

exercises and attacks against capital ships were carried out. This period was also devoted to perfecting the towing of X-craft by submarines.

I should like to place on record the great assistance given by the Commander-in-Chief, Home Fleet, in providing capital ships of his Fleet to act as target ships at Port HHZ during this period, and also to mention the part played by the Boom Defence organisation in surrounding these ships with nets and providing net defences and equipment for the necessary trials.

#### *Planning.*

10. In the meantime detailed plans for carrying out the operation were prepared by my Staff and operation orders were drawn up. The officer mainly responsible for this work was Commander G. P. S. Davies, R.N., of my Staff.

11. It was decided that the attack should take place at the earliest date the hours of darkness allowed, so as to complete the operation before the weather conditions deteriorated. It was also desirable to have a certain amount of moon, to assist the X-craft in their passage by night up the fiords. The period 20th-25th September, 1943, with the moon in the last quarter, was therefore selected, and Day D, the day on which the X-craft were if possible to be slipped from their towing submarines to proceed for the attack, was provisionally fixed for the 20th September, 1943.

12. To allow for the attack to be carried out at any of the protected anchorages used by German main units on the Norwegian coast it was necessary to provide operation orders for attacks on Alten Fjord, the Narvik area and on Trondheim, and Operation "Source" was divided into three operations, as follows:

	<i>Operation</i>
Operations north of 70° N.	"Funnel"
Operations between 67° and 69° N.	"Empire"
Operations between 63° and 65° N.	"Forced"

It was thus possible to direct operations against the enemy in whichever of these three areas he might be detected.

#### *Photographic Reconnaissance.*

13. Preliminary photographic reconnaissance of the anchorages, with special reference to net defences, was considered most necessary for the success of the operation, and last minute reconnaissances, to give the disposition of targets, essential.

14. This presented difficulties for the Alten area, which was outside the range of home-based P.R. aircraft. In May, 1943, I discussed this question with the Commander-in-Chief, Home Fleet, who was fully in agreement with me on the importance of establishing reliable P.R. cover for the area. On 12th May, 1943, he addressed a signal to Admiralty and repeated to Admiral (Submarines) and Headquarters, Coastal Command, in which he proposed that the necessary British air crews and photographic personnel should be sent to North Russia for this most important duty.

15. Agreement was reached with the Air Ministry by 30th July, and Admiral Fisher (in Moscow) was asked for his views after consultation with the Russian authorities.

16. As a result, and after agreement with the Russians, it was agreed to send a British photographic unit to Murmansk by destroyer, to run a shuttle service between the United Kingdom and North Russia by Mosquito aircraft for the preliminary reconnaissances, and to base Spitfires at Vaenga for the last-minute sorties. In addition, Catalina aircraft would be available to run a shuttle service to and from North Russia with photographs.

17. All preliminary arrangements for putting this into operation had been made by the 18th August and negotiations concluded with the Russians on the question of visas. On the 27th August, H.M. Ships MUSKETEER and MAHRATTA sailed from Faroes with R.A.F. photographic personnel and stores and arrived in Kola Inlet on the 31st August.

18. The weather was still to be reckoned with, however, and although the Mosquito aircraft for the preliminary reconnaissances had been ready to leave the United Kingdom from the 21st August, weather conditions were never satisfactory for this aircraft to carry out her part of the plan.

19. The three Spitfires, however, arrived at Vaenga on the 3rd September, exactly eight days before Operation "Source" was due to sail from Port HHZ, and the first sortie was flown on the 7th September.

20. The subsequent reconnaissances flown by this unit were invaluable to the operation. Full details of the dispositions of the enemy units and net defences were signalled from Russia and given to all the personnel taking part before they left harbour. No actual photographs of the preliminary reconnaissances were available for the final briefing as, in spite of every effort to obtain them in time, the first photographs taken by this unit did not arrive until a few hours after the X-craft had sailed, but this did not in fact matter as the relevant information was complete in the signalled report.

#### *Preliminary Movements.*

21. For security reasons it was decided that the operation should sail from Port HHZ (Loch Cairnbawn), where the X-craft taking part had been working up from H.M.S. BONAVENTURE since the 4th July, 1943.

22. H.M.S. TITANIA was sailed for and arrived at Port HHZ on the 30th August to act as depot ship to the submarines taking part, and H.M. Submarines THRASHER, TRUCULENT, STUBBORN, SYRTIS, SCEPTRE and SEANYMPH arrived between the 31st August and 1st September. These submarines had all been fitted with special towing equipment.

23. In addition, H.M. Submarines SATYR and SEADOG, also specially fitted for towing, were held at 24 hours' notice at Scapa as reserves.

24. Towing trials, and trials of changing over passage and operational crews between X-craft and submarines at sea, were carried out between the 1st and 5th September; then, after final swinging for compasses, all X-craft were hoisted inboard of H.M.S. BONAVENTURE for the fitting of side charges, storing, final preparations and the full briefing of crews