

resulted "in his very severe condemnation of existing def's" (W.D., H.Q. 8 Cdn Inf Bde, 7 Mar 44). Offshore obstacles* were of three principal types - "herissons" (or hedgehogs), Element "C", and timber stakes.** The disposition of these devices along the beaches is shown on Trace "R" appended to 3 Cdn Inf Div O.O. No. 1. The obstacles completely covered both MIKE and NAN Sectors except for a gap of about 400 yards on the eastern end of NAN. The extent of the enemy's heightened preparedness is evident in the description of the "herissons" which follows:

Extending across the whole of MIKE and NAN Sectors, hedgehog defences have been erected from 80 to 250 yards from the coast. These obstacles consist of three 6-inch angle irons, approximately 6 feet 6 inches long joined at their centres with gusset plates to form a double tripod.... Individual obstacles are placed 12 - 15 feet apart with 25 - 30 yards between rows.... All obstacles are below high water mark. From the location and distribution of these obstacles it seems that they are intended to be anti-craft rather than anti-vehicle.

(Ibid)

121. The second category -- Element "C" -- consisted of steel anti-tank barriers of gate-like appearance, made to serve as anti-craft obstacles. These were of the Belgian or De Cointet type and were disposed liberally across the divisional front.

122. The third type of offshore obstacle consisted simply of wooden stakes, approximately 10 feet high and

*For excellent descriptions, detailed drawings and photographs of the various types of beach obstacles, see C.O.H.Q. Bulletin No. Y/35 mentioned above.

**The Chief Engineer, 21 Army Group, wrote later: "Had the enemy put all the energy into devising and laying ... mines [on the beaches] that he devoted to his beach obstacles, the story of the Normandy landings would have been very different" (Inglis, op cit, p. 181). He went on to add: "It is true that we had flails to clear the initial gaps for the assaulting armoured fighting vehicles, but the problem of clearing the beaches to make way for the hordes of men and vehicles and craft which would ... spread all over them would have been appalling" (Ibid, p. 182).

spaced 60 feet apart, set in rows west of Courseulles and in front of Bernières. (3 Cdn Inf Div O.O. No. 1, Int Summary) A proportion of these had mines (75-millimetre shells) attached to them. There was also a series of timber ramps placed across a portion of MIKE Beach (Ibid, Trace "R").

123. A clear conception of the appearance of the beach with these various obstructions in position can be gained by reference to the several series of oblique air photographs taken prior to the operation. Some of these are appended to the War Diary of H.Q. 9 Cdn Inf Bde for June 1944 (Appx 1).

124. The beach defences are best described in the words of the Intelligence summary:

The coast is held by a system of linear defences arranged in strongpoints. A Company area consists of several strongpoints occupied by either one section, two sections or in some cases one whole platoon.

Each battalion has three companies forward with support weapons sub-allotted down to sections; there is therefore probably no battalion reserve. Each strongpoint may however be expected to have an immediate reserve within the position.

Defences consist mainly of pillboxes and open machine gun positions with open emplacements for 75 mm guns reinforcing the stronger positions. Strongpoints are usually set astride exits to cover the beaches with enfilade fire. In addition it can be assumed that each platoon will have a 2 inch (50 mm) mortar, and that a total of six 3 inch (81 mm) mortars per battalion will be shared out to particular strongpoints.... Each strongpoint is surrounded by a protective minefield and wire as well as the minefields and wire on the beaches.

(3 Cdn Inf Div O.O. No. 1,
Int Summary)

The summary also contains an analysis of nine strongpoints which, directly or indirectly, could affect the divisional area. Of these, the most formidable were located at Courseulles (on either side of the river mouth), at Bernières and at St. Aubin (Ibid. A full description of the German defences in the Courseulles area, together with maps showing the location of units of 716 Inf Div, is given in A.H.Q. Report No. 41).

125. During the three months prior to "OVERLORD",

the enemy commenced work on a system of dugout positions 2,000 - 3,000 yards inland. These were thought to contain heavy mortars and machine guns. The Radar Station near Douvres la Délivrande was prepared for all-round defence. The airfield immediately south of Carpiquet showed strong perimeter defences, consisting principally of anti-aircraft gun positions (Ibid).

126. Enemy artillery which could be brought to bear on the divisional area was of three categories: (i) heavy and medium coastal guns, (ii) field artillery of 716 Inf Div and heavier independent artillery, (iii) infantry guns on the coast. No coastal artillery of the first category was to be found within the actual divisional boundaries, but batteries of 155-millimetre guns, notably those at Ouistreham and Houlgate, might be expected to cover the beaches. Batteries of field and medium artillery, however, were located in the area near Ver-sur-Mer, Mont Fleury, Beny-sur-Mer and Tailleville; of these, the battery at Beny-sur-Mer was most important, since it lay almost in the centre of the divisional sector. It was believed to consist of four 105-millimetre guns, but later examination showed them to be of smaller calibre. Gun positions and headquarters were defended by a perimeter of infantry positions, wire and minefields. Infantry defences on the coast included 75-millimetre guns in casemates and open emplacements (Ibid; R.C.A. 3 Cdn Inf Div O.O. No. 1, Int Summary).

(c) Administrative Intelligence

127. Under this heading were listed such material resources as water supply and electric power facilities in the Caen area. As to the attitude of the civilian population of Lower Normandy, one summary (evidently quoting a higher source) has this to say:

The greater part of the population look forward to liberation by the Allies. Those patriots who are already in the Resistance Movement in collaboration with the Allies will at the time of invasion carry out to the best of their ability specific military tasks allotted to them.

The comparatively few who have so far committed themselves in collaboration with the Germans may be expected to aid the enemy in maintaining order in the rear, and to withdraw with him in an endeavour to avoid falling into Allied hands.

Many middle class industrialists and administrative and police officials, who have been forced into a certain measure of collaboration with the Germans in order to keep their jobs, will do everything possible to help the Allies in order to prove their good faith.

The remainder, that it to say the great majority of the population, will do its best to impede the German resistance. This effort is more likely to take the form of strikes and petty sabotage than of armed resistance. It will probably be at its peak in the first few days after it is known that the invasion has started. After this, if our advance is slow, repression will tend to diminish it.

(W.D., H.Q. 8 Cdn Inf Bde,
May 1944: Appx 10, 8 Cdn
Inf Bde O.O. No. 13, 18
May 44)

It is a tribute to Allied Intelligence that this sober and reasonable appreciation proved to be a quite accurate prediction.

128. Finally, the intelligence summaries of certain services gave information of particular interest to the branch concerned. Thus, divisional engineers devoted much more space to the description of rivers in the area, citing such data as limits of tidal influence and salinity, speed of currents, etc. (W.D., H.Q. R.C.E., 3 Cdn Inf Div, Jun 1944: Appx 4, R.C.E., 3 Cdn Inf Div O.O. No. 1, 14 May) Signals supplied information concerning existing signal exchanges, and P.T.T. (Postes Telegraphes Téléphones) line and cable construction (W.D., 3 Cdn Inf Div Sigs, May 1944: Appx 10, 3 Cdn Inf Div Sigs O.O. No. 1, 14 May).

(d) Intention

129. The logical starting point for consideration of the divisional assault plan is 3 Cdn Inf Div O.O. No. 1, "OVERLORD" of 13 May 44. But this document alone, by its very inclusiveness and breadth of coverage, cannot suffice to set forth adequately the method of execution. Reference will therefore be made to brigade group and battalion operation orders. In due course, likewise, the description of the fire plan will be based largely on the information contained in the operation order of H.Q. R.C.A., 3 Cdn Inf Div.

130. Although the Army plan (cf paras 31 to 34 above) detailed the four phases of the operation which were to culminate in the capture of the bridgehead area, the plan of 3 Cdn Inf Div extended only as far as Phase I of the Army operation. It dealt, thus, only with the objectives to be gained on D Day. Beyond that point, of course, it was possible only to speak of the role of main bodies of corps: the disposition of component formations would depend largely on circumstance, and could not be exactly foreseen. Only against the contingency that serious enemy resistance might

fail to develop on D Day was a further penetration visualized and planned for in advance.

