

15. Special Features of Operation

The Staff of A.N.C.X.F. as well as those of the Task Force and Assault Force Commanders included officers who had had previous experience of planning amphibious operations and were familiar with the procedure adopted in the Mediterranean in the landings of 1942-3. This was fortunate, as the planning procedure was thus generally understood, and the necessary attention could be focussed on the establishment of organizations demanded by the special nature of Operation "Neptune." These included the "Build-up Control Organization" (B.U.C.O.)—an inter-service organization at Portsmouth to adjust the movements of ships and craft of all types and their military loads, designed to meet the requirements of the Supreme Allied Command for the build-up of the Expeditionary Force; the "Turn Round Control" (T.U.R.C.O.)—an inter-service body set up in certain ports to assist the Naval Commanders-in-Chief and Flag Officers in Charge in the "turn round" of shipping in the ports of the United Kingdom; and the "Combined Operations Repair Organization" (C.O.R.E.P.)—an organization (with headquarters at the Admiralty) established in the major ports for co-ordinating and allocating to yards, for repairs, all damaged and defective ships and craft (including Red Ensign ships) employed in the operation.

Other administrative problems never before encountered on such a gigantic scale included:—

- (a) Training, accommodation, and general arrangements for the landing craft crews during the suspense and assembly periods.
- (b) Shelter for the craft of the ferry service; accommodation and facilities for their crews on the far shore.
- (c) Provision of the large numbers of personnel.
- (d) Evacuation of army casualties.
- (e) Overhaul and repair of assault ships in preparation for D-day¹.

In addition there were problems in connection with the pre-fabricated harbours (Mulberries)² and the supply of petrol to the Expeditionary Forces on shore ("Pluto"). At Admiral Ramsay's request, Rear-Admiral W. G. Tennant was appointed to his staff to take charge of these two organizations. The harbours were to be constructed of sunken concrete caissons (known as Phoenixes) and from the outset the Rear-Admiral was uncertain of their ability to withstand even a moderate gale. Moreover, it was estimated that it would require at least 14 days to get them in place. At his suggestion,

¹ Admiral Ramsay subsequently remarked: "The long time available for administrative planning, coupled with the fact that the resources of the United Kingdom were available to A.N.C.X.F. enabled most of these problems to be solved, but this exceptionally favourable situation is unlikely to be repeated in another theatre." A.N.C.X.F. Report, Vol. 1, p. 27.

² The original designs for these harbours "were prepared, for some extraordinary reason by the War Office. It was apparent soon after taking up my appointment that much greater naval supervision of the preparations and an experienced naval staff to conduct the operation was necessary. . . . It also soon became apparent that the programme of completion for the Phoenix and Whale Mulberry units would not be kept. The gear provided by the War Office was in no state to be towed, nor was towing gear provided. All the riggers in Chatham Dockyard were put on to this at high pressure to make good the deficiency. This shows how essential it is for the Admiralty to be concerned at the outset of any seagoing project." A.N.C.X.F. Report, Vol. 1, pp. 6, 27.

therefore, 70 obsolete ships¹ were prepared as blockships, which could be placed in two or three days and thereby speedily provide some shelter over the 40 miles of coast before the "Phoenix" breakwaters could be built.²

The supply of fuel in sufficient quantities to the armies on shore raised a special problem which would increase in importance and difficulty as the build-up progressed and the armies advanced from the coast.

This was to be done in two ways:—

- (a) By laying four ship-to-shore pipe lines for tankers to discharge oil direct to shore storage tanks from off shore moorings. Four such pipe lines—two in each Task Force area—known as "Tombola" (6-in. internal bore) and "Amethea" (10-in. internal bore) were to be completed by D+18, and a large tanker could then discharge 600 tons per hour.
- (b) By laying 10 pipe lines completely across the English Channel from Sandown Bay to Querqueville (west of Cherbourg). These pipe lines were of two kinds: "Hais," a flexible pipe similar to electric cable but without the inner core, laid by cable-laying vessels, and "Hamel," flexible steel pipe wound round floating drums, 50 ft. in diameter, which unreel as they were towed across the water. These pipe lines were to be completed by D+75.

A force known as "Pluto"³ was formed to carry out these projects and placed under the command of Captain J. F. Hutchings, D.S.O., O.B.E., R.N.

From the early stages much attention was paid to the basic naval organizations to be established on the "Far Shore" and their liaison with army authorities. Rear-Admiral J. W. Rivett-Carnac, the Chief Naval Administrative Officer on Admiral Ramsay's staff, was appointed as Flag Officer, British Assault Area (designate); he was thus able to continue the detailed planning for the naval organization ashore which he had commenced while serving on A.N.C.X.F. staff. It was not till a good deal later that a parallel appointment was made for the United States area, when Rear-Admiral J. Wilkes, U.S.N., was nominated as "Flag Officer, West."

16. Issue of Naval Plan

From the naval point of view once the all important question of whether the landing should take place in darkness or daylight had been settled, the plan developed naturally and largely consisted in determining and co-ordinating the movements of large numbers of convoys and groups of ships during the first few days⁴; but uncertainty as to what naval forces would be available

¹ Nearly half of this number was provided by the United States.

² Rear-Admiral Tennant's foresight was proved in the gale that blew from 19th to 22nd June, as these blockships alone gave some shelter to hundreds of landing craft and barges on a lee shore and greatly reduced the number that was damaged, as well as making it possible to continue unloading on a small scale. One of these shelters, which were known as "Gooseberries," was constructed in each assault force area (see Sec. 62, *postea*).

³ Pipe Line Under The Ocean.

⁴ Admiral Ramsay remarked that this had to be arranged on the Naval C.-in-C.'s level, owing to the closely knit nature of the operation and the small area in which all movements had to take place. "The very considerable detail to which A.N.C.X.F.'s operation orders descended . . . was foreign to the practice in the U.S. Navy, where the orders of the higher levels of commands are largely confined to the definition of tasks and the issuing of directives. Despite their frank criticism, both before and after the operation, it is still believed that the large size of the operation orders was unavoidable. . . . The attack had to be made on a narrow front and the ports and anchorages in the Isle of Wight area were jointly used by the British and the U.S. Co-ordination could only therefore, be achieved on the highest naval command level." A.N.C.X.F. Report, Vol. 1, p. 28.

