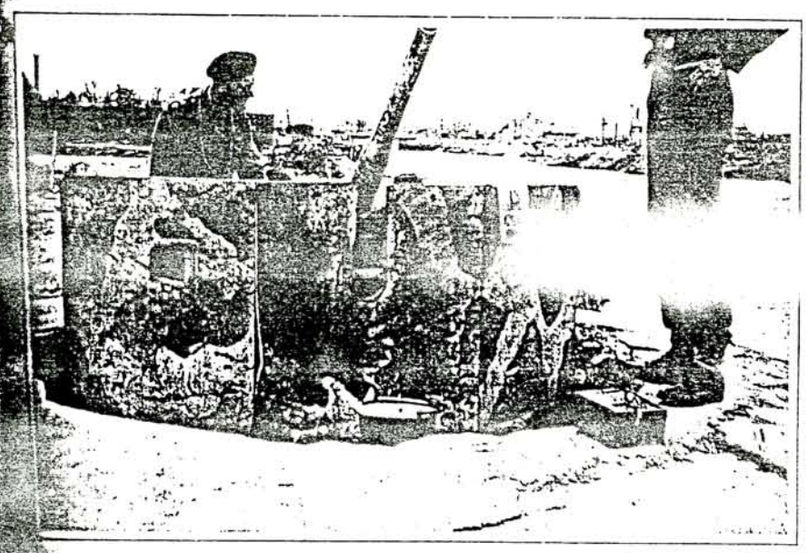
EXAMPLES OF 5 CM. A.TK. POSITIONS



5cm. gun position at La Riviere from the shore. Note that in spite of damage on seaward side the gun is still in working condition. 908870



Open 5cm. gun placement at Courseulles showing damage to gun shield. 969857.

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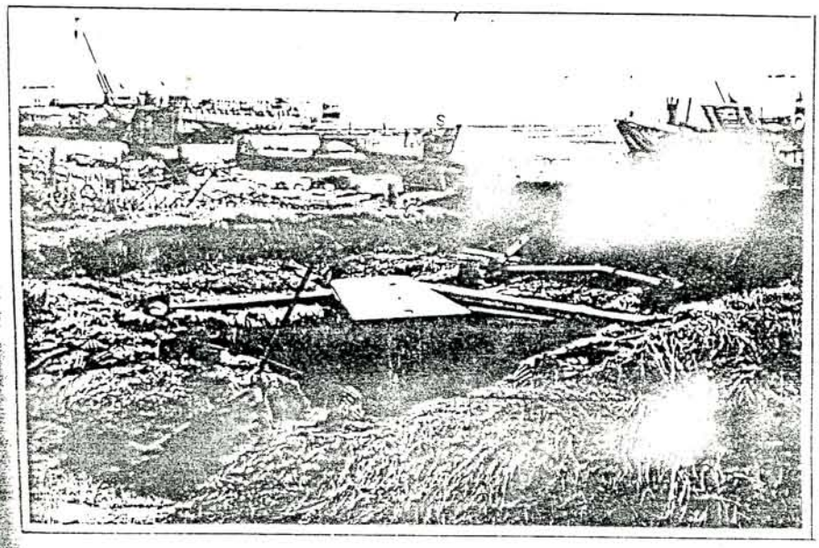
OPEN GUN PITS

8' dia. open concrete pit M.G. position at Clos Calos 069817.



Open M.G. Post in sand, with rotating table for M.G (Ouistreham N°31) 079811

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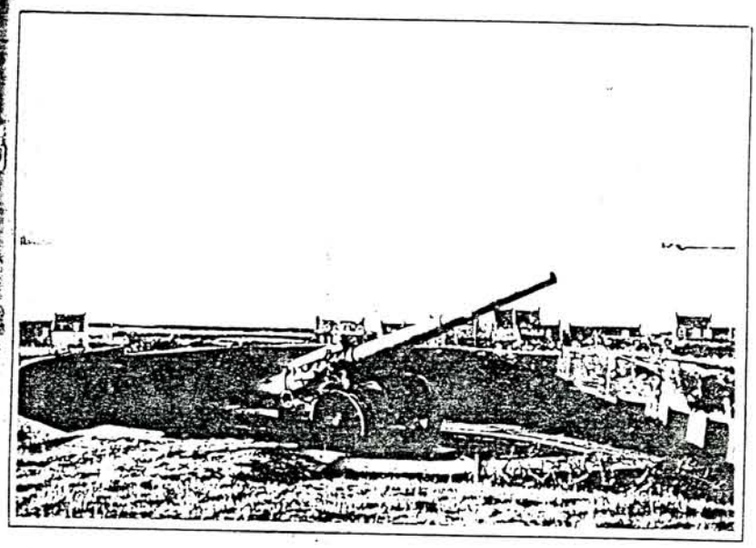
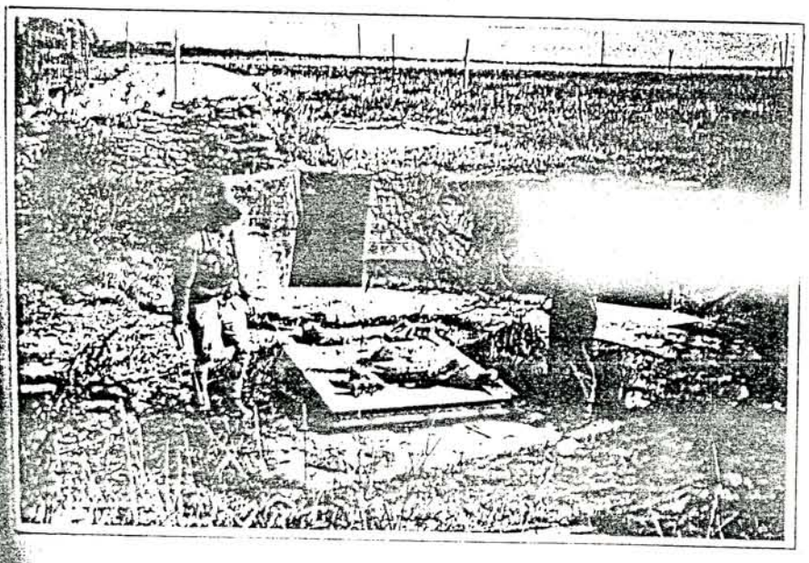
OPEN GUN PITS



15·5cm. gun battery between Cherbourg and Querqueville



Open emplacement at Ouistreham.