131. The intention, so simply stated, says merely:

3 Cdn Inf Div and attached troops will assault through MIKE and NAN Sectors and seize a covering position on the general line railway crossing 995682.

(3 Cdn Inf Div O.O. No. 1)

This represents the task allotted to 3 Cdn Inf Div in the intention of Second Army to "secure on D Day a firm base along the line Bayeux-Caen".

132. The term "3 Cdn Inf Div and attached troops" embraced a very large force. It included not only the division itself and the troops under its immediate command, e.g., 2 Cdn Armd Bde, but a host of "Corps, Army and external overheads" embarking and landing as part of the divisional assault group. The division's order of battle, as it existed for the assault phase, is attached at Appendix "C". Certain other units and detachments (A.S.S.U. Tentacles, Contact Detachments, etc.) are not shown on the order of battle of the division, but only on those of the brigade groups to which they were attached. The same is true of additional naval and air force detachments. With the addition, however, of these various externals, "in support and under command for landing only", 3 Cdn Inf Div retained its normal organization of three brigade groups, corresponding to the three Naval assault Groups of Force "J" (see para 18 above). Thus, 7 Cdn Inf Assault Bde Group was embarked in Assault Group J.1 (or G.J.1); 8 Cdn Inf Assault Bde Group in G.J. 2; and 9 Cdn Inf Bde Group in G.J. 3. Each Naval Assault Group was commanded by a Captain, R.N.

133. Since shipping space was at a premium and since so much of it had to be given over to essential equipment, 3 Cdn Inf Div was pruned to "assault scales". This meant, first, that its total of vehicles had to be stringently cut, and second, that certain units had to be excluded altogether from the assault phase. 7 Cdn Recce Regt, which was assigned no task in the assault, was thus not represented except by small parties in a special role

(Beach Group and Contact Detachments)*. Those units included, moreover, were to land at a greatly reduced scale, leaving their residue of personnel and vehicles to follow at intervals as shipping traffic permitted. This process of bringing units gradually up to strength, which was called "Phasing in", is detailed at Appendix "G" of 3 Cdn Inf Div O.O. No. 1.

(e) Method

134. The divisional assault was envisaged as being executed in four phases. These will first be considered with reference to the ground which they were to include. (See Appendix "G")

135. Phase I was to consist of the assault and the capture of the beachhead objective known by the code word "YEW", the assault itself being made on a two-brigade front through MIKE and NAN Sectors. "YEW", as will be seen from the map at Appendix "G", was merely a shallow foothold enclosing the towns of Vaux, Graye-sur-Mer, Courseulles, Bernières and St. Aubin.

136. In Phase II, the right assaulting brigade group was then to secure crossings over the River Seulles and establish itself on the southern bank southeast of Creully. At the same time the left brigade had the important task of establishing a firm base on the high ground Basly-Anguerny-Anisy in order to integrate the advance of both 3 Cdn and 3 Brit Inf Divs landing on widely separated beaches (1 Corps O.O. No. 1). This intermediate objective was called "ELM".

137. For Phase III, the reserve brigade having landed was to advance as swiftly as possible, with the support of armour, to secure the area Authie-Ardenne-Carpiquet, while the right assaulting brigade moved forward in conformity with it to seize and hold its final objective: Putot-en-Bessin - Bretteville-l'Orgueilleuse - Norrey-en-Bessin (Ibid). This would see the division by the evening of D Day on the objective "OAK", i.e., astride the Bayeux-Caen road, the extremities of which were to be in the hands of 50 (N) Inf Div and 3 Brit Inf Div. Second Army's firm base would thus be achieved.

*For an account of these see Captain W.G. Pavey, An Historical Account of the 7th Canadian Reconnaissance Regiment in the World War, 1939-1945 (Montreal, 1948), pp 39 ff

138. The final phase, planned for D plus 1, was to consist simply of reorganization on the final objective "OAK". These phases can now be dealt with in greater detail, with specific reference to infantry objectives.

139. Phase I. The grouping for the assault phase was as follows: 7 Cdn Inf Assault Bde Group on the right; 8 Cdn Inf Assault Group on the left; and 9 Cdn Inf Bde Group in reserve.

140. 7 Cdn Inf Bde. The tasks allotted to 7 Cdn Inf Bde were the following:

- (i) Assault astride the mouth of the River Seulles....
- (ii) Mop up the coastal region from exclusive La Rivière ... to inclusive Courseulles-sur-Mer
- (iii) Seize the beachhead objective Yew.

(3 Cdn Inf Div O.O. No. 1)

These tasks were to be carried out by two battalions. On the right R. Wpg Rif were to assault through MIKE Sector with three companies (including one of 1 C. Scot R. under command). One company was to capture Vaux and enemy positions on the right; one company was to capture La Valette and Graye-sur-Mer; and the third was to "overwhelm and mop up" the beach defence area west of the Courseulles breakwater. The battalion's reserve companies were to advance beyond "YEW" to seize and hold Ste. Croix-sur-Mer and Banville (W.D., R. Wpg Rif, June 1944: Appx 5, R. Wpg Rif Op Memorandum No. 1, 24 May 44). On the left Regina Rif were to assault through NAN Green Beach and commence to clear Courseulles, a reserve company passing through to capture Reviars (W.D., Regina Rif, May 1944: Appx 10, Regina Rif O.O. No. 1, 24 May 44).

141. 8 Cdn Inf Bde 8 Cdn Inf Bde's tasks can be summarized as follows:

- (i) Assault through NAN Sector.
- (ii) Mop up coastal area from exclusive Courseulles-sur-Mer to inclusive St. Aubin-sur-Mer.
- (iii) Seize the beachhead objective (YEW)

(3 Cdn Inf Div O.O. No. 1)

Here again the assault was to be made on a two-battalion front. On the right Q.O.R. of C. were to land with two

companies through NAN White Beach and overcome the beach defences between Courseulles and Bernières. The reserve companies, landing somewhat later, were to clear Bernières and the beachhead area within the battalion sector (W.D., Q.O.R. of C., May 1944: Appx 12, Q.O.R. of C. O.O. No. 7, 22 May 44). N. Shore R. was to attack on the left through NAN Red Beach with two companies forward. The battalion was then to overcome the beach defences between Bernières and St. Aubin and mop up St. Aubin itself. A reserve company was to press on beyond "YEW" and capture Tailleville (W.D., N. Shore R., May 1944: Appx 3, N. Shore R. O.O. No. 1, 23 May 44). 48 R.M. Commando (of 4 S.S. Bde) was to land on NAN Red Beach immediately behind N. Shore R., turn left and capture Langrune-sur-Mer (8 Cdn Inf Bde O.O. No. 1, 18 May 44). In summary, then, an essential feature of Phase I was the seizure by reserve companies of the four intermediate positions, Ste. Croix, Banville, Reviere and Tailleville. This extension of the immediate beachhead was to pave the way for Phase II.

142. Phase II The divisional object in Phase II was to secure crossings over the first main river obstacle -- the River Seulles -- and to seize the high ground selected as the intermediate objective "ELM".

143. 7 Cdn Inf Bde The crossings over the Seulles were to be gained by R. Wpg Rif and 1 C. Scot R. in the area of Creully, following which these units were to consolidate south of the river. Meanwhile, Regina Rif was to complete its clearance of Courseulles block by block and proceed via Reviere to seize the dominating ground northeast of Le Fresne-Camilly (W.D., H.Q. 7 Cdn Inf Bde (Adv), 6 Mar - 30 May 44: Appx 17, 7 Cdn Inf Bde O.O. No. 1, 18 May 44).

144. 8 Cdn Inf Bde When R. de Chaud had been landed through Bernières, it was to proceed at once to capture Beny-sur-Mer and the battery positions near it. The battalion would then continue southwards to capture Basly and establish a firm base on the high ground west of Colomby-sur-Thaon. When this had been effected, Q.O.R. of C. were to advance through R. de Chaud and seize the village of Anisy and the high ground to the north of it. N. Shore R., meanwhile, with the assistance of "X" Troop of 30 Assault Unit, Royal Marines, was to seize intact the radar installations west of Douvres. Later, when R. de Chaud had completed its task, N. Shore R. was to reorganize on the spur northeast of Anguerny. (8 Cdn Inf Bde O.O. No. 1) This would complete the capture of the divisional intermediate objective "ELM". It represented the final objective for 8 Cdn Inf Bde, and in the Anguerny area a brigade fortress was to be formed, in rear of which 9 Cdn Inf Bde would probably assemble prior to advancing to the divisional objective.

