

is considered, it is perhaps remarkable that so few grounds for anxiety existed before full briefing commenced.

#### *MULBERRY Project.*

12. The suggestion that artificial harbours should be constructed in the assault area was, it is believed, first made by Commodore J. Hughes-Hallett, when serving as Chief of Staff (X) to Commander-in-Chief, Portsmouth, who suggested the use of sunken ships for this purpose. The original designs for such harbours, which were, however, to be constructed of sunken concrete caissons, were prepared 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 were necessary and I asked the Admiralty to appoint Rear-Admiral W. G. Tennant, to take charge of this matter. From the outset Admiral Tennant was uncertain of the ability of the concrete PHOENIX Units to withstand even a moderate gale; and their placing had been estimated under the most favourable conditions to take at least 14 days. It was on his suggestion that 70 obsolete ships were prepared as block ships, which could be placed in two or three days and thereby speedily provide some shelter over the 40 miles of beaches before the PHOENIX breakwaters could be built. His foresight was proved in the gale that blew from 19th to 22nd June, as these blockships alone gave some shelter to the 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.

13. The construction of the units for the MULBERRIES was an undertaking of considerable magnitude and coming at a time when all efforts were already centred on the preparations for "Neptune" proved difficult to complete to schedule. As the completion fell behind, the difficulties were accentuated by the shortage of tugs, as a regular phased programme was essential if all units were to be moved into their assembly positions before D day. Vigorous and continued representations for more and more tugs for "Neptune" were made, both in the United Kingdom and to the U.S.A., and, although there was still not a sufficiency to meet the full towing programme, by D day the MULBERRY units were in the main ready and in their assembly areas, thanks to the initiative and resource displayed by Admiral Tennant and his staff. A full report of the operations of the construction of the MULBERRIES and GOOSEBERRIES (craft shelters) has been compiled and has been forwarded under separate cover. In conception and execution these harbour shelters were unique. The damage wrought by the June gale to MULBERRY A, which necessitated the abandonment of the completion of this harbour, does not detract in any way from the value of the idea, for, had it been constructed similarly to MULBERRY B, there is reason to suppose that it might have survived to the same extent.

#### *Pre-D Day Reconnaissance.*

14. During planning it was necessary to carry out certain reconnaissances in the "Neptune" area to check the depths of water, both over

drying rocks and also in the MULBERRY sites, and to examine the nature of the beaches, as geological estimate had reported unfavourably regarding the latter. This reconnaissance was carried out between November, 1943, and January, 1944, being confined to the dark moon period in each month. Combined Operations Pilotage Parties were employed, using first L.C.P. (Sy)\*, which were towed towards the French coast by M.L.s, and later X-craft†. Their missions were carried out successfully and skilfully, and, so far as is known, only on one occasion was a party sighted by the enemy. As diversions for these reconnaissances, operations were carried out between the Channel Island and the Pas de Calais (both inclusive). Initially these operations consisted of small scale raids, but were later replaced by offshore reconnaissance by L.C.P.(L)‡, similar to the "Neptune" reconnaissance. The diversion operations were planned by Combined Operations Headquarters and executed by the appropriate Home Naval Commands.

#### *Administration of Ferry Craft.*

15. Previous operations have shown the great difficulties in administering the craft of the ferry service during the first few weeks before naval shore facilities are properly established. The problem in "Neptune" was greater than ever before, 1,500 craft and barges and 15,000 personnel having to be provided for, but, although there were individual failures and resulting hardship, reports show that in general the measures taken proved successful in maintaining the morale and efficiency of officers and men who perforce had to work long hours for days on end.

#### *Salvage, Repair and Fuelling Organisations off beaches.*

16. As the plan envisaged the use of the beaches for a period of three months it was evident that provision would have to be made on a scale hitherto unknown for the salvage, repair, fuelling and watering of the great number of ships and craft that would be damaged or that would require fuel or water off the enemy coast. A considerable salvage fleet had to be assembled and special ships and landing barges were fitted for repair work and others to carry fuel and water. Naval parties were trained to assist in craft repairs ashore and were attached to the Assault Forces. Owing to the widespread damage caused by the four days' gale the salvage repair organisation was tested far beyond anything contemplated and, although it seemed at one time that it would be unable to compete, yet in the end it may be said to have triumphed, assisted as it had to be by additional resources from the United Kingdom.

#### *Training and Rehearsals.*

17. The training facilities and assault firing areas were originally provided for a three-divisional assault, and the extension of the plan to include five assaulting divisions introduced some difficulties in providing adequate facilities for the two new divisions. But due to the great co-operation shown by all concerned, to the

#### *Admiralty footnotes:*

\* L.C.P. (Sy)—Small personnel landing craft fitted for survey duties.

† X-craft—2-men submarines.

‡ L.C.P. (L)—Landing Craft Personnel (Large).