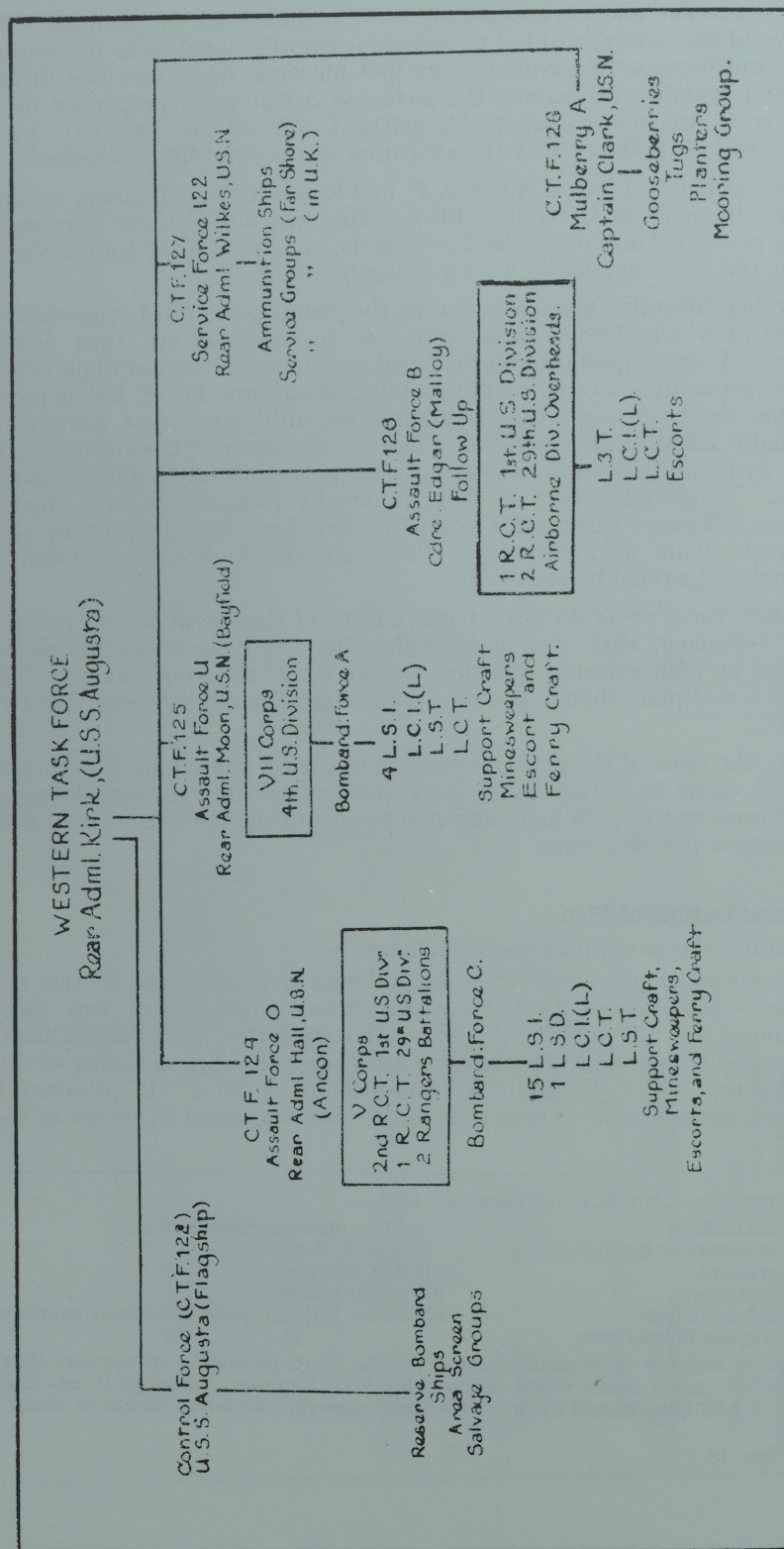


Fig. 6. Organization of Western Task Force.

Each assault force consisted of sufficient landing ships and craft of various types to transport and land approximately a division, as well as special craft for close range supporting fire, etc., and fleet minesweepers to sweep it through the enemy mined area. Each convoy¹ was escorted and four divisions of destroyers supplied close cover to the flanks of the cross Channel routes, while distant cover was given by the Home Fleet and forces detailed by the Commanders-in-Chief Plymouth and Western Approaches under the general direction of the Admiralty. In addition to the operation of four anti-submarine support groups by the Plymouth Command, elaborate arrangements were made by the Admiralty and Headquarters, Coastal Command, to "flood the western approaches to the channel with aircraft" as protection against U-Boat attack. A bombarding force—including battleships—was detailed to support each task force.

After loading and assembling in the southern ports of Great Britain, the forces were to sail for an area to the south-eastward of the Isle of Wight in accordance with a detailed time table, and from thence to the "lowering positions" off the assault beaches.

The assaults were to be immediately preceded by heavy naval and air bombardment. The establishment of the assault forces ashore was to be followed as rapidly as possible by the follow-up forces, the construction of the artificial harbours and the build-up.

18. Naval Forces Taking Part

The following table shows the naval forces assigned to the operation and their allocation for the assault phase:—

Type.	Western Task Force.					Eastern Task Force.					In reserve (A.N.C.X.F.). Home Commands.	Total.		
	As required.	Force "O".	Force "U".	Force "B".	Rangers.	Commandos.	Force "S".	Force "G".	Force "J".	Force "L".			As required.	
						BOMBARDING SHIPS (138)								
Battleships	—	2	1	—	—	—	2	—	—	—	1	1	7	
Monitors	—	—	1	—	—	—	1	—	—	—	—	—	2	
Cruisers	2	3	5	—	—	—	5	4	2	—	2	—	23	
Gunboats	—	—	1	—	—	—	—	1	—	—	—	—	2	
Fleet Destroyers "Hunt"	2	12	16	—	—	2	10	9	7	—	—	20	78	
Destroyers	—	3	—	2	—	—	3	6	4	1	—	7	26	
						ESCORTS (221)								
² Escort Destroyers	—	2	—	2	—	—	1	—	3	1	1	—	13	23
Destroyer Escorts (U.S.)	—	3	2	1	—	—	—	—	—	—	—	—	6	
² Sloops	—	—	—	—	—	—	1	3	—	—	—	—	10	14
² Frigates	—	—	2	—	—	—	1	2	—	2	3	—	19	29
Corvettes	—	—	2	—	—	—	3	3	3	5	3	—	50	71
Patrol Craft (U.S.)	—	9	7	2	—	—	—	—	—	—	—	—	18	
A/S Trawlers	—	3	3	3	—	—	6	6	6	3	—	—	30	60

¹ Each British Assault Force sailed in about 16 groups; the American Assault Forces in about 4 groups each.

² Exclusive of A/S Escort Groups, *see infra*.

OPERATION "NEPTUNE"

Type.	Western Task Force.					Eastern Task Force.					As required.	In reserve (A.N.C.X.F.)	Home Commands.	Total.
	As required.	Force "O."	Force "U."	Force "B."	Rangers.	Commandos.	Force "S."	Force "G."	Force "J."	Force "L."				
MINESWEEPERS ¹ (287)														
Fleet														
Minesweepers	—	17	25	—	—	—	24	16	16	—	—	—	—	98
B.Y.M.S. ..	—	10	—	—	—	—	10	10	10	—	—	—	—	40
Y.M.S. (U.S.) ..	—	—	16	—	—	—	—	—	—	—	—	—	—	16
M.M.S. ..	—	10	10	—	—	—	10	10	10	—	—	20	—	70
LL Trawlers ..	—	—	—	—	—	—	—	—	—	—	—	20	—	20
Danlayers ..	—	8	8	—	—	—	10	9	8	—	—	—	—	43
SUBMARINES (2)														
Midgets ..	—	—	—	—	—	—	1	—	1	—	—	—	—	2
MINELAYERS ² (4)														
Surface ..	—	—	—	—	—	—	—	1	—	—	1	—	2	4
SEAPLANE CARRIER ³ (1)														
	—	—	—	—	—	—	1	—	—	—	—	—	—	1
COASTAL FORCES (495)														
Motor Torpedo Boats (M.T.B.s) U.S., M.T.B.s (P.T.) ..	31	1	1	—	—	—	—	—	—	—	—	17	139	158
Motor Gunboats (M.G.B.) ..	—	—	—	—	—	—	—	—	—	—	6	—	—	6
Steam Gunboats (S.G.B.) ..	6	—	—	—	—	—	—	—	—	—	—	—	—	6
U.S., Submarine Chasers (S.C.)	3	6	7	2	—	—	—	—	—	—	—	—	—	18
Motor Launches (M.L.) ..	—	12	7	—	—	—	7	12	12	—	—	90 ⁴	—	140
Harbour Defence Motor Launches (H.D.M.L.) ..	—	2	3	—	—	—	2	2	2	—	—	—	31	42
U.S. Coastguard Cutters (U.S.C.G.) ..	—	15	15	—	—	—	10	10	10	—	—	—	—	60
Rescue Motor Launches (R.M.L.) ..	—	—	—	—	—	—	—	—	—	—	—	—	32	32
A/S ESCORT GROUPS (58) ⁵														
Escort Carriers	—	—	—	—	—	—	—	—	—	—	—	—	3	3
Destroyers ..	—	—	—	—	—	—	—	—	—	—	—	—	14	14
Sloops ..	—	—	—	—	—	—	—	—	—	—	—	—	3	3
Frigates ..	—	—	—	—	—	—	—	—	—	—	—	—	38	38

¹ In addition, 72 motor launches shown under Coastal Forces *infra*.