145. Phase III The final objective lay astride the Bayeux-Caen road on either side of the river Mue, which crosses it at La Villeneuve. Its capture was to be the task of 7 and 9 Cdn Inf Bdes, the latter having been moved into position for this next phase.

146. 7 Cdn Inf Bde Prior to a general advance by the brigade, 1 C. Scot R., with the support of an armoured squadron, was first to secure an intermediate position on the high ground to the west of Camilly. R. Wpg Rif and Regina Rif were then to advance and capture the final objectives, respectively Putot-en-Bessin and Norrey-en-Bessin, while at the same time 1 C. Scot R. took up a position at Secqueville-en-Bessin (7 Cdn Inf Bde O.O. No. 1).

147. 9 Cdn Inf Bde Some recapitulation is required in order to clarify the role of 9 Cdn Inf Bde, which was, essentially, the capture of the eastern half of the divisional final objective. In view of the uncertainty attached to the success of the assaulting brigades, two separate plans were conceived for the commitment of the reserve formation. These will be briefly summarized.

148. Plan "A" During Phase I, 9 Cdn Inf Bde was to be landed through NAN Sector behind 8 Cdn Inf Bde, the precise time being left to the discretion of the G.O.C. While Phase II was in progress, the brigade was to assemble in the vicinity of Bonny-sur-Mer, again behind 8 Cdn Inf Bde. For its part in Phase III, 9 Cdn Inf Bde was to move forward with the support of armour "at greatest possible speed", Nth N.S. Highrs leading. The route to be followed led through Basly, Villons-les-Buissons, Buron, Authie and Franqueville to the airfield of Carpiquet, which was the ultimate objective (W.D., H.Q. 9 Cdn Inf Bde, May 1944: Appx 3, 9 Cdn Inf Bde O.O. No. 1, 18 May 44).

149. Plan "B" In the event of 8 Cdn Inf Bde being held up, or of the beaches near Bernières being unsuitable for landing, 9 Cdn Inf Bde was, alternatively, to go ashore through MIKE Sector behind 7 Cdn Inf Bde. Assembly would then take place south of Banville. The route forward to the final objective from this area was not selected in advance (Ibid).

150. 8 Cdn Inf Bde During Phase III, 8 Cdn Inf Bde was required merely to organize its position against possible enemy counter-attacks (3 Cdn Inf Div O.O. No. 1).

151. Phase IV All three infantry brigades were to adjust their battalion dispositions to meet possible counter-attacks. In 7 Cdn Inf Bde, 1 C. Scot R. was to strengthen the brigade fortress by moving south beyond Secqueville-en-Bessin. 8 Cdn Inf Bde was expected to be relieved in the Anguerny area by 153 Inf Bde of 51 (H) Inf Div (follow-up). In that case it was planned that the former would move almost due west to a position behind 7 Cdn Inf Bde in the general area Cai: t-Camilly - Secqueville-en-Bessin - Cully. There it was to consolidate the area "against possible enemy armoured attack with special consideration to the approaches from the south and SW on the divisional right flank" (Ibid). A counter-attack force composed of units of 2 Cdn Armd Bde was to take up a central position on the feature between the rivers Chiromme and Mt. (Ibid).

152. The foregoing remarks represent only the bare skeleton of the infantry assault and the advance to the final objective. Little mention has been made of the tasks assigned to the other members of the assault team, upon whose skill much would depend. To attempt to describe these tasks concurrently with the four phases of the operation outlined above would result in losing the continuity of the plan. They must therefore be dealt with separately.

(f) Naval Assault Force "J"

153. So important was the naval share in the approach to the beaches that command even of the military formations embarked in the assault groups was to be exercised by Naval Force Commanders, until such time as the Army should be "firmly established ashore" (Source quoted in C.M.H.Q. Report No. 147 as: Operation "Neptune", Naval Operation Orders, Part I). In large measure the success of Phase I depended upon the navigational ability of the craft commanders, for the history of combined operations contained numerous instances of troops being landed at the wrong beaches. The experience of 1 Cdn Inf Div in the assault on Sicily is a case in point: several battalions found themselves incorrectly landed, fortunately not in the face of heavy opposition. Such incidents served to reinforce the argument for a daylight assault. On this matter the military requirements in "OVER-LORD" were most exacting: battalion operation orders even gave six-figure references in specifying landing points. Yet the possibility of error remained. Accordingly the following direction appeared in Naval Orders: "Landing craft are to press on regardless of loss or of the fact that they may find themselves opposite the wrong beach" (Source quoted in C.M.H.Q. Report No. 147 as Operation "Neptune", Naval Operation Orders (Eastern Task Force), Part 7). Orders to commanding officers of landing craft contained this advice: "Do not worry too much about how you are to get out again, the first and primary object is to get in and land your load without drowning the vehicles"

(Source quoted in C.M.H.Q. Report No. 147 as: Force "J" Naval Operation Order, 19 May 44, Admiralty, Military Section).

(g) Commandos

154. Elements of 4 S.S. Bde, comprising 41, 46, 47 and 48 Royal Marine Commandos, were to perform certain special tasks in co-operation with 3 Cdn Inf Div. Between the assault areas of 3 Cdn Inf Div and 3 Brit Inf Div (PETER and OBOE sectors), a line of cliffs made landings impossible; the resort towns of Langrune, Petit-Enfer, Luc-sur-Mer and Lion-sur-Mer would therefore have to be cleared by Commandos working in from either flank. During Phase I, 48 R.M. Commando was to land behind N. Shore R. and capture Langrune (see para 141). There it would join with 41 R.M. Commando landing under orders of 3 Brit Inf Div. In Phase II, these two units were charged with capturing the villages of La Délivrande and Douvres la Délivrande (N. Shore R. O.O. No. 1). Finally, to permit 7 Cdn Inf Bde to proceed with Phase III, 4 S.S. Bde, less 46 and 47 Commandos, was to relieve the bridge guards at the crossings over the Seulles from Creully to Reviere (3 Cdn Inf Div O.O. No. 1). The task of 30 Assault Unit, R.M., operating with 8 Cdn Inf Bde, has been mentioned above (para 144).

(h) Armour

155. Amidst all the diverse machinery of amphibious operations there is perhaps nothing which more arouses the imagination than the special equipment of the armoured regiments in support of the assaulting infantry. Hardly a hint of what this support was to be is discernible in the stated intention of 2 Cdn Armd Bde to "sp 3 Cdn Inf Div onto the Div final objective OAK and ... be prepared to adv on afternoon of D Day to secure the high ground at Evrecy..." (W.D., H.Q. 2 Cdn Armd Bde, 20 Apr-31 May 44: Appx 3, 2 Cdn Armd Bde Operation Order No. 1, 23 May). The latter half of this intention has reference, of course, to the possible failure of the enemy to muster effective opposition.

156. During Phases I and II, 2 Cdn Armd Bde was to be decentralized. 6, 10 and 27 Cdn Armd Regts would operate under the command of 7, 8 and 9 Inf Bdes respectively, with brigade headquarters under the command of 9 Cdn Inf Bde for landing only. In Phase III, 10 Cdn Armd Regt and two squadrons of 6 Cdn Armd Regt were to be concentrated in reserve to protect the divisional right flank; 27 Cdn Armd Regt and the third squadron of 6 Cdn Armd Regt were to remain under the command of 9 and 7 Cdn Inf Bdes to support the advance to the final objective. Finally, in Phase IV, when 8 Cdn Inf Bde had assumed responsibility for the right flank, 2 Cdn Armd Bde was to be concentrated, as noted above (para 151), in divisional reserve as a counter-attack force.