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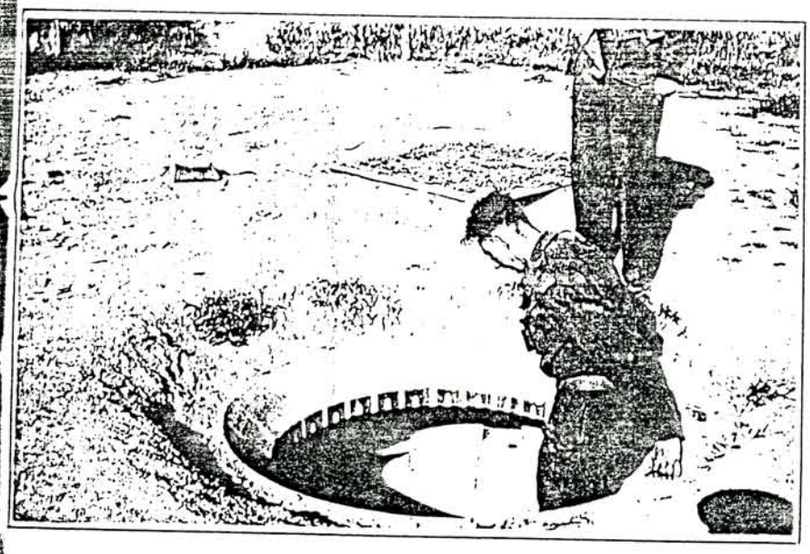
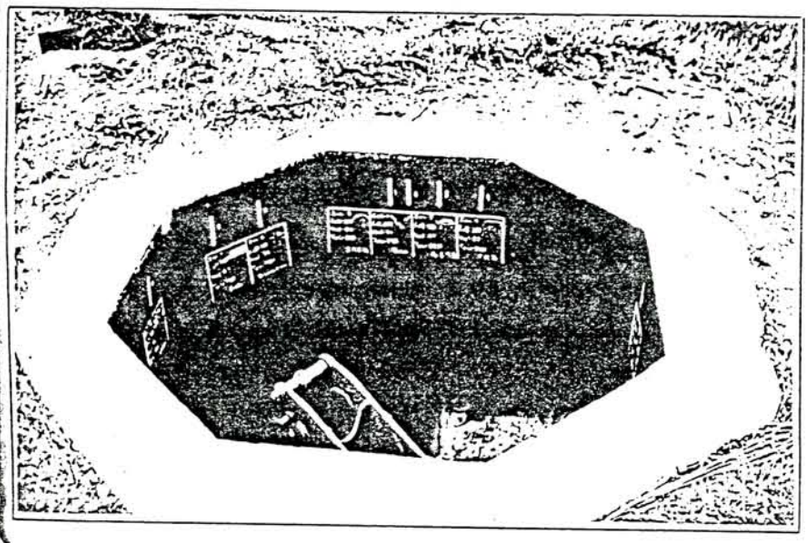
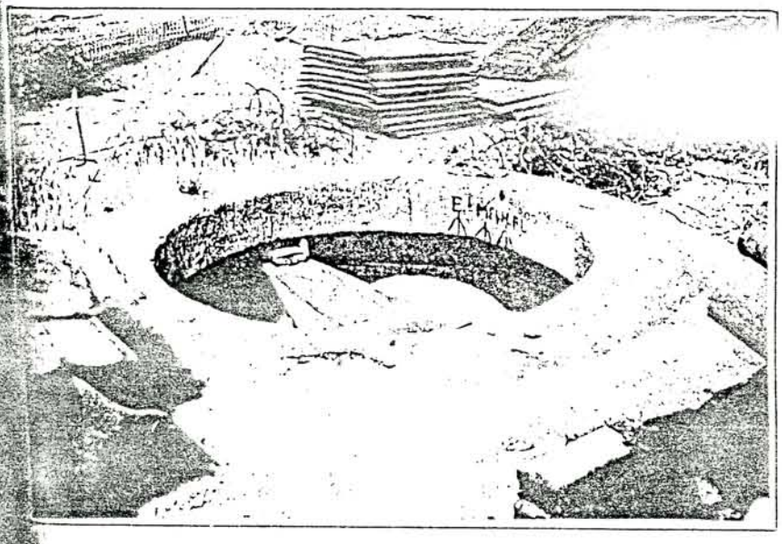
"TOBRUK" TYPE EMPLACEMENTS



8.1cm. Mortar position at St. Aubin. 014851



Mortar Pit. (W. Courseulles No.9.) showing mortar mount and aiming points 965858.