² One as Emergency Repair Ship (Force "G"), one as H.Q. ship, F.O.B.A.A., two as M/L in Operation "Maple." In addition 22 motor launches and 36 M.T.B.s shown under "Coastal Forces" *infra*, and Aircraft from Bomber Command.

³ As L.S.E.

⁴ 36 M.L.s (M/S) were attached to the Fleet Minesweeping Flotillas for the assault.

⁵ These forces were not under the operational control of A.N.C.X.F. They played an important part in the operation, however, and for this reason are included in the above statement.

NAVAL PLAN AND OPERATION ORDERS

Type.	Western Task Force.					Eastern Task Force.					As required.	In reserve (A.N.C.X.F.)	Home Commands.	Total.
	As required.	Force "O."	Force "U."	Force "B."	Rangers.	Commandos.	Force "S."	Force "G."	Force "J."	Force "L."				
LANDING SHIPS (L.S.) (310)														
L.S.H. ..	—	1	—	—	—	—	4	4	4	—	—	—	—	13
L.S.I. ..	—	9	—	—	—	—	4	8	18	—	—	—	—	55
L.S.T. ..	—	24	30	52	6	6	24	29	24	53	—	—	—	236
L.S.E. ..	—	1	1	—	—	—	—	—	1	—	—	1	—	4
L.S.D. ..	—	1	—	—	—	—	—	—	—	—	—	—	—	2
MAJOR LANDING CRAFT (L.C.) (1,211)														
L.C.H. ² ..	—	9	6	—	—	—	2	5	4	—	—	—	—	26
L.C.I. (L) ..	—	33	47	13	—	—	52	22	23	19	—	—	—	209
L.C.I. (S) ..	—	—	—	—	—	39	—	—	—	—	—	—	—	39
L.C.T. ..	—	126	150	48	—	—	132	132	132	48	—	—	—	768
L.C.T. (A) ..	—	8	8	—	—	—	8	16	8	—	—	—	—	48
L.C.T. (R) ..	—	9	5	—	—	—	5	8	9	—	—	—	—	36
L.C.T. (C.B.) ..	—	2	—	—	—	—	1	—	2	—	—	—	—	5
L.C.T. (H.E.) ..	—	8	—	—	—	—	—	—	8	—	—	—	—	16
L.C.F. ..	—	7	4	—	—	—	4	7	7	—	—	—	—	29
L.C.G. (L) ..	—	5	4	—	—	—	3	6	7	—	—	—	—	25
L.C.S. (L) (2) and (3) ..	—	—	—	—	—	—	3	4	3	—	—	—	—	10
MINOR LANDING CRAFT (L.C.) (950)														
L.S.C. (L) (1) ..	—	—	—	—	—	—	—	—	4	—	—	—	—	4
L.C.S. (M) ..	—	—	—	—	2	—	—	16	8	—	—	—	—	26
L.C.S. (S) ..	—	24	12	—	—	—	—	—	—	—	—	—	—	36
L.C.A. (H.R.) ..	—	—	—	—	—	—	9	18	18	—	—	—	—	45
L.C.A. ..	—	36	18	—	40	42	78	134	154	—	—	—	—	496
L.C.V.P. ..	—	124	65	—	—	—	—	—	—	—	—	—	—	189
L.C.P. (L) (Smoke)	—	36	18	—	—	—	18	36	36	—	—	—	—	144
L.C.P. (Survey)	—	—	—	—	—	—	2	2	6	—	—	—	—	10
FERRY SERVICE														
LANDING BARGES (L.B.), etc. (531)														
L.B. Flak ..	—	—	—	—	—	—	4	7	4	—	—	—	—	15
L.B.V. (2) ..	—	72	36	—	—	—	36	42	42	—	—	—	—	228
L.B.E. ..	—	14	9	—	—	—	9	12	15	—	—	—	—	59
L.B.K. ..	—	2	2	—	—	—	2	2	2	—	—	—	—	10
L.B.W. ..	—	5	3	—	—	—	4	4	4	—	—	—	—	20
L.B.O. ..	—	20	12	—	—	—	16	20	24	—	—	—	—	92
Fuelling Trawlers	—	10	4	—	—	—	5	7	9	—	—	—	—	35
Rhino Ferries ..	—	20	11	—	—	—	9	17	15	—	—	—	—	72
MINOR LANDING CRAFT (1,125)														
L.C.V.P. ..	—	172	88	—	—	—	96	150	144	—	—	—	—	650
L.C.M. ..	—	139	67	—	—	—	48	96	96	—	—	—	—	446
L.C.M. (Sal.) ..	—	12	6	—	—	—	—	—	—	—	—	—	—	18
L.C.P. (R) ..	—	—	—	—	—	—	—	—	6	—	—	—	—	6
L.C.E. ..	—	—	—	—	—	—	1	2	2	—	—	—	—	5

¹ One acting as H.Q. ship.

² U.S., L.C.C. (Control).

The ferry service was to be augmented by 190 United States vehicle and personnel landing craft (L.C.V.P.) and other minor landing craft, as well as 220 tank landing craft (L.C.T. (5) and (6))—after they had taken part in the assault.

In addition to the forces enumerated, which were required for the actual assault and follow-up phases of the operation, were the large number of ships and craft of many types necessary for the build-up and Mulberry and "Pluto" projects.

These included :—

ANCILLARY SHIPS AND CRAFT (423)

Tugs	216	Surveying Ships	4
Buoy laying ships	5	Telephone cable ships	6
Control ships (Mulberries, etc.)	5	Mooring force	31
Salvage and wreck disposal vessels	42	Rescue Tugs	9
Force "Pluto"	33	F.D.T.s	3
"Eagle" ships (A.A.)	9	Smoke making trawlers	60

MERCHANT SHIPS (1,260)

Personnel ships (excluding L.S.I.)	18	Ammunition carriers	76
M.T. ships	224	Ammunition supply issuing ships (A.S.I.S.)	18
M.T. coasters	64	Liberty store ships	78
Store coasters	122	Hospital ships and carriers	10
Tankers and colliers	150	Accommodation ships	10
Blockships	59 ¹	Miscellaneous	295
Cased petrol carriers	136		

These large forces, totalling over 7,000² vessels, clearly could not be mustered unknown to the enemy. It was therefore of supreme importance to conceal from him when and where the blow would fall, and much depended on the cover plan and security arrangements.

19. Cover and Deception

"Because the power of manœuvre at sea was so limited and because it was vital to hold the enemy reserves in sectors other than that to be assaulted as long as possible, the need for cover and deception was paramount, both strategically during the preparatory period and tactically during the approach³."

¹ Including 4 warships.

Naval Units	1,206
L.S., L.C., etc., including ferry service	4,127
Ancillary craft	423
Merchant ships	1,260
	7,016

The figures in the foregoing table are the gross figures as planned. They will not necessarily agree exactly with those in Apps. "A," "B" and "C," which have been compiled from the current Pink, Red and Green Lists and various operation orders and reports; these appendices show the net numbers of ships and craft operationally fit at the start of the operation. Pooled reserve of landing craft, etc., and new construction which became available as the operation proceeded have not been included.