157. The organization of 6 and 10 Cdn Armd Regts each into two squadrons of D.D. tanks and one squadron of normal Shermans has been referred to previously (para 103). This arrangement was designed to give close support to each assaulting battalion at the crucial moment of landing. Reserve battalions, making an unopposed landing, would be supported ashore by "normal" squadrons. For a detailed description of the manner in which it was proposed to operate the amphibious tanks, reference should be made to the memorandum, Drill for Launching and Run-in of DDs, issued by 2 Cdn Armd Bde, 13 Apr 44. (W.D., H.Q. 2 Cdn Armd Bde, 20 Apr - 31 May 44: Appx 11) Launching was to take place at 5000 yards from the beach under cover of smoke laid by L.C.G. (L), touchdown being made at H minus 5 minutes. D.D. tanks were thus to form the first wave of the assault, going in five minutes before the leading flight of landing craft hit the beach. (See diagram at Appendix "H") Although it was considered improbable that the operation would be mounted if seas were rough, it was nonetheless entertained as a possibility that the launching of D.D. tanks might have to be cancelled altogether (Ibid). 6 and 10 Cdn Armd Regts were each in addition to supply two Sherman tanks Vc to be employed as "concrete-busters" in the assault. These would be borne in L.C.T. (C.B.) (see Ships and Craft of Force "J", Appendix "B") and would disembark so as to deliver observed fire from their 17-pounder guns against emplacements. (R.C.A., 3 Cdn Inf Div O.O. No. 1). Concrete-busters would revert to regimental command on completion of their tasks (2 Cdn Armd Bde C.O. No. 1).

158. If enemy opposition failed to materialize on D Day, 2 Cdn Armd Bde, plus a force composed of one infantry battalion and supporting arms, was to strike forward and seize the high ground near Evrecy (Ibid).

159. "C" Squadron, Inns of Court, consisting of armoured cars, and a party of Royal Engineers, was ordered to land shortly after H Hour on MIKE Sector. The definition of its task may be quoted from the divisional order:

...This force is to push forward as soon as coastal defences have been overcome, and is to destroy all bridges over the River Orne from inclusive road bridge 937471 to inclusive rail bridge 002621. This force is to impose maximum delay on the enemy.

(3 Cdn Inf Div O.O. No. 1)

Destruction of these bridges would prevent the enemy crossing the Orne below Thury-Harcourt. The role given to this detachment, together with 2 Cdn Armd Bde's projected advance to Evrecy, may be taken as fulfilling Second Army's injunction concerning the bold use of armoured mobile forces operating in advance of main bodies (Cf para 34 above).

160. One troop of "B" Squadron, 22nd Dragoons, (Flail tanks) was to land under the command of 5 Assault Regt, R.E., to prepare safe lanes through the minefields on the beaches. During Phases II and III the "Flails" would continue with this task but under command of 102 Beach Sub-Area. Finally, in Phase IV, they would pass under the command of 2 Cdn Armd Bde to move with that formation to the area reserved for the counter-attack force (2 Cdn Armd Bde O.O. No. 1).

(i) Machine Gun Battalion

161. The heavier support weapons (medium machine guns and 4.2-inch heavy mortars) of C.H. of C. (M.G.) were not suitable for employment in the assault phase. Generally speaking, these weapons, sub-allotted to battalions, were to assist in the capture of the final objective. (Operation Orders, 7, 8 and 9 Cdn Inf Bdes)

(j) Engineers

162. Because of the multitude of tasks confronting the sappers, engineer resources were considerably swelled in excess of divisional strength. These tasks, which had all to be co-ordinated by C.R.E., 3 Cdn Inf Div, included clearance of obstacles, opening of beach exits, development of beaches and Beach Maintenance Areas, clearance and maintenance of inland routes, bridging, laying of defensive minefields and establishment of water points. (3 Cdn Inf Div O.O. No. 1) In addition to the normal engineer complement of 6, 16 and 18 Cdn Fd Coys and 3 Cdn Fd Pk Coy, there were also under command the following: 5 Cdn Fd Coy; part of 5 Assault Regt, R.E. (26th and 80th Assault Squadrons); 262 Fd Coy, R.E.; a detachment of 19 Fd Coy R.E.; and engineer elements of 102 Beach Sub-Area. (R.C.E., 3 Cdn Inf Div O.O. No. 1) It is impossible to set forth fully the function of each engineer group, for the allotment of tasks was exceedingly complicated. Only a general statement of the division of labour is necessary.

163. 5 Cdn Fd Coy, in support of 7 and 8 Cdn Inf Bdes, was charged with clearing four gaps through the underwater obstacles by H plus 75 minutes, using bulldozers and explosives. These gaps, distributed across the divisional front, were to vary in width from 600 yards on MIKE Green Beach to 200 yards on NAN Green. On each brigade front a Naval Landing Craft Obstacle Clearance Unit (L.C.O.C.U.) was to assist in the removal of underwater obstructions (Ibid). Two sapper assault teams, composed each of one platoon from 6 and 16 Cdn Fd Coys, were to be placed under the command of the assaulting brigades to assist the battalions in clearing beach defences (Ibid).

164. Each brigade front was to be provided with

four beach exits. Lanes were to be cleared and marked across the beach and exits breached through to the first inland lateral. This work was to be undertaken by personnel of 5 Assault Regt, R.E., using Assault Vehicles, Royal Engineers (A.V.R.E.) assisted by the "Flails" of 22 Dgns. (Ibid) A preparatory measure was of course the blasting of lanes by L.C.A. (H.R.). Engineers of 102 Beach Sub-Area had as their task the development of the beaches and Beach Maintenance Areas. This included the construction of a twenty-foot lateral along the beach, the improvement and maintenance of the exits, and the conversion of the railway line between Courseulles and Bernières into a road suitable for traffic. (Ibid) Road clearance was the responsibility of the divisional engineers and involved the normal removal of mines, road blocks, etc. (Ibid) Particular importance was attached to the construction of Class 40 bridges over the River Seullies at Pont de Revières and Colombiers-sur-Seullies. These crossing places, it will be recalled, were to be secured by 7 Cdn Inf Bde. The bridges were to be completed by H plus 7 hours and H plus 11 hours respectively (Ibid).

(k) Administration

165. A complete and detailed description of the multifarious provisions for maintenance and supply is set forth in 3 Cdn Inf Div Adm Plan, which contains thirty sections devoted to such topics as Maintenance, Transportation, Provost Services, Burials and Graves Registration, and Discipline. ((HS) 235C3.056(D1)). During the early days of the operation, it was planned that there should be three successive maintenance periods, as shown below:

(a) Assault Maintenance (D to D plus 1)

3 Cdn Inf Div will control maintenance through Beach Stores Dumps, Div Administrative Area and the Beach Maintenance Area established by 102 Beach Sub Area.

(b) Beach Maintenance (D plus 1 to D plus 4)

Headquarters 1 Corps will control maintenance, utilizing Beach Maintenance Areas formed by 102 Beach Sub Area.

(c) Line of Communication Terminal Maintenance (D plus 5 onwards)

Headquarters Second Army Troops controls Beach Maintenance Areas which are merged to form No. 1 Line of Communication Terminal.

The co-ordination and organization of all beaches will be the responsibility of HQ 11 Line of Communication exercised through Beach Sub Areas.

(Ibid)

166. Some conception of the scale of maintenance requirements can be formed from the numbers of troops and vehicles to be landed. It was estimated that provision would have to be made on D Day for 21,382 men; 2,374 vehicles and 858 motorcycles. By D plus 1 these figures, which included British Commando, Engineer and other troops attached to 3 Cdn Inf Div, would have been increased to 23,711; 2,665 and 931. (Ibid)

167. It was planned that "on D Day and D plus 1 the Assault Formations would 'live' on landing reserves and ammunition brought in under their own arrangements" (Major J. Lee-Richardson, 21 Army Group Ordnance, The Story of the Campaign in North West Europe (EMOR, 1946), p. 16). The only exception to this was the supply of ammunition and petrol for tanks, SP Artillery and DUKWs. (3 Cdn Inf Div Admin Plan) Individual rations to be carried by infantrymen were the following:

- (a) 1 Emergency ration
- (b) 1 x 24 hour ration "A") Personnel landing on D Day
1 x 24 hour ration) ONLY
- (c) 2 x 24 hour rations - personnel landing D plus 1
and subsequently
- (d) 20 cigarettes
- (e) 1 Tommy Cooker complete and 5 hexamine refills.
- (f) 1 Water Sterilising Outfit.