Tobruk Type 5' dia. M.G. Post. (E. Courseulles No11) 973857

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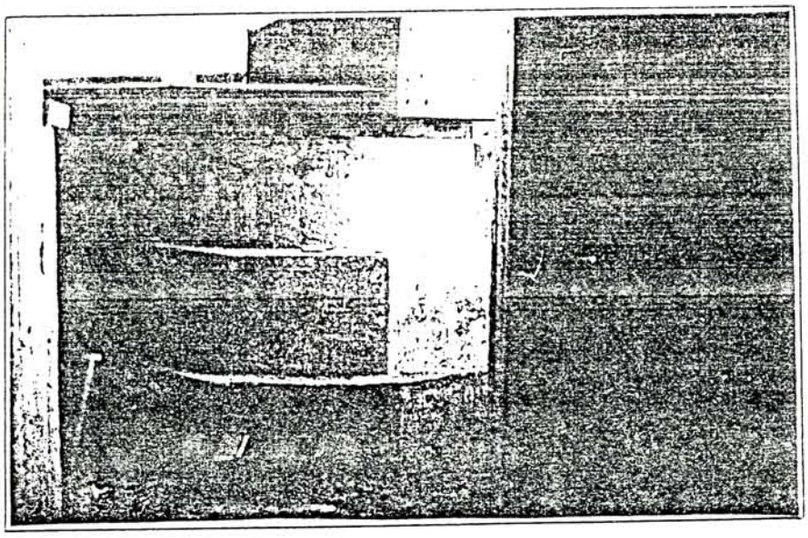
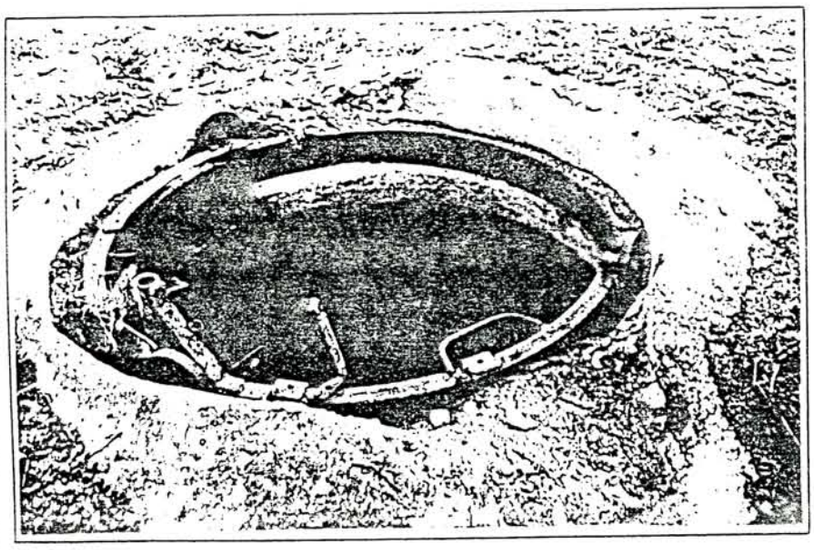
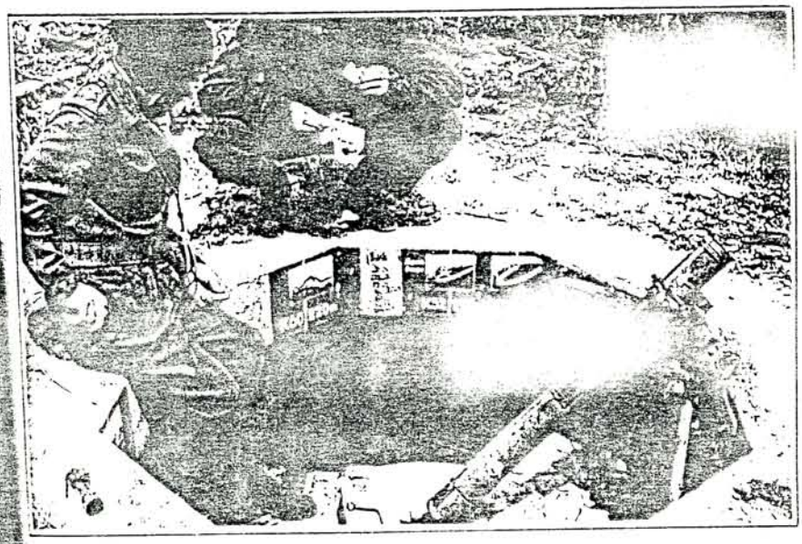
"TOBRUK" TYPE EMPLACEMENTS



Inside of Tobruk Type Concrete Mortar Position.



Tobruk Type 3' dia: M.G. Post. showing slight damage to concrete lip and to Gun traverse. (E. Courseulles No 13.) 974856.



8·1 c m. Mortar in pit near director tower at Largues.

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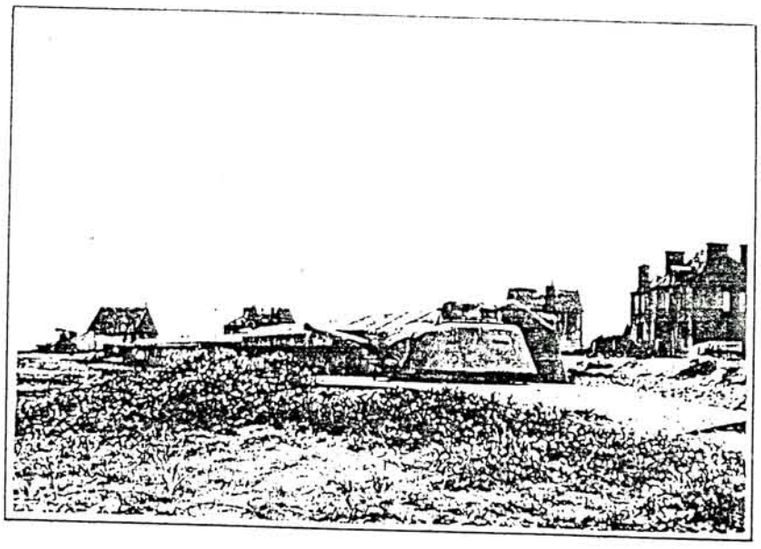
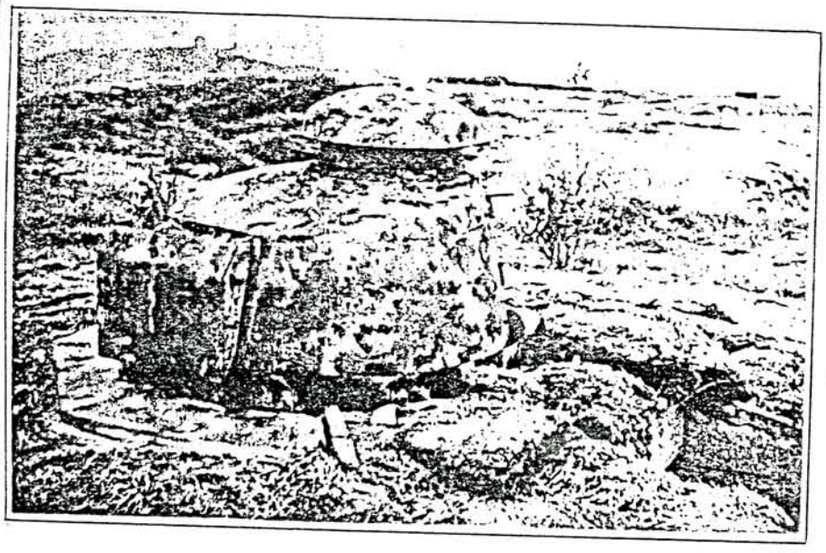
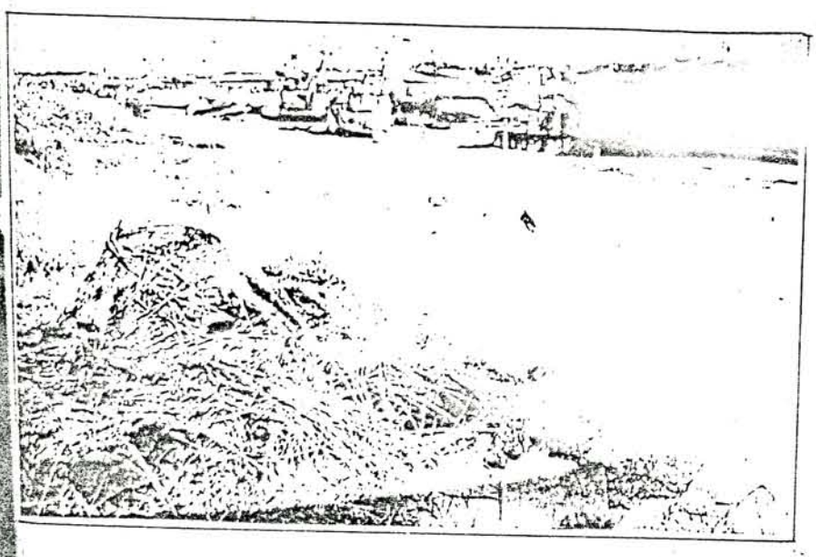
"TOBRUK" TYPE EMPLACEMENTS



4·7 cm. Gun in tank turret at Quinéville.