³ A.N.C.X.F.'s Report, Vol. 1, p. 6.

The strategic cover plan was prepared by Supreme Headquarters Allied Expeditionary Force (S.H.A.E.F.) in agreement with the London Controlling Section. Initially it was designed to conceal the general state of preparedness of the invasion forces, so as to indicate a later target date for the real operation. Subsequently, when preparations were well advanced, an appropriate display of strength in the south-east, together with concealment in the west and south, pointed to a threat to the Pas de Calais.

Naval wireless played an important part in the cover plan by simulating assault forces in areas where none was situated, and by simulating large scale exercises implying the presence of the assault forces in harbour on D—1 day while they were actually at sea.

Tactically, a naval diversion was carried out by light craft in the Straits of Dover to support an air bombardment in this area synchronized with the main assaults, and a similar diversion was made in the neighbourhood of Cape d'Antifer. In each of these and also off Cape Barfleur radio counter measures were employed by both air and surface craft to give an appearance to the enemy radio similar to that presented by the real forces¹.

A somewhat unusual detail of the cover plan lay in the practice mobilization of approximately eighty Press Correspondents, and their embarkation in their respective ships for 24 hours. This was carried out on 22nd May, to obviate the danger to security that might arise when a large number of correspondents disappeared from their usual haunts just prior to D-day².

The most ingenious cover plan could not have succeeded without security being maintained, and much attention was paid to this aspect of the operation. The highest degree of secrecy was of course enforced throughout all Service establishments. Instructions issued by the Inter-Services Security Board and Security Services were carefully observed, and major breaches of security before D-day were rare. Such as did occur were promptly dealt with and certainly did not benefit the enemy³.

As D-day approached, at General Eisenhower's request, the British Government introduced broader security measures, affecting the general public. On 9th February all civilian travel between Britain and Ireland was suspended, in order to prevent leakage of information through Dublin, where German agents continued officially to represent their Government and on 1st April a visitors' ban was imposed on the coastal areas where the assault was being mounted, extending to a depth of 10 miles inland. This was followed on 17th April by the unprecedented step of restricting Diplomatic privileges. All movement of foreign diplomats or their couriers into or out of the United Kingdom was prohibited, and correspondence hitherto immune was subjected to censorship⁴.

¹ "It is now known that these were very successful and were an instrumental factor in enabling our forces to continue for so long towards the enemy coast before their composition could be determined." A.N.C.X.F. Report, Vol. 1, p. 6.

² Several useful lessons were learned from this exercise, which proved that this item of cover deception had been highly necessary. A.N.C.X.F. Report, Vol. 1, p. 33.

³ Admiral Ramsay subsequently remarked: "the very highest satisfaction may be felt that despite the many hundreds who were for months aware of all the details of the plan, so far as is known there was no leakage."

⁴ This ban was maintained until 17th June.

20. Loading and Assembly Plan

The plan for loading and assembly of the forces, which was laid down in great detail, may be summarised as follows:—

(a) Assault and Follow-up Forces

Force.	Load.	Assemble.
<i>Force "L"</i>		
1 Brigade group ..	Tilbury	Southend, Sheerness.
2 Brigade groups ..	Felixstowe	Harwich.
<i>Force "S"</i>		
2 Brigade groups ..	Portsmouth	Portsmouth, Spithead.
1 Brigade group ..	Newhaven, Shoreham ..	Newhaven, Shoreham.
<i>Force "J"</i>	Southampton, Portsmouth	Southampton, Solent, Spithead.
<i>Force "G"</i>	Southampton	Southampton, Solent, Spithead.
<i>Force "O"</i>	Weymouth, Portland ..	Weymouth, Portland, Poole.
<i>Force "U"</i>		
1 R.C.T. ¹	Torquay, Brixham, Dartmouth East.	Torbay, Brixham, Dartmouth.
1 R.C.T. ¹	Dartmouth West	Dartmouth, Brixham.
1 R.C.T. ¹	Plymouth East	Salcombe.
<i>Force "B"</i>		
1 R.C.T. ¹	Plymouth West	Plymouth.
2 R.C.T. ¹	Falmouth	Falmouth, Helford River, Fowey.
<i>First U.S. Build-up Division.</i>	Bristol Channel Ports ..	Bristol Channel Ports.

(b) Attached Forces

Force.	Assembly Ports.
Covering forces, destroyers	Plymouth, Portsmouth.
Covering forces, coastal forces	Dartmouth, Portland, Newhaven, Dover.
Landing craft of ferry service	Chichester, Langston Harbour, Poole.
Tugs, salvage vessels, accommodation ships, etc. ..	Ports between Falmouth and Southend.
Escorts and minesweepers	With their convoys.
E.T.F. bombarding ships	Clyde.
W.T.F.	Belfast.
Blockships ("Corncocks")	Oban.

¹ Regimental Combat Team, the U.S. equivalent of a Brigade Group.

Force.	Assembly Ports.
<i>Mulberry Units¹ :—</i>	
"Phoenix"	Selsey, Dungeness, Reserve in the Thames.
"Bombardon"	Portland.
"Whale"	Solent and Selsey.
Tugs	Portland and Spithead.

(c) Pre-loaded Merchant Vessels²

Type.	Load.	Assemble.
Stores coasters ..	89, Thames	68, Thames.
	12, Grimsby	55, Solent.
	104, Bristol Channel ..	82, Bristol Channel.
M.T. ships	37, London, Tilbury ..	London, Southend.
	37, Bristol Channel ..	Bristol Channel.
Personnel ships ..	6, Tilbury	Tilbury.
	9, Bristol Channel ..	Bristol Channel.

21. Passage Arrangements

All forces for the assaults were to be sailed by the Commanders-in-Chief, Home Ports, and Flag Officers in Charge in accordance with the detailed requirements of task force and assault force commanders to carry out the programme of A.N.C.X.F. Each assault force was to be accompanied by fleet minesweepers and the various convoys were to follow the appropriate coastal channels to an area to the south-eastward of the Isle of Wight³ (area "Z"). The bombarding forces were to proceed independently.

An enemy mine barrage was known to exist south of Lat. 50° N.; through it, 10 channels (numbered 1 to 10 from west to east) were to be swept and buoyed⁴ to the lowering positions in the respective assault areas off the French coast, as follows:—

Area.	Approach Channels.	Assault Force.	Bombarding Force.
"Utah"	Nos. 1, 2	"U"	"A"
"Omaha"	Nos. 3, 4	"O"	"C"
"Gold"	Nos. 5, 6	"G"	"K"
"Juno"	Nos. 7, 8	"J"	"E"
"Sword"	Nos. 9, 10	"S"	"D"

In general, one channel of each assault force was assigned to fast convoys, the others to slow convoys.

- ¹ "Phoenix" .. 200 ft. concrete caissons for use as breakwaters, 2,000-6,000 tons.
- "Bombardon" .. 200 ft. cruciform steel structures; moored end on to form a shelter in an outer deep-water anchorage outside the "Phoenix" breakwater.
- "Whale" .. Military piers and pierheads, up to 2,000 tons, for discharge of coasters, and L.S.T./L.C.T. direct to shore.

² In addition empty M.T. ships assembled at Southend and Bristol Channel awaiting loading berths.

³ Except Force "U," for which a special channel was swept from Portland Bill direct to the entrance to the approach channels. The use of the normal coastal channels contributed to the security of the operation, since the enemy were accustomed to a large number of ships moving in them.