(Ibid)

168. Following the assault landings would come the problem of building up the reserve stocks on the beachhead. This has been described as follows:

The rapid build-up of reserves was clearly a matter of paramount importance throughout the early stages if the fighting formations were to be afforded liberty of action in the event of a sudden crack in the enemy's defences. The urgency was at its greatest in the initial few days when sufficient reserves would have to be landed not only to allow for a rapid advance but to be available for resisting the fierce and lengthy counter-attacks which might be launched against the shallow bridgehead. In addition to normal maintenance, therefore, reserve stocks were to be landed at the following scales:

- (a) By midnight D plus 3

Ammunition : Four days' expenditure at 21
Army Group rates for the forces
ashore by D plus 5

POL : Fifty miles per vehicle ashore on D plus 5

Supplies : Two days' supplies for the forces ashore on D plus 5

Ordnance Stores: Maintenance from D plus 1 to D plus 9 would be dependent on Landing Reserves. A specially scaled Landing Reserve Set* would be landed as early as possible for each brigade group or equivalent formation ashore. From D plus 10 maintenance would be by Beach Maintenance Pack. Each pack was scaled for a division or an equivalent formation and contained first and second echelon spares plus equipment for thirty days at special wastage rates.

((HS) 215A21.053 (D15):
Administrative History of 21 Army Group (BAOR, 1945), p. 7)

169. During the first eight days of the assault, while 9 and 10 C.B.R. Bns were establishing themselves in the beachhead, it was planned to send reinforcements to 3 Cdn Inf Div by predetermined drafts. (3 Cdn Inf Div, Operation "OVERLORD", Admin Plan, Appx "Q") For 3 Cdn Inf Div, the total reinforcement per day was estimated as follows:

Day	Offrs	ORs	Total
D	41	384	425
D plus 1	36	539	575
D plus 2	14	461	475
D plus 3	28	763	791
D plus 4	16	314	330
D plus 5	11	329	340
D plus 6	17	233	250
D plus 7	5	195	200
D plus 8	105	1395	1500

(Ibid)

*"For planning purposes and to allow for losses, delays in off-loading and to ensure adequate reserves to meet possible heavy demands, it was assumed that one of these sets [each one comprising approximately 8,000 cases calculated to maintain a brigade group or equivalent formation in ordnance stores for thirty days] would maintain a brigade for fifteen days only" (Administrative History of 21 Army Group, op cit, p. 18).

A more complete account of the administrative aspects of "OVERLORD" is given below, under the assault.

(1) Intercommunication

170. Signals instructions for the assault present a bewildering complexity of wireless frequencies, code signs and diagrams. When it is considered that communications had to be maintained under constantly changing conditions, this multiplicity of technical detail is not to be wondered at. To ensure adequate passage of information, alternative channels had to be devised. In addition to the wireless system for the seaborne artillery, divisional signals had to provide for communications throughout the following stages of the battle:

- (1) A.V.R.E., D.D. tanks and assault companies landed.
- (2) Battalion headquarters ashore and brigade and divisional headquarters afloat.
- (3) Assault brigade headquarters landed, reserve brigade and divisional headquarters afloat.
- (4) Divisional headquarters ashore.

(3 Cdn Inf Div Sigs O.O. No. 1)

171. Beach Signal Sections of 102 Beach Sub-Area were required to establish a Main Beach Signal Station (M.B.S.S.) on each sector; these would initially serve as headquarters for brigade staffs on first landing. Advanced Beach Signal Stations (A.B.S.S.) were also to be set up on MIKE Red, NAN Green, NAN White and NAN Red Beaches.
(3 Cdn Inf Div O.O. No. 1)

(m) Enemy Strategy

172. Some indications of the enemy's defences and the disposition of his divisions has been given above (paras 114-126 inclusive). Intelligence officers made every effort to give the invasion commanders as full and comprehensive a picture of the forces opposing them as possible. The tactics the enemy commanders would employ once the invasion was launched, however, was one of the chief imponderables facing the Allied leaders. Nevertheless, some forecast of the possible development of operations had to be made if only as a basis for administrative planning. An appreciation written on 7 May 44 under General Montgomery's authority expected enemy resistance to fall into four phases. These phases were:

- (a) Effort to defeat us on the beaches and immediately inland.

- (b) Effort to prevent the capture of Cherbourg and the establishment of a safe beachhead.
- (c) Failing this, an effort to prevent us from breaking out from the beachhead line.
- (d) Failing this, an effort to prevent us from reaching any other large ports.

((HS) 202A21.014 (D2): 21 Army Gp, "Appreciation on Possible Developments of Operations to Secure a Lodgement Area: Operation 'OVERLORD'")

173. This appreciation does not deal with the anticipated pattern of enemy resistance which would be offered in the first two phases. A partial estimate of what was expected in these phases, however, was given under different headings in Canadian Intelligence Report No. 1 on 1 Jun 44:

Immediate Battle

The enemy fmns which will have the unenviable task of meeting the full weight of Allied assault are 711 and 716 coastal divs. Ensconced in their concrete in which they obviously pin so much hope these tps ... will be backed up during the early part of D Day by the full weight of 21 Pz Div, 352 and 243 Inf Divs. Their immediate task will be the destruction of the Allied forces on the beach and if this fails and if ground is gained, to hurl us back to the landing craft by well timed armd counter-attacks. If this, in its turn, achieves no success then vital ground must be occupied that will ensure sufficient time for the arrival of further rfts and the deliberate counter-attack to be mounted. During D Day 12 SS Pz Div will be moving into action. In addition the local Corps Tk bn and elements of 17 SS Pz Gren Div will probably be identified on one or the other part of the front.*

By the evening of D Day the enemy will have realized that the major Allied thrust has been launched. Furthermore, he will have a shrewd idea of the approx str and frontage covered. He must, therefore, consider what fmns may conveniently be moved, without weakening the rest

*See map outlining the disposition of enemy divisions in the West at Appx "I".

of his def layout to such an extent to allow a diversionary attack the opportunity of achieving good results. Therefore it is likely that, though 179 Pz Div from Mantes and the unidentified Pz Div to the South of OVERLORD area will receive orders to move, 2 Pz Div will probably remain at Amiers, capable of dealing with any diversion that might be made between Le Havre and Calais.

The build-up

Once a firm footing has been gained by the Allies, the enemy will make an all out effort to build up sufficient forces to carry out a deliberate counter-attack with all possible speed. From D plus 2 to approx D plus 5 it is likely that about thirteen divs may be moving in against OVERLORD. These may incl:

- Five Pz Divs (2 Pz, 272 Pz, 2 SS Pz, 1 SS Pz, the armd elements at Nancy)
- Six Inf Divs (from Brittany and East of the R Seine)
- Two Para Divs (3 Para Div, 5 Para Div).

(W.D., G.S. (Int), H.Q. First Cdn Army, June 1944: Appx 1)

174. Clearly the Allied view of the possible turn of events was based on the principle that one should never underestimate his enemy. Thus one Intelligence Summary states: "By D minus 1 the enemy, having watched our ports fill up, is likely to have adjusted his general dispositions" ((HS) 215B2.023 (D3): Second British Army Planning Intelligence Summary No. 23, Pt 1: "Enemy Reaction to Operation OVERLORD"). Similarly it is obvious that consideration was given to the possibility that the Cover Plan might fail or that the Tactical Air Force would be unable to 'seal off' the "NEPTUNE" area. Yet, when estimating the progress of the invading forces, the Allied commanders planned on the basis of being able to meet successfully such forces as the enemy might launch against them, a basis which is reflected on 21 Army Gp phase-line maps. (See (HS) 212A21.013: 21 Army Gp, "Planning Forecast of Operations" for reproductions of these maps). In writing about General Montgomery's "Presentation of Plans" conference on 7 Apr 44, his Chief-of-Staff (Maj-Gen de Guingand) gave the following description of a phase line:

Let me explain what is meant by a phase line. A Commander must have a definite idea how he intends to swing the battle. He must aim at a definite pattern. Having given this, the staff works out the optimum progress of development in accordance with that pattern. Upon this all planning is based. The amount of transport, the number of airfields to be constructed, the amount of bridging material; all such items as this have to be equated to the time factor. These decisions

reflect back upon the loading of ships, and the planning of the build-up. I stress the 'optimum' classification. A phase line does in no way imply a guarantee that we shall reach such and such a position by a certain date. It should mean that the armies will not be caught napping if things go really well, by being held up through some shortage or other.