Steel Cupola on 3' Tobruk type concrete emplacement (Ouistreham No 3) 096804.



2½" thick steel cupola of observation post (W. Courseulles No. 7.) 965858.

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PENDIX VI

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CONCRETE POSITIONS UNDER CONSTRUCTION

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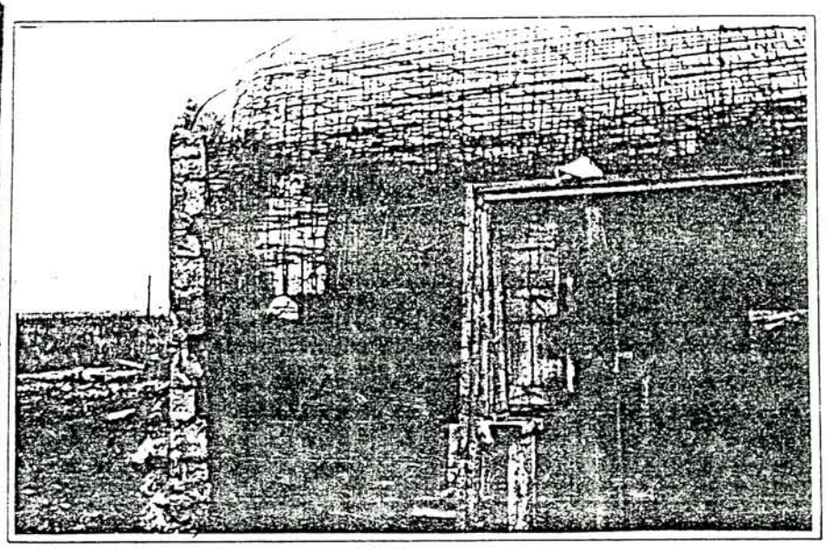
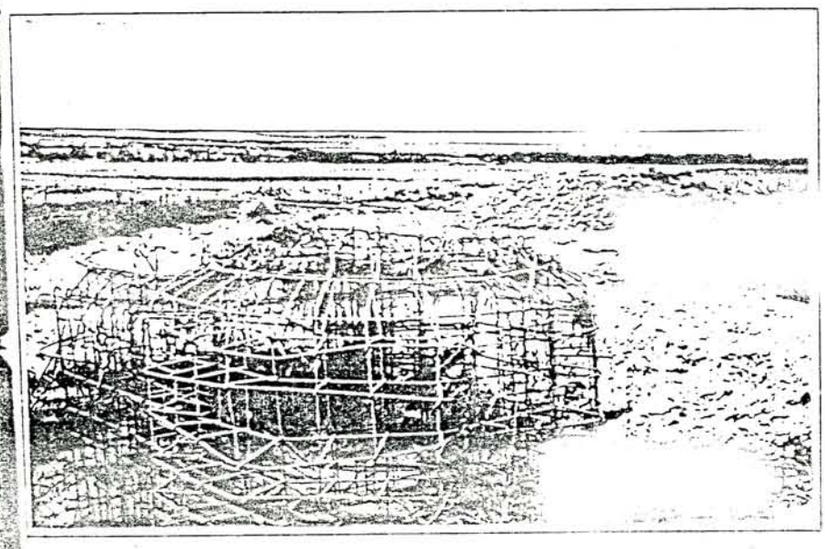


Gun position under construction at S. Ouistreham battery.



...ruk 3' type post ...der construction.

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PENDIX VI

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CONCRETE POSITIONS UNDER CONSTRUCTION

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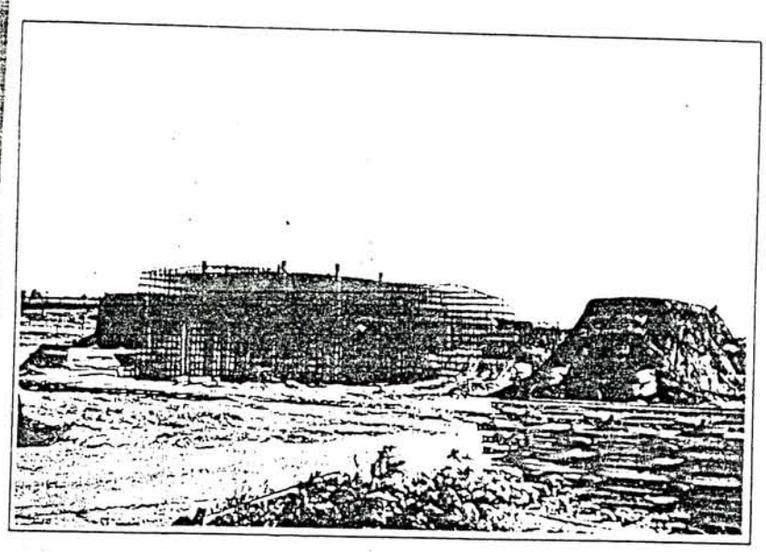
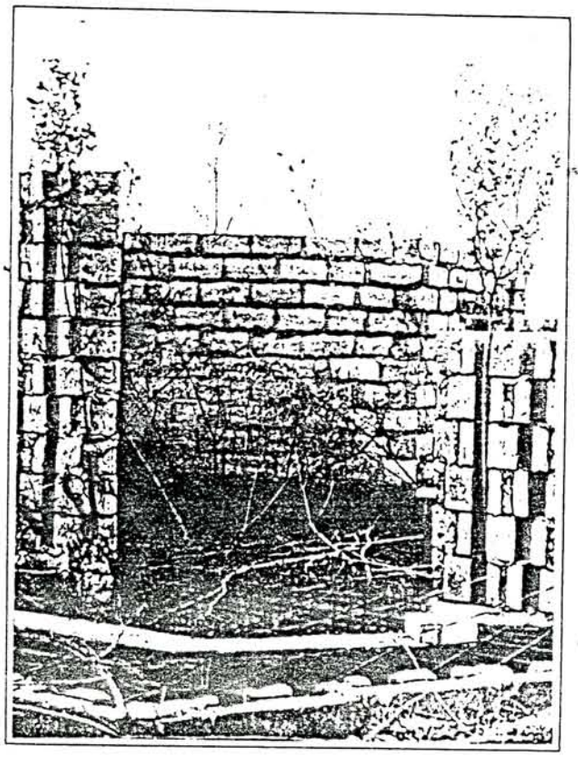
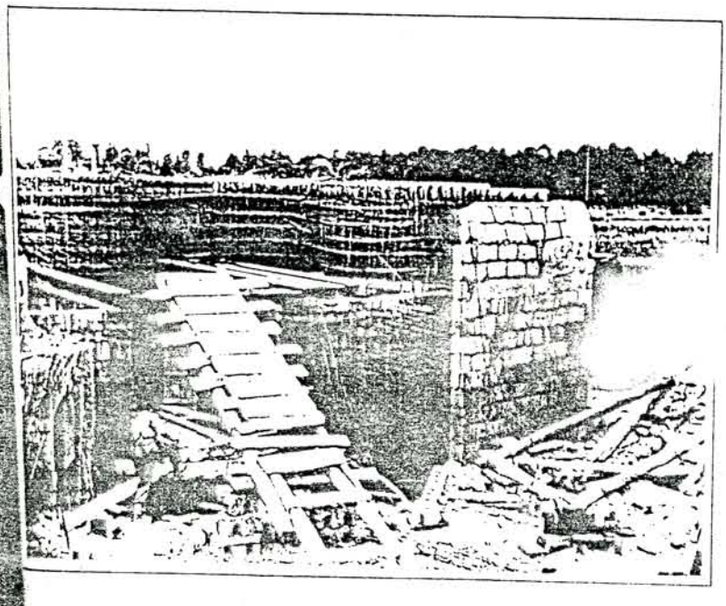