⁴ See Sec. 24, "Minesweeping," *postea*.

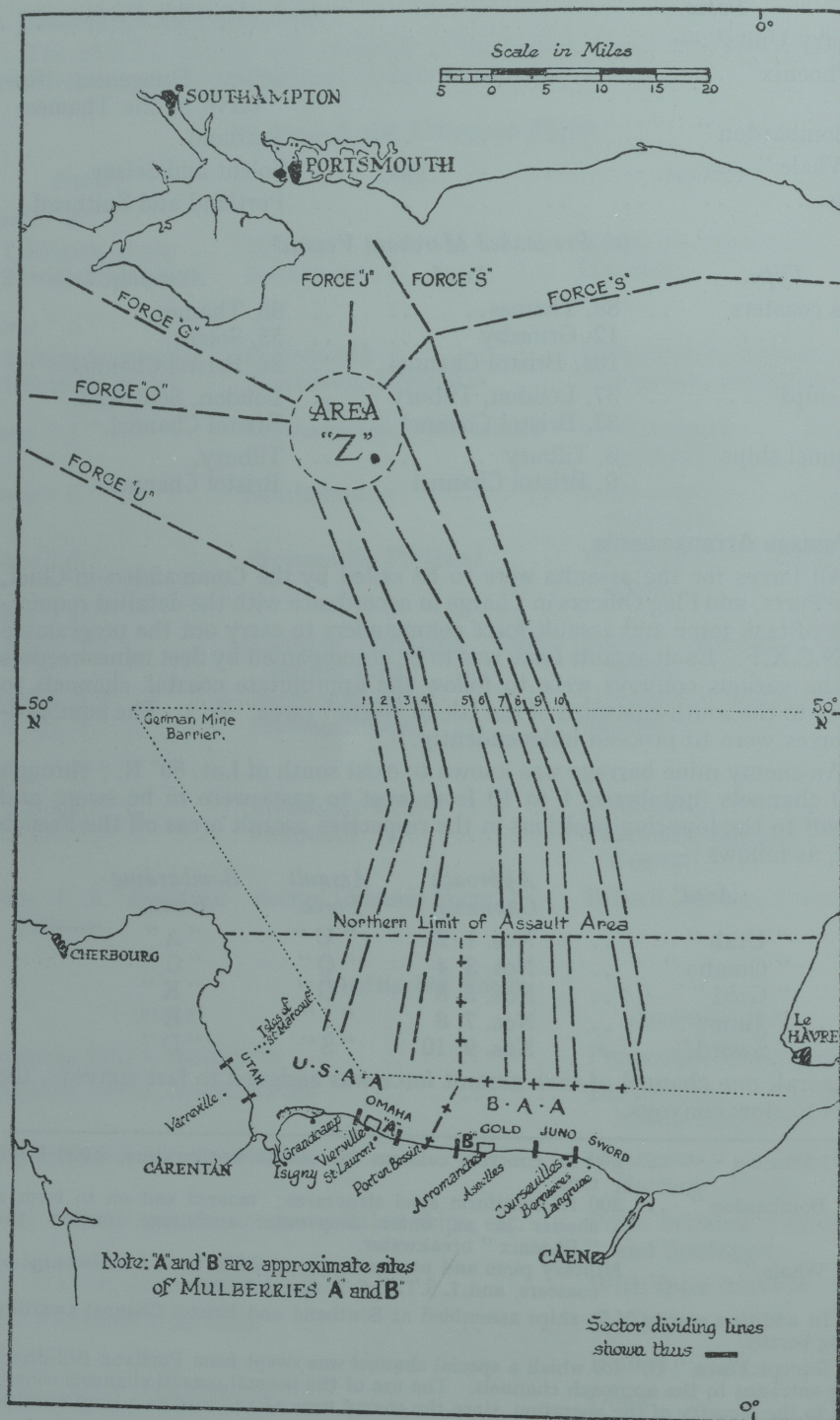


Fig. 7. Sketch Map of Operations showing Routes of Assault Forces.

Should enemy forces be encountered, the policy was evasion. Ships were cautioned that surprise for the whole operation would not necessarily be lost by an outlying unit falling in with the enemy.

In case of attack of any kind—air, surface or U-Boat—convoys were to maintain their course and speed while in the swept channels. If losses occurred, survivors were to be dealt with by rescue craft only¹; other ships in the vicinity were to drop rafts *en passant*, but were forbidden to stop.

The "lowering positions" were to be south of the known mined area and as near the beaches as it was estimated the enemy long range batteries would permit (see plan 1A). These were distant from the shore approximately 7 miles in the Eastern and 11 miles in the Western Task Force area.

The identification of the beaches in areas "Juno" and "Sword" presented special difficulties, and to assist the leading landing craft, two midget submarines were detailed to mark the approaches to them.

22. Protection on Passage.

(Plan 3)

As already mentioned (see Sec. 17) a close escort was provided for each convoy, but these escorts were necessarily weak²—owing to the difficulty of finding sufficient craft for this duty—and reliance was mainly placed in denying the enemy access to the convoy routes.

The responsibility for the safety of the convoys while passing through the "Spout"—a collective term applied to the system of channels between "Z" bouy³, 15 miles south of the Nab Tower, and the northern limit of the assault area (Lat. 49° 40' N.)—rested with the Commander-in-Chief, Portsmouth⁴. His plan was as follows:—

- (a) A 7 mile gun zone was established on either side of the "Spout." Any ship entering this zone during dark hours was to be presumed hostile by the convoy escorts. Patrol vessels were to enter it only if in close action with the enemy.

¹ Ten U.S. coastguard rescue craft were allotted to each assault force for employment with convoys carrying personnel, i.e. L.S.I., L.C.I. (L) and L.S.T.

² See Apps. "H", "H (1)".

³ Lat. 50° 25' 00" N., Long. 0° 58' 00" W. The "Spout" was about 10 miles wide at "Z" bouy and 30 miles wide on the parallel 49° 40' N.

PORTSMOUTH COMMAND

Forces Available.	No. of Craft.	Remarks.
<i>Fleet Destroyers</i>		
Onslow, Onslaught, Oribi, Offa	4	
<i>Frigates</i>		
Stayner, Retalick	2	Hotham, Duff in addition available for night D-1/D.
<i>Coastal Forces</i>		
53rd M.T.B. Flotilla ..	7	"D" class.
35th M.T.B. Flotilla ..	8	71' 6" M.T.B.s.
13th M.T.B. Flotilla ..	8	70' M.T.B.s.
14th M.T.B. Flotilla ..	8	70' M.T.B.s.
64th M.T.B. Flotilla ..	8	"D" class } Available when not minelaying.

- (b) Destroyers were to patrol along the outer edges of the gun zone. These systems of patrols were known as the East and West Walls respectively.
- (c) Frigates to be used to extend shore radar cover,¹ and to control and support the coastal force covering units.
- (d) M.T.B.s either patrolling in company with the frigates or lying stopped in positions ordered.
- (e) Additional outlying offensive patrols of M.T.B.s to be established off the enemy coast as forces became available.
- (f) Coastal force patrols to be withdrawn at daylight except in reduced visibility; destroyers and frigate patrols to be maintained as necessary according to enemy intelligence.
- (g) N.O.I.C., Newhaven, and F.O.I.C., Portland, to be available to take over control of forces stationed within shore radar cover on the East and West Walls respectively, if necessary.

The West Wall was controlled by the Commander-in-Chief, Portsmouth;² the East Wall by the Vice-Admiral, Dover.³

This arrangement eased the strain on the communications at Portsmouth, and, by unifying the command in the Eastern Channel, was well adapted to deal with the contingency of enemy destroyers or torpedo boats breaking in through the Straits of Dover.