(Maj-Gen Sir Francis de Guigand,
Operation Victory (London, 1947),
p. 358)

175. Another writer describes General Montgomery's lecture on Rommel's probable reaction to the invasion during the first two phases at his 'Final Presentation of Plans' conference held on 15 May 44:

'Last February', he said, 'Rommel took command from Holland to the Loire. It is now clear that his intention is to deny any penetration: OVERLORD is to be defeated on the beaches.' He then went on to state in detail what changes Rommel had made, and he continued: 'Rommel is an energetic and determined commander: he has made a world of difference since he took over. He is best at the spoiling attack; his forte is disruption; he is too impulsive for a set-piece battle. He will do his level best to 'Dunkirk' us -- not to fight the armoured battle on ground of his own choosing, but to avoid it altogether by preventing our tanks from landing by using his own tanks well forward. On D Day he will try to force us from the beaches and secure Caen, Bayeux, Carentan.... Thereafter he will continue his counter-attacks. But, as time goes on, he will combine them with a roping-off policy and he must then hold firm on the important ground which dominates and controls the road axes in the bocage country.'

(Chester Wilmot, The Struggle for Europe (London, 1952), pp 215-16)

176. It would seem that the line which it was expected Rommel would hold -- "The important ground which dominates and controls the road axes of the bocage country" -- ran parallel to the "Bridgehead line" which H.Q. 21 Army Gp described as the D plus 14 Phase line.*

*"The D plus 14 line at its western extremity is anchored in Lessay and the mouth of the River Ay. The Germans held the higher ground along the low ridge line which runs from North-east of Coutances down to the main arc of high ground, also held in enemy hands, which commences at Villedieu and swings around to Falaise. On the East the Bridgehead line comes up to the River Dives" (Appreciation of Possible Development of Operations.... See also map appended to this document.)

Thus the bridgehead area included "the port of Cherbourg, the beaches, Mulberries and small ports which have been estimated to be sufficient in toto to accept and maintain approximately thirty Allied divisions" (Appreciation of Possible Development of Operations...). It was estimated the bridgehead line "would be approximately 100 miles in length" and that the enemy would "no doubt try to hold in some strength along the whole of the line, but...[would] retain a number of divisions for use in offensive pushes of his own, designed to take the initiative from us, or to meet and stop any advance by us" (Ibid).

177. It was assumed that to stop any breakout from the bridgehead line, (the third phase of enemy resistance), the German commander would have some 20 divisions along the 100 mile phase line with eight divisions in reserve. This would mean that enemy divisions in the line would hold fronts five miles long. "A disposition of this nature would mean that the enemy strength actually on the line might not be superior to ours, but it would still be extremely difficult for us to advance because of the size and mobility of enemy reserves" (Ibid). Should the enemy react in this manner, the appreciation went on to state:

... we may be held up on the D plus 14 line for some time and may even suffer local setbacks. This possibility must be squarely faced and may well come to pass since it is an obvious end towards which enemy dispositions have been aimed for some months past. If we are held up at this time we must build up our combat strength as rapidly as possible even to the exclusion of administrative build-up and combine our increasing strength with an all out air effort designed to reduce the mobility and effectiveness of the enemy reserve divisions. By such means we should gradually be able to build up once more a forward momentum and slowly expand the bridgehead along its whole perimeter.

(Ibid)

178. It was thought that if the enemy were able to build up his forces to the optimum appreciated by Allied Intelligence, "it may well be D plus 30 or even later before we can break out from the enemy's effort to contain us" (Ibid). Nevertheless it was felt that the type of formation the enemy would be bringing in at this time would be inferior to his earlier build-up. Moreover, within the limits of the bridgehead the Allied forces would have room to manoeuvre and so "permit the massing of a force to drive forward in any chosen direction." This, (the beginning of the fourth phase), might lead the enemy to

... change his defensive tactics into a more elastic and mobile defence, utilizing grouped reserves and strong counter-attacks against our successful penetrations. Also, he might well try a strong attack designed to split our forces, temporarily regain the initiative, and thus delay our advance against the ports. He will certainly appreciate that our build-up and maintenance capabilities over the beachhead are limited, and will be greatly reduced when the autumn storms commence. He will therefore do all in his power to prevent or delay our capturing and using any additional large ports.

(Ibid)

THE FIRE PLAN*

179. Before embarking on this topic,** it is appropriate to turn back briefly to that operation which had also involved an assault landing on the French channel coast. The costly but invaluable experience gained at Dieppe almost two years prior to "OVERLORD" was closely studied and the lessons learned from that experience carefully formulated. (Cf (HS) 594.013 (D1): The Dieppe Raid, Combined Report (C.O.H.Q. 1942))

180. Not the least of these lessons, although it is not included in the Combined Report, must have been the knowledge that much time must elapse before the invasion could take place. "I believe," said Lt-Gen Crerar with reference to Dieppe, "that when this war is examined in proper perspective it will be seen that the sobering influence of that operation on existing Allied strategical conceptions, with the enforced realization by the Allied Governments of the lengthy and tremendous preparations necessary before invasion could be attempted, was a Canadian contribution of the greatest significance to final victory" (Introduction to Briefing of Officers, H.Q. First Cdn Army, 7 Jun 44, op cit). General Crerar's remarks on that same occasion shed light on another aspect of the assault -- the relative value of tactical surprise:

Until the evidence of Dieppe proved otherwise, it had been the opinion in highest command and staff circles in this country that an assault against a heavily defended coast could be carried out on the basis of securing tactical surprise, and without dependence on overwhelming fire support, in the critical phases of closing the beaches and overrunning the beach defences.

(Ibid)

181. If tactical surprise was not to be the basis of the plan, it followed that a daylight assault, supported by heavy and accurate observed bombardment, was preferable to one made under cover of darkness. The first lesson of Dieppe, therefore, was the need for "'overwhelming' fire support ... during the initial stages of the attack,"

*See also "The Problem of Fire Support" in A.H.Q. Report No. 42.

**The Fire Plan is treated here as a separate topic outside 3 Cdn Inf Div's assault plan because of its importance.

The report defined the methods by which this must be provided:

... by heavy and medium Naval bombardment, by air action, by special vessels or craft working close inshore, and by using the fire power of the assaulting troops while still seaborne.

(The Dieppe Raid)

182. An important source of the "OVERLORD" fire plan is the Graham Report, "Fire Support of Seaborne Landings Against a Heavily Defended Coast", ((HS) 952.013 (D46)) which had considered the problem of distributing a sufficient weight of high explosive over an area to be assaulted. (Cf Report by the Allied Naval Commander-in-Chief..., Appx 5) Our concern here is not so much with that principle as with the means employed to produce an adequate volume of fire. Examination of the fire plan conceived for "OVERLORD" reveals close parallels with the Dieppe recommendations. The huge scale of support to be furnished by heavy and medium naval bombardment has already been outlined (supra, para 21); at Dieppe naval fire had been limited to "a short bombardment carried out by destroyers" (The Dieppe Raid). Air support, which at Dieppe had proved "adequate to cover the operation" and had included no preliminary bombing, was expanded for "OVERLORD" to comprehend attacks by heavy and medium bombers as well as fighter bombers, so that the total effect of the air assault should extend far beyond the target area proper.