Casemate under construction.



Casemate under construction.



Casemate under ruction.

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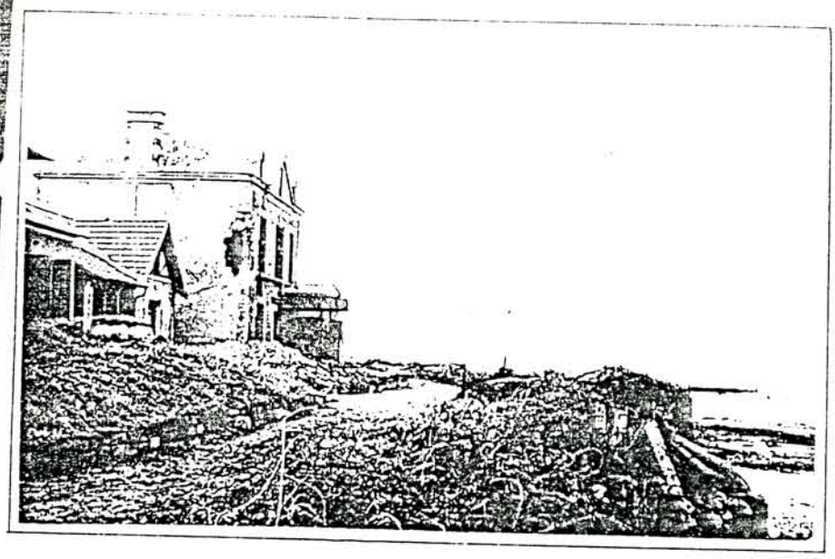
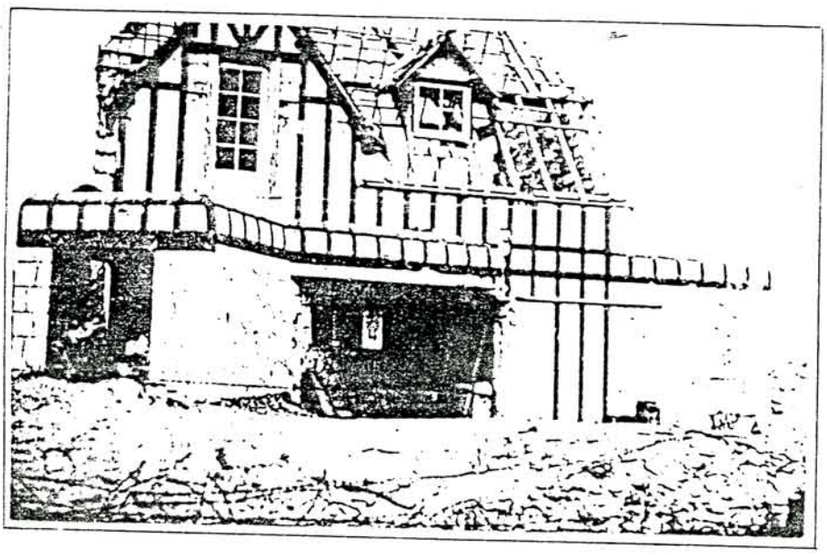
PENDIX VI

SECRET

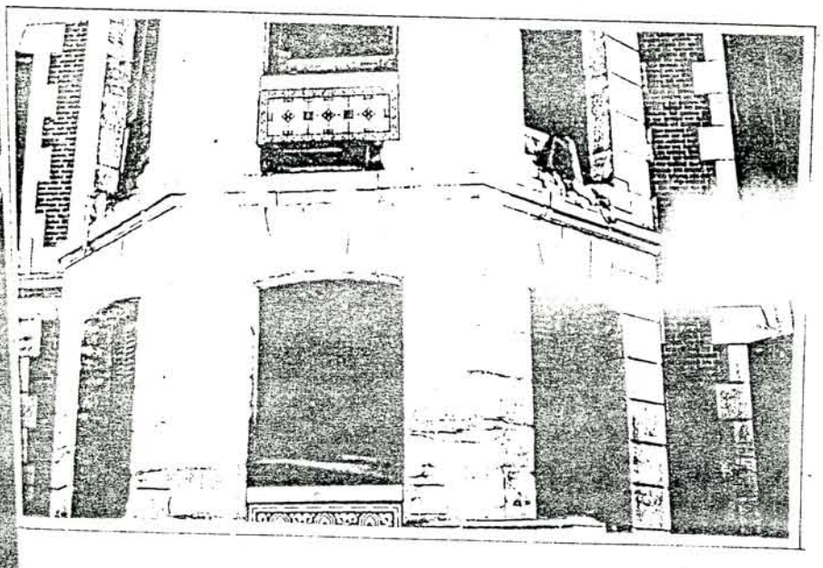
EXAMPLES OF CAMOUFLAGED STRONG POINTS



Observation & M.G. Posts at Clos Colas Heavy concrete OPs



Strong point disguised as a house guarding road. (Ouistreham No. 21 086806)



House on front at t. Aubin showing slit for sniper below decorated window.