¹ The C.-in-C., Portsmouth, subsequently remarked: "It is possible that the enemy had pinned his faith upon E-Boats on the grounds that they would be operating outside the range of radar stations on the English coast. . . . The introduction of radar controlling ships with attached units of M.T.B.s which was first suggested in this Command by Lieutenant M. G. Raleigh, R.N.V.R. . . . may eventually prove to have been an important tactical surprise and may well have had a most disturbing effect upon the enemy's plans for counter measures at sea. In effect, a close blockade of his principal E-Boat bases was instituted, so much so that his craft seldom made the open sea without being brought to action. . . . Thus losses by E-Boat action, which might have been serious, were reduced to negligible proportions."—Report on Operation "Overlord," Portsmouth, Part II, Sec. 1, para. 12.

² It had originally been proposed that the West Wall should be the responsibility of the C.-in-C., Plymouth, but he considered his headquarters too far away to be able to control it effectively.

³ Vice-Admiral Sir H. Pridham-Wippell, K.C.B.

To put this arrangement into effect the boundary of the Portsmouth Command for operational purposes was altered on 28th May, 1944, to a line running from Worthing to position Lat. 50° 00' N., Long. 0° 15' W., thence to Lat. 49° 40' N., Long. 0° 00' W. and thence—090° to the French coast.

In the eastern portion of the Dover Command,¹ the possible area of operations was limited by shoals and minefields. This area was covered by coastal force units. Further west, single destroyers patrolled in four areas between Dungeness and Worthing south of the gun zone to seaward of the coastal channel. Two radar control ships were placed to extend the radar cover from Beachy Head to Cap d'Antifer.

The conduct of such large numbers of coastal forces in a limited area called for special arrangements. In order to obtain the necessary close co-ordination of their operations, not only as between the various coastal force units, but also with other surface craft—particularly the destroyers and controlling frigates—and with air forces, Captain P. V. McLaughlin, R.N., was appointed in March, 1944, to the Staff of the Commander-in-Chief, Portsmouth, with the title of Captain, Coastal Forces (Channel). This officer was responsible for the co-ordination of the policy adopted for coastal forces throughout the English Channel; for the operation of the coastal forces in the Portsmouth Command, and for planning the use of coastal craft in operation "Overlord."²

Further afield, in the western part of the English Channel, the following dispositions were ordered by the Commander-in-Chief, Plymouth³ :—

A division of destroyers—known as the Hurd Deep Patrol—carried out a turning line ahead patrol in mid-Channel, north of the Gulf of St. Malo, between positions Lat. 50° 12' N., Long. 2° 21' W.

¹ DOVER COMMAND			
<i>Forces Available</i>	<i>No. of Craft.</i>		<i>Remarks.</i>
	<i>Fleet Destroyers</i>		
<i>Savage, Opportune, Obedient, Orwell</i> ..	4		
	<i>Frigates</i>		
<i>Trollope, Thornborough</i>	2		Based on Portsmouth.
	<i>Coastal Forces</i>		
2nd M.T.B. Flotilla (R. Neth. N.) ..	5	71 ft. 6 in. M.T.B.s.	
5th M.T.B. Flotilla	8	70 ft. M.T.B.s.	
9th M.T.B. Flotilla (R. Neth. N.) ..	8	70 ft. M.T.B.s.	
51st M.T.B. Flotilla	8	"D" Class.	
59th M.T.B. Flotilla	8		
19th M.L. Flotilla	9		
21st M.L. Flotilla			
50th M.L. Flotilla			
52nd M.L. Flotilla			

² On 21st May, 1944, a Control Office was established in H.M.S. *Dolphin*, to maintain contact with all boats and to co-ordinate the maintenance, repairs and general turn round arrangements.

³ PLYMOUTH COMMAND			
<i>Forces Available.</i>	<i>No. of Craft.</i>		<i>Remarks.</i>
	<i>Fleet Destroyers</i>		
19th Division	20th Division	8	
<i>Tartar, Haida,</i>	<i>Blyscawicka, Piorun,</i>		
<i>Ashanti, Huron.</i>	<i>Eskimo, Javelin.</i>		
18th U.S. Division		4	During assault phase only.
<i>Davis, Jowett, Somers + Emmons</i>			
	<i>Coastal Forces</i>		
52nd M.T.B. Flotilla	12	"D" Class.	
65th M.T.B. Flotilla	8	"D" Class.	
1st M.T.B. Flotilla	8	71 ft. 6 in. M.T.B.s.	
23rd M.T.B. Flotilla (French) ..	8	70 ft. M.T.B.s.	
	<i>A/S Support Groups</i>		
3rd, 11th, 12th, 14th			Anti-U-Boat operations.

and Lat. 49° 56' N., Long. 3° 16' W. A second destroyer patrol—the Western Patrol—was established 50 miles to the north-north-west of Ushant, in approximately Lat. 49° 19' N., Long. 5° 30' W. with the object of intercepting the Narvik class destroyers if they attempted to enter the Channel or to interfere with coastal convoys east or north of Lands End. Four U.S. destroyers patrolled to seaward of the Force "U" convoy route.

By night these patrols were reinforced by coastal forces, in units of two or three craft each, just south of the seven mile gun zone to seaward of the convoy route between Portland Bill and the Eddystone; and also by Wellingtons fitted with special equipment operating north and north-west of the Channel Islands, and Albacores near the convoy routes as a striking force.

A special pre-occupation of the Commander-in-Chief, Plymouth, lay in the threat of submarine attack by U-Boats based on the Biscay ports. Measures against this menace fell into three main categories, viz., air, mining, and A/S support groups.

It was estimated that the enemy had about 40 U-Boats immediately available for operations in the Channel. The air plan was designed to make their passage as difficult and exhausting as might be; but while an attempt to rush the submarines in large numbers up the centre of the Channel was possible, it seemed more likely that a route close in to the French shore would be chosen, where A/S aircraft would be exposed to heavy attack from enemy fighters. An extensive mining programme had therefore been carried out along the Brittany coast.

Four A/S support groups were at the disposal of the Plymouth Command. These were to be disposed as circumstances might require; for the night of D-1/D-day, two groups patrolled between the Lands End and the Start, the other two being held in reserve at Plymouth and Milford Haven.

In addition to these dispositions in the English Channel, a force consisting of three escort carriers (*Tracker*, *Pursuer*, *Emperor*) and six escort groups was stationed by the Commander-in-Chief, Western Approaches,¹ some 130 miles to the westward of Lands End (approximately Lat. 50° 30' N., Long. 9° 00' W.).

Interference by German main naval units from Norway or the Baltic was guarded against by the Home Fleet under Admiral Sir Bruce Fraser, based on Scapa Flow.²

Such, briefly, was the naval scheme for safeguarding the assault forces and the build-up on passage. Equally important was the part played by Coastal Command.

The task of Coastal Command was threefold: (i) to prevent U-Boats from breaking into the western end of the Channel, (ii) to assist the Allied Navies in the protection of invasion convoys from E-Boats and surface craft, and (iii) to attack the German coastal supply lines.

¹ Admiral Sir Max. Horton, K.C.B., D.S.O.

Few contacts were obtained by this force in the event, and by 10th June, four of the escort groups had been handed over to the C.s-in-C., Portsmouth and Plymouth, for use in the Channel.

² The Home Fleet, exclusive of ships acting under the orders of A.N.C.X.F. in immediate support of operation "Neptune," consisted of three battleships, three Fleet carriers, six cruisers and ten destroyers. See App. "D."