183. The numerous strange craft making up the Naval Assault Forces may be said to have had their genesis in the recommendation for support delivered by "special vessels or craft working close inshore". This support was to be given during the "vital minutes while troops are disembarking, cutting or blasting their way through wire, clearing beach mines and finding routes over obstacles", for at that very time they would be least able to support themselves (Ibid).

184. We come finally to the suggested use of "the fire power of the assaulting troops while still sea-borne". This, the Dieppe report goes on to say, might be further developed by the employment of "self-propelled mobile artillery provided that it is put ashore immediately" (Ibid). But it does not envisage that such artillery might be fired even while still at sea. This was a later development, growing out of the original recommendation for sea-borne military fire-power. Assault divisions in Operation "OVERLORD" were accordingly equipped with "Priests" -- U.S. 105-millimetre self-propelled guns (M.7). Owing to the fact that 3 Cdn Inf Div was to make its attack on a two-brigade front, it was deemed advisable to strengthen its artillery component by the addition of a fourth field regiment, thus giving each assaulting brigade the support of

two regiments. The additional unit first selected was 8 Cdn Fd Regt, but on its departure to the Mediterranean with 1 Cdn Corps it was replaced, in October 1943, by 19 Cdn Fd Regt. (W.D., G.S., H.Q. First Cdn Army, October 1943: Appx 20, Message 067, G First Cdn Army to 2 Cdn Corps, 18 Oct 43)

185. Turning now to the divisional fire plan, it may be observed first that its most remarkable feature was the very high degree of co-ordination it achieved by combining the efforts of Navy, Army and Air Force. The importance of such exercises as "PIRATE" in arriving at this co-ordination has been mentioned above (para 90). The intention of the fire plan, broadly, was threefold: (a) to provide "drenching" fire against beach defences from all weapons; (b) to destroy enemy batteries by naval fire and air bombing; (c) to attack inland targets by air action. The schedule which this programme was to follow is tabled at Appx "O" of R.C.A., 3 Cdn Inf Div O.O. No. 1. This document is in fact invaluable to an appreciation of the divisional fire plan.

(a) The Air Force

186. The role of the Air Forces in the fire plan was unlike that of the other two services. (Supra, para 40) The factors of space combined with mobility which permitted aircraft to act as "airborne artillery" enabled the Air Forces to commence their fire plan weeks, if not months, in advance of the navy and army. Despite the two-for-one Air Force policy of attacking bridges, coastal batteries, etc. (supra, para 54), the greatest part of the 'aerial' fire plan had been carried out before 5 Jun. The results, too, were impressive (see infra, paras 227-39); so much so that Reichsmarshall Hermann Göring later stated that "the Allies owe the success of the invasion to their air forces. They prepared the invasion; they made it possible, and they carried it through" ((HS) 295AF. 023 (D1): "Goering Interrogated", U.S. Strategic Air Forces in Europe, Air Intelligence Summary No. 81 p. 10).

187. Although the bulk of the Air Forces fire plan might be said to have been carried out in the preliminary and preparatory phases of the Overall Air Plan, an even more direct and concentrated air attack on the assault area was planned for the night of 5/6 Jun. It was to be carried out

... by R.A.F. Bomber Command between 11.31 p.m. on June 5 and 5.15 a.m. on June 6 against ten selected coastal batteries at Crisbecq, Saint-Martin-de-Varreville, Ouistreham, Maisy, Mont Fleury, La Parnelle, Saint-Pierre-du-Mont, Merville-Franceville, Houlgate and Longues; the number of sorties against each target varied from 99 to 131 and the bomb tonnage from 382 to 698.

(Captain Norman Macmillan, The Royal Air Force in World War II Vol. IV (London, 1950), p. 158)

This was to be only the beginning of the air attacks in direct support of the assault forces, for shortly after the naval bombardment began, the Air Force was to continue its attacks. From H minus 30 to H minus 15, light bombers of the R.A.F. were to attack the MIKE and NAN beach defences (R.C.A., 3 Cdn Inf Div O.O. No. 1, Appx "C"). From H minus 15 to H Hour, heavy bombers were to attack LOVE and OBOE beach defences (Ibid). From H Hour onwards, R.A.F. heavy and medium bombers were to attack the defences of Caen (where H.Q. 716 Div was located), Tailleville and the Carpiquet airfield (Ibid). From H up to 30 minutes, R.A.F. fighter or medium bombers were to attack the Ver-sur-Mer, Beny-sur-Mer and Mount Fleury batteries, an attack timed so as to follow the naval bombardment of those positions (Ibid).

(b) Navy

188. The naval fire plan was timed so as to overlap the air attacks on the coastal defences and thus to keep an almost steady rain of fire on the 'Atlantic Wall'. The bombarding ships of Eastern Task Force associated with Force "J" are listed above (para 21). Fleet Class destroyers were to bombard the flanking beaches commencing at H minus 40 minutes, while at the same time, Hunt Class destroyers engaged MIKE and NAN Sectors. Cruisers, directed by air spotting sorties, were to engage the Ver-sur-Mer and Beny-sur-Mer batteries. After H Hour certain of these ships would become available on call to the Forward Observers Bombardment accompanying the assaulting troops. (Ibid)

189. The tasks of the naval support craft require only to be summarized. Descriptions of each type are included in the table, Ships and Craft of Force "J", at Appendix "B". L.C.G. (L), disposed on the flanks of assaulting battalions, were required to close to 1000 yards and open fire with their 4.7-inch guns on targets of opportunity. L.C.T. (R), approaching the beach in two waves, were to fire their patterns of rockets just prior to touch-down on the strongpoints at Courseulles, Bernières and St. Aubin. (R.C.A., 3 Cdn Inf Div O.O. No. 1) The A.V.R.E. teams, touching down at H Hour, were to be accompanied on the run-in L.C.A. (H.R.), which would fire when within range so as to create blast lanes through the mines and wire at the eight points where it was intended that exits should be constructed (Cf para 164). (Ibid)

(c) Army

190. The expanded divisional artillery was divided into two groups for the assault phase: 12 Cdn Fd Regt Artillery Group, supporting 7 Cdn Inf Bde, and composed of 12 and 13 Cdn Fd Regts and one battery of 2

R.M. Armd Sp Regt ("Centaur")*; and 14 Cdn Fd Regt Artillery Group, in support of 8 Cdn Inf Bde, and comprising 14 and 19 Cdn Fd Regts and the second R.M. Armd Sp Regt's battery. (Ibid)

191. Two batteries of 2 R.M. Armd Sp Regt, equipped with Centaur tanks mounting 95-millimetre guns, were to be borne in L.C.T. (A.) and L.C.T. (H.E.). Beaching at H Hour, they were to deploy on land in order to support troops coming ashore. (Ibid) The role of L.C.T. (C.B.) has been described previously (para 157).

192. The "drill" evolved for the employment of seaborne artillery is fully described as to its technical detail in a memorandum issued by H.Q. R.C.A.: The Use of SP Artillery in Support of a Beach Assault. ((HS) 23503.2033 (D1)) But a clearer conception of the procedure can perhaps be gained from the following excerpt from an account given to the Historical Officer, 3 Cdn Inf Div:

There were several curious difficulties attached to the use of the artillery at sea. The craft had to be under way at the time of firing, since they were not sufficiently steady while merely standing off. No switches could be put on the guns. The only way therefore that they could be kept in line was to direct the craft on the target and maintain them on their course. Thus, from the time that the guns came within range and opened fire they were closing on the beach at 5 knots per hour. This made necessary a steadily decreasing elevation on the guns. The rate of close on the beach had to be calculated constantly in order to keep the fire where it was wanted 'just where the grass starts to grow on the beach'. This was done by the Regimental Fire Control Officers operating radar apparatus in navigational motor launches.

For the SP artillery the schedule of fire support was as follows. Range clocks were started at 15,000 yards; ranging with smoke began at 10,000 yards and fire for effect at 9000 yards. This latter had to be timed so as to commence at H minus 30 minutes. From then until H plus 5 minutes (i.e., at a range of 2000 yards, having covered 1000 yards per 5 minutes) each gun fired 3 rounds in every 200 yards. The total HE expenditure at H plus 5 minutes was thus 105 rounds per gun.