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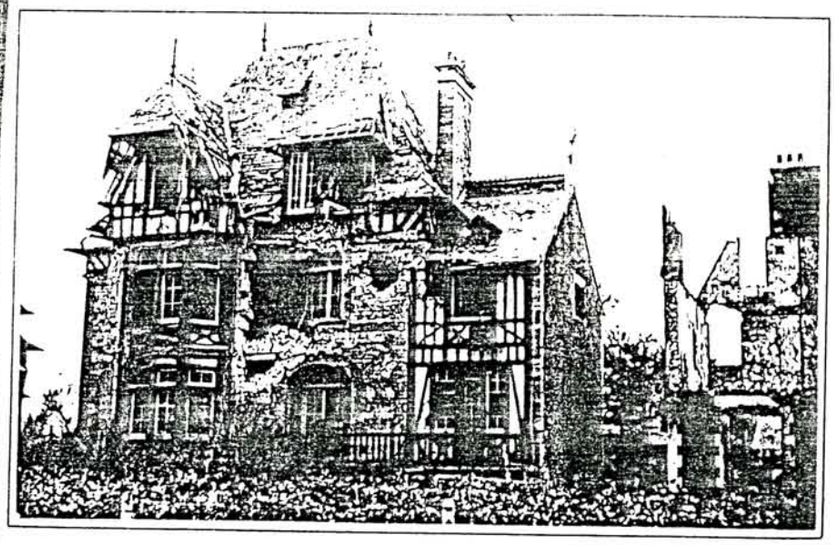
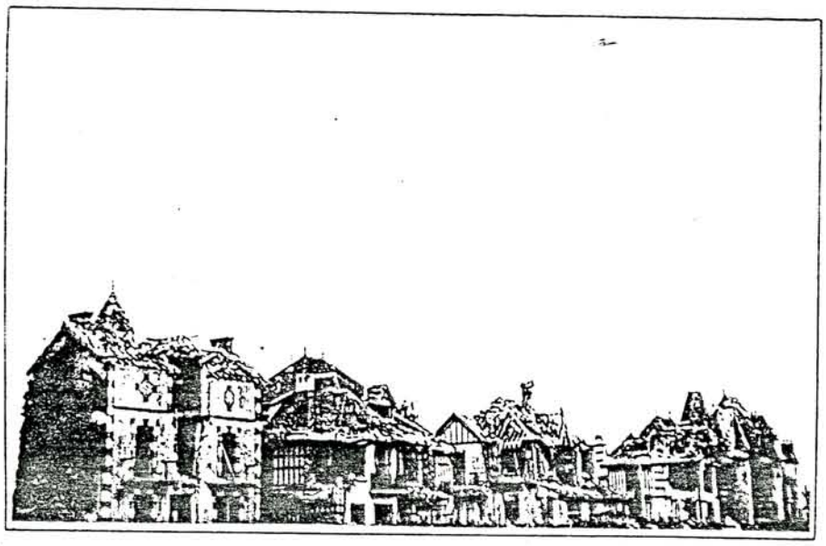
PENDIX VI SECRET

EXAMPLES OF HOUSES DAMAGED BY GUN FIRE

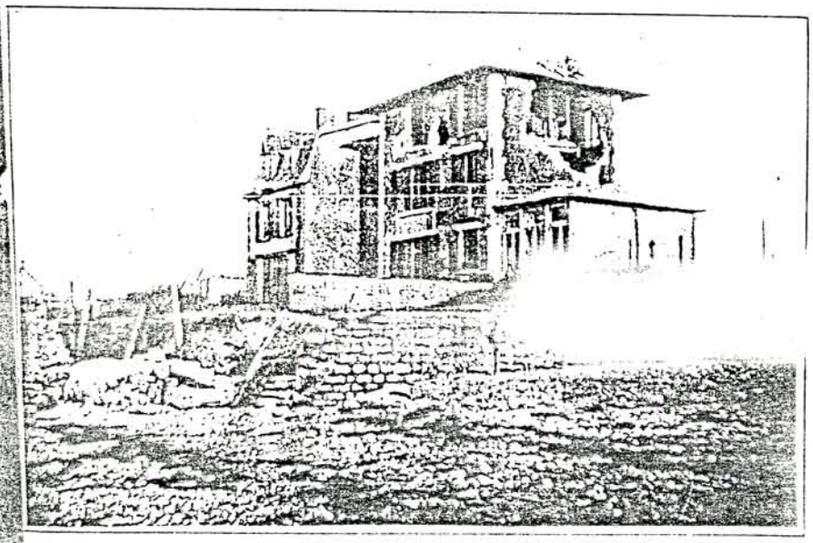
Page 18



Damaged house on front (Ouistreham 081809)



Row of houses on sea front (Ouistreham 081809)



ses at front by
La. Rive.
at 011853.