With these objects in view, the aircraft of Coastal Command and of six Naval Air Arm squadrons operated by them were disposed in two main areas of concentration. In the south and west the bulk of the anti-U-Boat aircraft were disposed under the orders of No 19 Group, with the object of providing a system of continuous air patrols in the south-west approaches. In the east and south-east, No. 16 Group operated a formidable force of anti-shiping aircraft. Arrangements were made for the operation of anti-U-Boat aircraft in the eastern area and anti-shiping aircraft in the western area, should the occasion arise.

Far away to the north-east, a vigorous anti-submarine offensive was maintained in Norwegian waters by No. 18 Group, in order to prevent the reinforcement of the Biscay Flotillas by U-Boats from the Baltic sailing north-about.¹

The protection afforded by the foregoing measures, which, broadly speaking,² were maintained throughout the period of the build-up, was supplemented by an extensive minelaying programme, known as Operation "Maple," of which the outline is given in the ensuing section.

23. Minelaying (Operation "Maple")

Operation "Maple" was a long term commitment designed to assist in the protection of the Allied forces in the Channel—especially the bombarding and assault forces—from attacks by E-Boats and R-Boats based on Cherbourg and Le Havre.

The minelaying forces consisted of the *Apollo* and *Plover* based on Plymouth and Dover respectively, 4 M.L. Flotillas (22 M.L.s) and 5 M.T.B. Flotillas (36 M.T.B.s) distributed between the south coast commands, and heavy bombers of Bomber Command. The disposition of these forces was kept flexible in order to take advantage of any intelligence of enemy movements, or of the laying of defensive minefields by him.

The minelaying operations were divided into six phases, during which the laying of special mines was gradually introduced and concentration on "Neptune" targets effected unobtrusively, as follows:—

- | | |
|---------------------------|--|
| Phase I (to D-45) | Routine offensive laying by coastal force and aircraft using standard mines. |
| Phase II (D-45 to D-24) | As in phase I with introduction of special type mines by surface minelayers. |
| Phase III (D-24 to D-3) | As in phase I with laying of special type mines by surface minelayers and aircraft. ³ |

¹ This offensive started on 16th May. By 31st May, there had been 22 sightings and 13 attacks, of which six were "kills." During June, there were the same number of sightings, 15 attacks, and seven probably sunk in this area.

² The patrols were at full strength during the assault phase. Later, running conditions compelled a reduced scale normally. The forces allocated to the various commands were readjusted after the assault phase.

³ As soon as possible after D-10, special type mines were to be laid by aircraft on the maximum possible scale in the standard areas in the Baltic, Kattegat, Heligoland Bight, Frisian Islands, and Biscay ports, in order to make full use of these special mines before the enemy had time to put the appropriate sweeping technique into full operation.

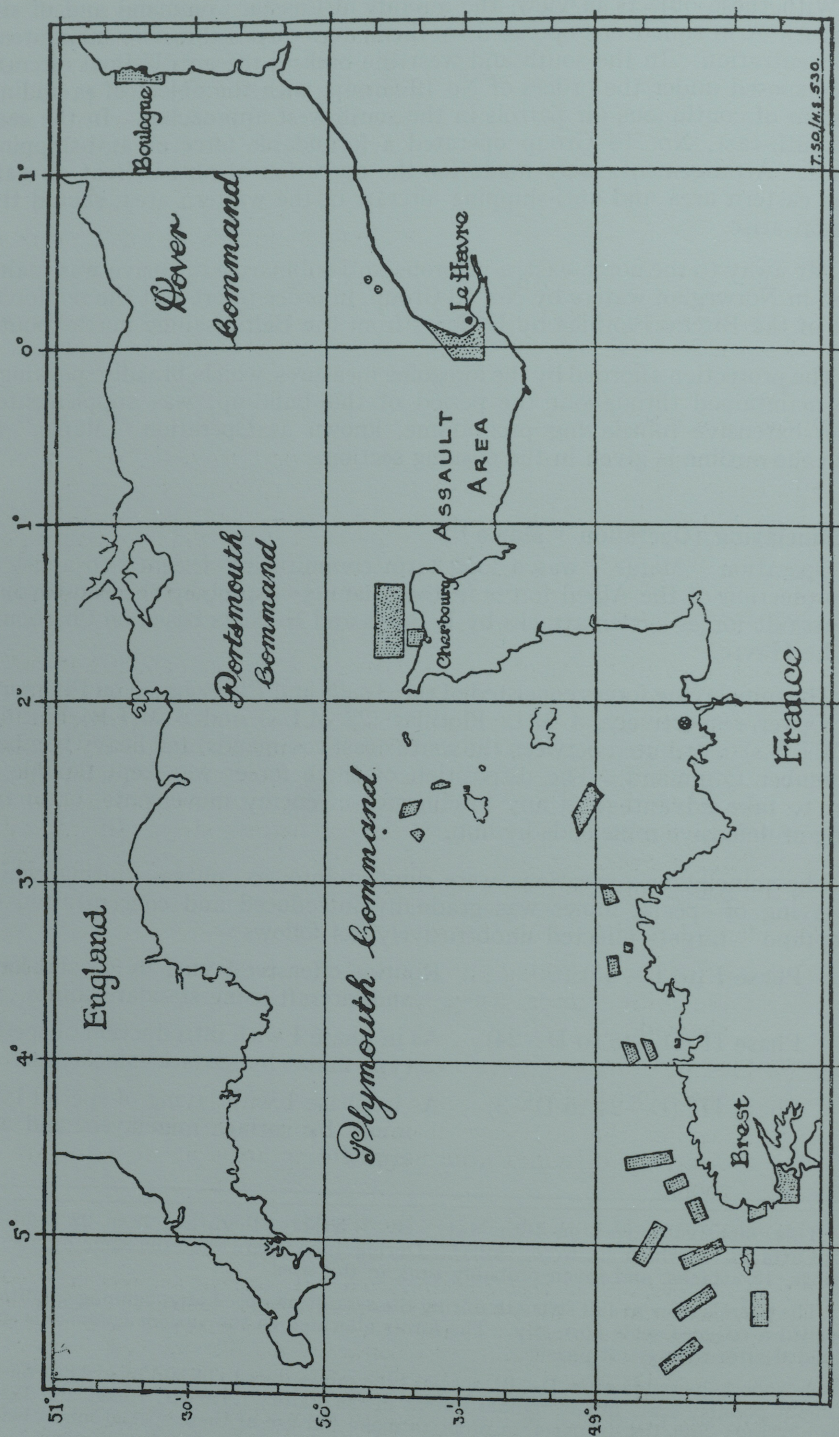


Fig. 8. Operation "Maple": minefields laid in support of "Neptune."

Phase IV (D-3 to D-1) .. Laying of special type mines only by available coastal force minelayers, the main concentration off Le Havre, Cherbourg, Calais and Boulogne, and by aircraft off Ijmuiden, Hook, West Scheldt, Chenal de Four and Brest.

Phase V (D-1 to D-day) .. Laying of special type mines only by coastal force minelayers off Le Havre, Cherbourg, Entretat and Brittany coast.

Phase VI (after D-day) .. As requisite.

Operation orders for the operations in Phases I to IV inclusive were issued by the Commanders-in-Chief, Home Commands, and for Phase V by A.N.C.X.F.

24. Minesweeping Plan

Minesweeping played a particularly important part in Operation "Neptune" not only before and during the assault, but throughout the duration of the whole operation.¹ A normally unspectacular role, its importance is apt to be somewhat overlooked; it nevertheless called for careful and continuous planning, and a high degree of seamanship, courage and constant hard work in execution. It is proposed at this stage briefly to examine the problem as it presented itself and the measures taken to cope with it.