*The Centaur 95-mm cruiser tanks were "originally intended as gun turrets in L.C.T. to compensate for a shortage in L.C.G." ((HS) 212C1.2009 (D89): "21 Army Group Interim Report on Equipment in the Early Stages of Operation 'OVERLORD'", Sec 5). The final role of the R.M. Armd Sp Craft Regt was "to engage targets that had escaped the main bombardment" (Ibid).

At this point, the LCTs, now 2000 yards off shore, did not continue on their course in order to touch down and offload the guns, for the beach was not yet ready to receive them. Instead they turned off to a flank to a waiting position.... On landing they deployed and went into action as quickly as possible.

((HS) 23503.2011 (D1): Artillery Communications in Operation "OVER-LORD", account given by Maj H.S. Patterson, R.C. Sigs, to Hist Offr, 3 Cdn Inf Div)

To complete this picture it is necessary to envisage 24 L.C.T. approaching shore, each craft carrying four guns (one troop). The total volume of fire from these 96 guns would equal 10,080 rounds during the run-in. The fall of shot was to be observed and controlled by Forward Observation Officers travelling in L.C.S. (M) far in advance of the assault waves. (Ibid) Artillery reconnaissance parties accompanied infantry battalion headquarters, so as to select suitable gun positions ashore.

193. Each regiment was to bring down a concentration on one of the four principal strongpoints in "Juno" sector, i.e., those at Courseulles (on either side of the breakwater), at Bernières and at St. Aubin, ending just as the leading infantry touched down. (R.C.A., 3 Cdn Inf Div O.O. No. 1) These four regimental concentrations were thus designed to complement the fire delivered against the same targets by L.C.T. (R). But it must be emphasized that their effect was to be neutralizing, not destructive. Neither sufficient weight nor accuracy to achieve penetration of concrete defences could be expected of field artillery afloat.

194. Although Exercises "PRIMROSE" and "PIRATE" had demonstrated the feasibility of firing S.P. artillery from sea (A.H.Q. Report No. 42, paras 210 ff), subsequently a series of unexpected difficulties in the actual mechanics of the problem was found to be critical. One of the many collective exercises of the final stage of training was, therefore, made to serve as a final test of its practicability. All references to Exercises "SAVVY" (12 Feb) make it clear that the whole case for seaborne artillery would stand or fall on its merits. (W.D., H.Q. R.C.A., 3 Cdn Inf Div; and H.Q. 8 Cdn Inf Bde, February 1944) Officially, the object of Exercise "SAVVY" was listed as:

- (a) to develop and practise the Fire Support Plan (Army, Navy and Air Force) for an assault by 8 Cdn Inf Bde Gp on a heavily defended coast

- (b) to practise calling for fire support and cooperation between Inf Comds, F.O.Bs. and B.L.Os.*

(W.D., 14 Fd Regt, R.C.A., February 1944: Appx 5, Exercise "SAVVY", 14 Fd Regt O.O. No. 1)

The exercise, the first of its type when Canadians in D.D. tanks made use of their recent 'secret training', (supra, para 104; "B" and "C" Squadrons of 10 Cdn Armd Regt were employed in the exercise) was attended by many high ranking officers. (W.D., 10 Cdn Armd Regt, February 1944) These latter caused a war diarist to comment: "During the afternoon the office became very much like cooks [sic] travel agency we had so many brass hats trying to get us to obtain accn for them for Exercise 'SAVVY' ..." (W.D., H.Q. R.C.A., 3 Cdn Inf Div, 22 Jan 44). Chief among the observers were His Majesty George VI and General Montgomery. The divisional artillery staff, which had suspended detailed planning until its conclusion, noted with relief that the exercise was considered "a great success" (W.D., H.Q. R.C.A., 3 Cdn Inf Div, 14 Feb). In one instance "some difficulty was experienced in landing when one craft grounded on a sand-bar and mistaking it for the beach, two SPs and 1 carrier unloaded [and] finally dropped off the bar into about 6 ft of water" (W.D., 19 Cdn Fd Regt, 12 Feb 44). This was a minor difficulty, however. S.P. artillery would continue to be included in the assault phase.

(d) Anti-Aircraft

195. Anti-aircraft protection for ships and craft was to be given by L.C.F. and L.B.F. Two anti-aircraft assault groups ("O" and "P"), comprising several British anti-aircraft batteries, a searchlight troop, a smoke company and four L.B.F., were entrusted with the protection of the beachhead area. The divisional light anti-aircraft regiment was to supply one battery to cover the crossings of the River Seulles. (R.C.A. 3 Cdn Inf Div O.O. No. 1) Very careful instructions were issued concerning anti-aircraft fire, the engagement of friendly aircraft by our own troops having been an unfortunate feature of the Dieppe raid. (The Dieppe Raid, para 371; 3 Cdn Inf Div O.O. No. 1) ~~An~~ extra precaution a special system of distinctive markings on certain types of Allied aircraft was devised to come into force on D Day; these markings consisted of black and white stripes painted on wing surfaces and fuselages.

(e) Anti-Tank

196. The advance to the final objective was to be supported by two anti-tank sub-units: a battery of 62 A ~~tk~~ Regt, R.A., in support of 7 Cdn Inf Bde, and 105 Cdn (Composite) A ~~tk~~ Bty of 3 Cdn A ~~tk~~ Regt, in support of 9 Cdn Inf Bde. At the conclusion of Phase III they were to be withdrawn to the divisional mobile reserve. During the

*B.L.O. - Bombardment Liaison Officer.

consolidation phase, anti-tank weapons were to be deployed so as to guard against enemy armoured thrusts against the flanks of the division. (R.C.A., 3 Cdn Inf Div O.C. No. 1)

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197. In summing up, it may be found useful to examine diagrammatically the order in which the leading assault groups of 3 Cdn Inf Div were to approach the beach.

H minus 5	D.D. Tanks
H Hour	Centaur, A.V.R.Es. and B.E. bulldozers
H plus 5	Infantry Assault Coys
H plus 20	Infantry Reserve Coys
H plus 45	Reserve Battalions

The disposition of the essential elements of an assault brigade group is shown in perspective on the diagram at Appendix "H".

3RD CANADIAN INFANTRY DIVISION PREPARES TO SAIL

(a) Concentration, Marshalling and Embarkation

199. The vast and complicated procedure by which the Allied assault and follow-up forces concentrated on the southern coast of England prior to embarking for France can be mentioned here only in outline. An idea of the complexity of the operation and the amount of planning it involved is described by General Montgomery:

The mounting of an amphibious operation may be defined as the process of concentrating the troops taking part into suitable areas, from which they move to marshalling areas, whence in turn they are called forward to the points of embarkation. The process is one of great complexity, particularly when concerning an operation of the magnitude of Overlord, in which over 20,000 vehicles and 176,000 personnel were to be landed on the far shore in the first two days. Formations and units had to be concentrated with relation to their approximate marshalling areas and embarkation points, which extended from Felixstowe to Plymouth and South Wales; during the mounting, the final stages of waterproofing vehicles and equipment had to be completed to enable them to disembark from landing craft and wade ashore; the assault troops had to be packed up for the operation, and therefore during the last stages 'hotel' servicing had to be arranged for them by other units, which, in many cases, themselves had subsequently to prepare for embarkation; 'residues', in other words the portions of units which were not necessary in the initial phase, had to be separated from their parent formations and subsequently despatched overseas to rejoin them; marshalling areas and embarkation points had to be laid out in great detail, often in very confined areas; a highly complicated security system had to be organized and implemented to prevent leakage of information, and in particular to ensure that once the troops had been briefed about the role they were to play, they would be denied contact with the outside world.

(Montgomery, Normandy to the Baltic, op cit, p. 38)

200. The beginning of May found 3 Cdn Inf Div and its attached troops concentrated, along with thousands of others, in "suitable areas" in the Southampton-Portsmouth area. The number of men, and the problems their presence presented, may be imagined from the following extract of a memo written by General Keller regarding discipline:

The congestion in the Hants Sub Area is extreme. The area contains six British Divisions