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PENDIX IV

SECRET

BEACH OBSTACLES

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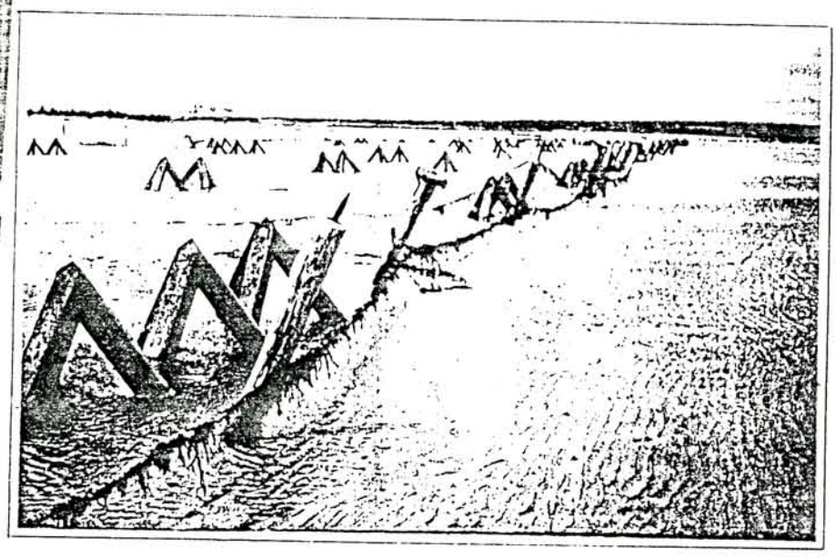
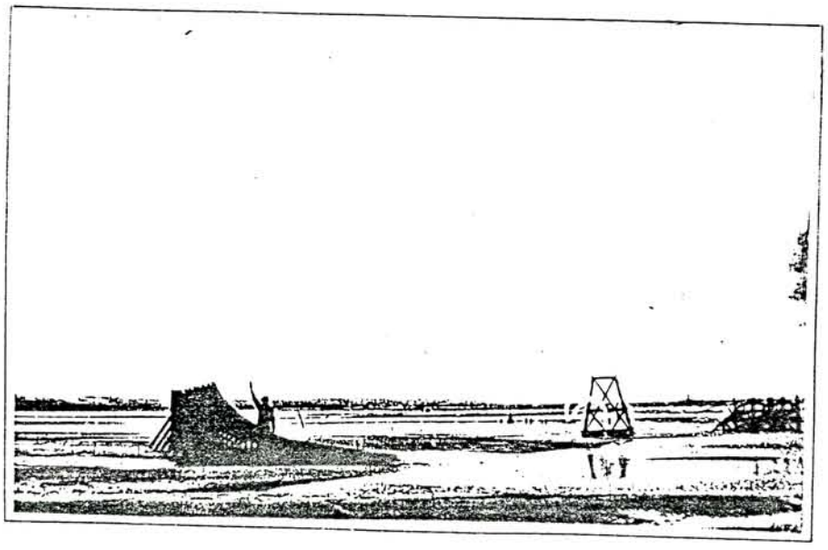
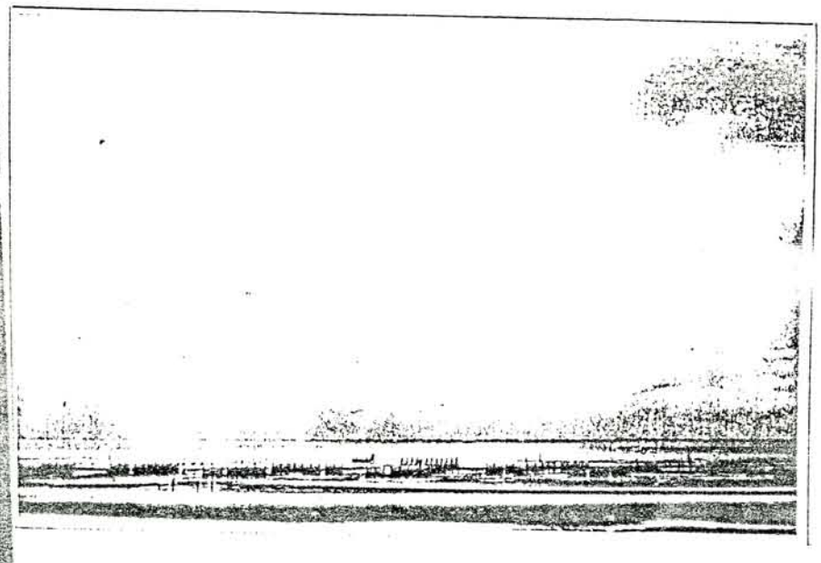


Obstacles on the beach at Quinéville



Curved rail at Quinéville.



Quinéville beach showing obstacles.

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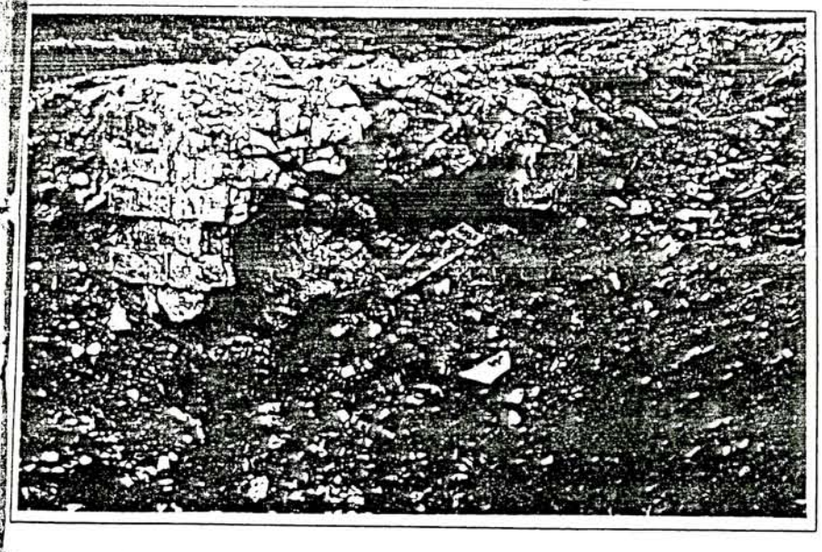
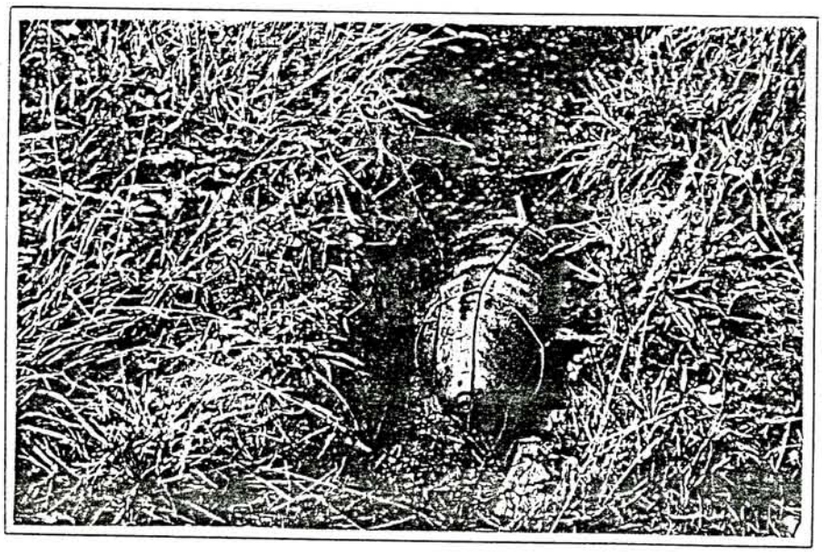
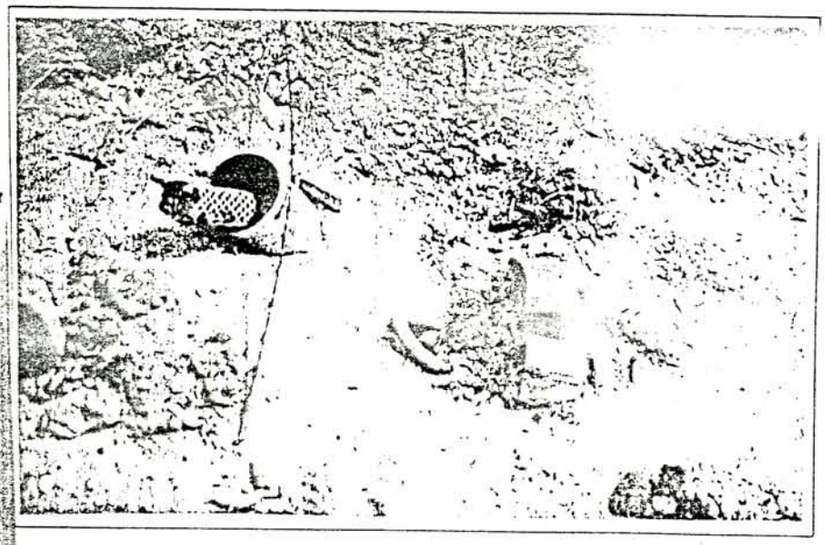
MISCELLANEOUS