It was known that a moored mine barrier existed from about Lat. 50° N. to within some 7 to 10 miles of the French coast. To the southward of this barrier ran the enemy coastal channel, which was expected to provide a clear area unless mined at the last moment. The lowering positions for the assault forces were accordingly sited in this channel. Inshore of the coastal channel there was no evidence of mines, but it was necessary to make provision in this area and on the flanks for the safety of the bombarding ships. Ground mine-laying in shallow water by aircraft and possibly E-Boats was anticipated as soon as the Allied intentions became clear.

The plan adopted fell into four phases, viz. :—

- (a) Cutting and marking two channels for each assault force through the mine barrier, using one fleet minesweeping flotilla for each channel.
- (b) Finding or making clear areas for the bombarding forces and anchorages close inshore.
- (c) Widening the approach channels through the mine barrier and clearance of mines from neighbouring areas in order to give sea room.
- (d) Clearance of mines laid after the assault.

¹ "It can be said without fear of contradiction that minesweeping was the keystone of the arch in this operation. All of the waters were suitable for mining, and minesweeping plans of unprecedented complexity were required. The performance of the minesweepers can only be described as magnificent. The passage of the Western Task Force to the assault area, and of the assault waves and supporting ships up to the beaches, without loss from mines, is the best testimonial to the effectiveness of their work. An equally high standard was maintained in the unremitting daily labour of sweeping the assault area during the build-up phase."—Rear-Admiral Kirk, U.S.N., N.C.W.T.F.; A.N.C.X.F. Report, Vol. 3, p. 6.

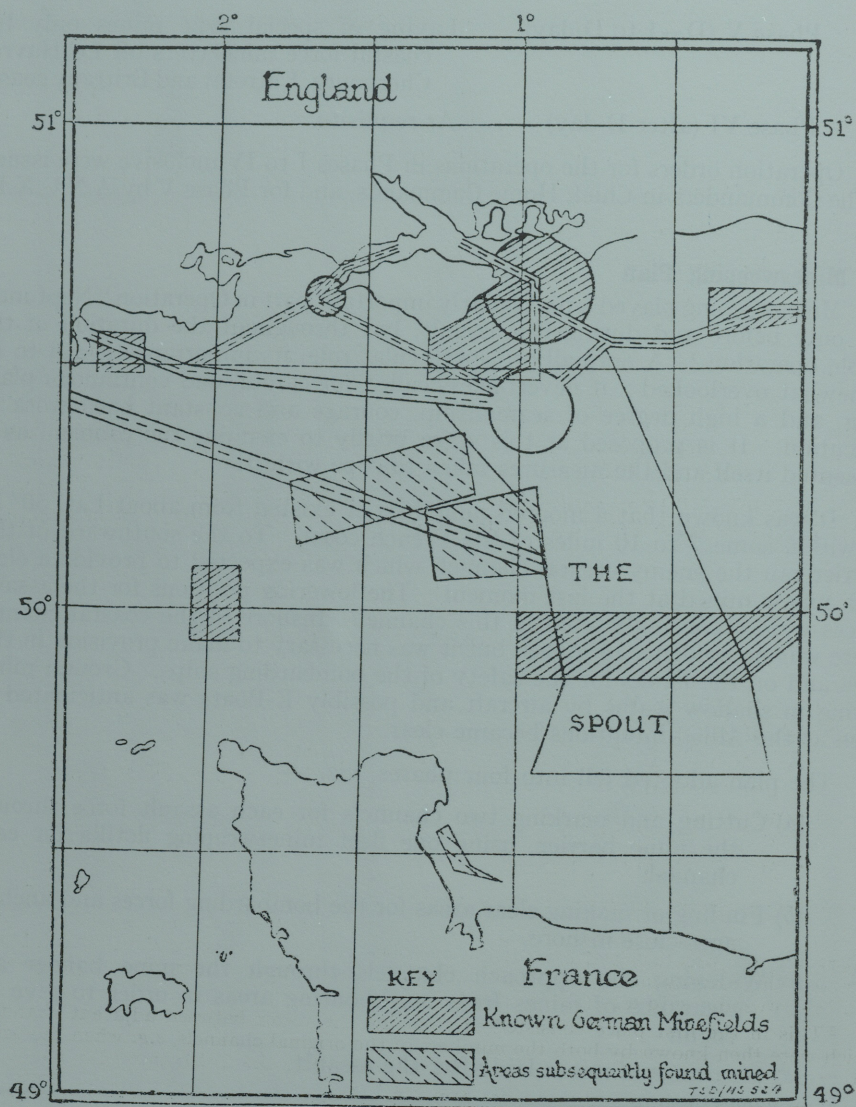


Fig. 9. German Minefields affecting "Neptune" Convoys.

Phase (a)—the sweeping of the approach channels was the largest single minesweeping operation ever undertaken in war. Each channel was to be marked on both sides with lighted Dan buoys, spaced at intervals of about one mile throughout its length. No fewer than 255 vessels took part in¹ this phase. Since the movements of the flotillas had to be related closely to one another as well as to those of the assault forces, it was planned and ordered in detail by A.N.C.X.F., who also directly controlled phase (c)—widening the channels²—using flotillas retained by him after the completion of phase (a).

Phase (b)—clearance of areas for bombarding forces and shore anchorages—was planned and ordered by task force commanders using a proportion of the flotillas released after the sweeping of the approach channels. A B.Y.M.S. Flotilla was provided for the bombarding ships of each assault force.

Phase (d)—Mines laid after the assault—was to be dealt with as occasion demanded by the task force commanders.

It was considered essential that in each task force area the minesweeping forces should be under the command of an experienced minesweeping officer who would be responsible to the task force commander for all minesweeping operations in his area from the completion of phase (a) onwards. Rear-Admiral Kirk, U.S.N., requested that a British officer should carry out this duty in his area, and Commander J. G. B. Temple was appointed as Commander Minesweeping West, with U.S.S. *Chimo* as his headquarters ship. Acting Captain R. B. Jennings, who had been appointed Captain Minesweeping (X) in February, 1944, to co-ordinate flotilla training, was appointed as Captain Minesweeping East.

The minesweeping forces³ were allocated as follows⁴ :—

WESTERN TASK FORCE

Force "U"	Force "O"
514th M.S.F. (F.M.S.).	54th M.S.F. (F.M.S.).
516th M.S.F. (F.M.S.).	531st M.S.F. (F.M.S.).
"A" M.S.F. (F.M.S.), U.S. (for bombarding ships).	104th M.S.F. (M.M.S.).
132nd M.S.F. (M.M.S.).	167th M.S.F. (M.M.S.).
Y1 M.S.F. (Y.M.S.), U.S.	
Y2 M.S.F. (Y.M.S.), U.S.	

¹ The provision of the necessary flotillas necessitated using some which had little opportunity for practice, and this further complicated the problem, as the time of H-hour relative to high water made it necessary for all flotillas to change sweeps during the passage to avoid sweeping with an unfavourable tide.

² This in the first place consisted of sweeping the water between adjacent channels, which were then known by both the numbers of the original channels, e.g. when the water between channels No. 5 and 6 had been cleared, the whole channel became No. 56.

³ For names of ships and C.O.s, see App. "A" (1).

⁴ Abbreviations :—

M.S.F.—Minesweeping Flotilla.
F.M.S.—Fleet Minesweeper.
M.M.S.—Motor Minesweeper.
B.Y.M.S.—British Yard Minesweeper.
Y.M.S.—U.S. Motor Minesweeper.
LL Trawlers—Magnetic Minesweepers.
See App. "O," Glossary of Terms.

⁵ With two minesweeping motor launches and three or four danlayers attached.