Concrete Tobruk Type O.P. demolished by bomb at Mount Fleury. (923864.)



Shell on top of cliff as obstacle to assault on cliff.



Remains of Rockets at Ouistreham Showing how clearly the residue indicates the cause of craters

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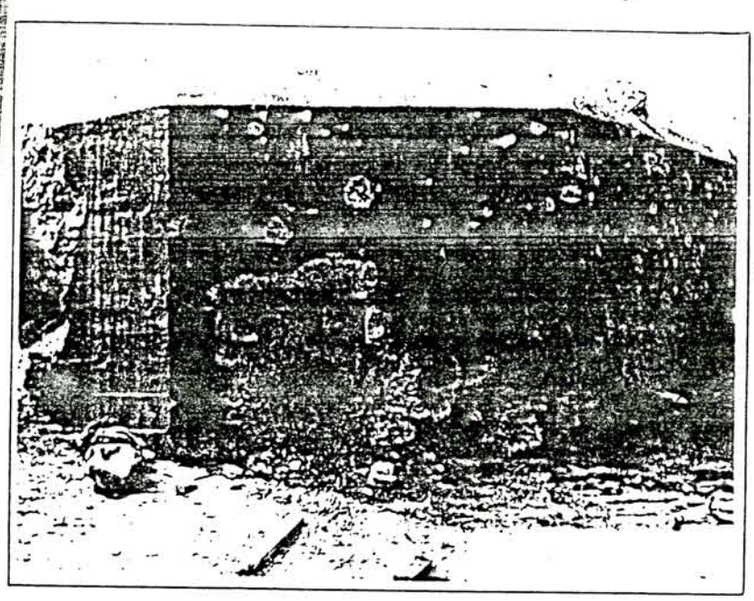
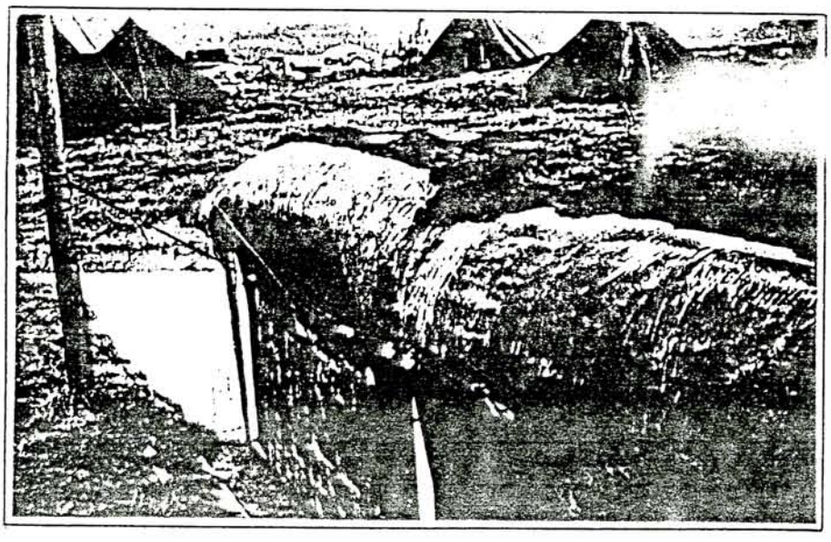
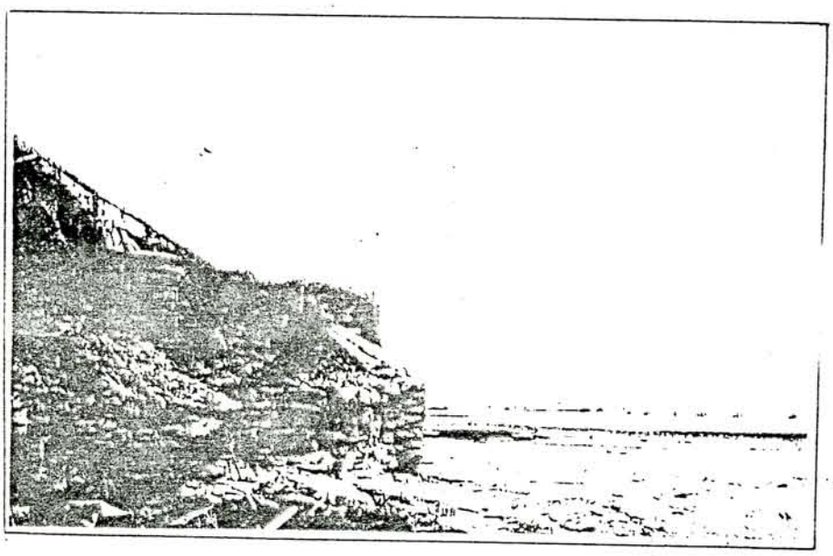
MISCELLANEOUS



Direct Hit by 4·7" shell on concrete pill box at La Riviere.



[illegible] to strong Concrete Shelter and Headquarters.



Observation and Machine Gun Posts [illegible] cliff at Clos Colas.