

the strength of these from 216 to 36. We also proposed to do without searchlights in this area, other than those provided by the normal layout. Under the revised plan, all the Bristol guns, both heavy and light, would have to be withdrawn by "D" Day; but we hoped that by that date the threat to that city, never very serious, would have been neutralized by bombing.

39. As for the Solent, fortunately that area would, in any case, be heavily defended against orthodox air attack during the final stages of preparation for "Overlord". In these circumstances no special "Diver" deployment would be needed there, apart from a few searchlights. We visualized, however, a possible re-disposition of the "Overlord" guns to fit them for a dual role. Here, again, there would be a substantial saving.

40. Under the original plan, balloons would provide a third line of defence for London. For this purpose I had originally proposed to put a permanent* barrage of 480 balloons immediately behind the guns on the high ground between Cobham (Kent) in the east and Limpsfield in the west. It so happened that I was already seeking authority from the Chiefs of Staff to reduce the balloon defences of the country by 500 balloons: by appropriating this saving to defence against pilotless aircraft the problem of providing the "Diver" barrage could be solved. As these balloons were not needed for "Overlord" there was no need to alter these proposals in the revised plan.

41. It was, then, with the revised plan ready for action that we awaited the beginning of the German attacks. To say that this plan represented a compromise between the requirements of "Overlord" and those of "Diver" would not be strictly true; for the defence of the base against "Diver" was itself an essential "Overlord" requirement. But it provided at once the largest appropriation that could be spared for the job, and the smallest that was likely to be effective against the threat which was then foreseen. The number of guns to be deployed, in particular, was no more than a bare minimum. In the circumstances it was impossible for us to budget for more guns; but we took care to frame the plan in such a way that the numbers could easily be increased if further guns should happen to become available. I also took the precaution of pointing out that if the pilotless aircraft should fly between 2,000 and 3,000 feet instead of at the greater altitude expected by the Air Ministry, the guns would have a very awkward task, for between those heights the targets would be too high for the light anti-aircraft guns and too low for the mobile heavy guns which at that time could not be traversed smoothly enough to engage such speedy missiles.

42. In the event, the threat which materialised in the summer was to prove a very different one from that foreseen in February when the plan was made. This was not only because the height at which the pilotless aircraft flew had been over-estimated, but also because the forecasts of the enemy's capabilities with which the Air Ministry provided us were based on

knowledge which was incomplete in one important respect. Consequently, when the attack developed we soon found that we needed not only more than the 288 heavy and 282 light A.A. guns postulated in the revised plan, but more than the 528 and 804 respectively for which we had budgeted in our original, superseded plan.*

(b) *The Eve of the Attacks*

43. Ironically enough, the emergence of this undiscovered factor which upset our calculations was due to the very success with which we had bombed and neutralized the "ski sites". By the end of April most of the sites had been rendered unfit for use. Although the Germans repaired some of them, from that time onwards there were never at any time more than ten "ski sites" in a state to fire.

44. Fortunately for them, the Germans soon realised how vulnerable the "ski sites" were, and began to build other launching sites which were more carefully hidden and harder to destroy. By simplifying the plan of construction and using pre-fabricated parts, they were able to complete these new sites very quickly.

45. Since the armistice the Germans have told us that they began this new programme of construction in March 1944. However, it was not until the 27th April that the first of the "modified sites", as we called them, was seen on a reconnaissance photograph. By the middle of May twenty such sites had been located, and by the 12th June the number had risen to 66. Forty-two were aligned on London and the rest on Bristol or south-coast ports.

46. The "modified sites" made difficult bombing targets. When Typhoon bombers carried out an experimental attack on one of them on the 27th May the site proved hard to find and the results were poor. Besides being small and well concealed, the sites comprised few buildings at which bombs could be aimed. Unlike the "ski sites", they seemed to be intended as launching points and nothing more. The conclusion was that any stocks of pilotless aircraft held locally would not be kept on the sites themselves, but stored elsewhere or dispersed in the wooded country amongst which all the sites were placed.

47. At least partly for these reasons, we made no further attacks on the "modified sites" until after the Germans had begun to launch missiles from them. Meanwhile, the officers at the Air Ministry and elsewhere who were responsible for offensive counter-measures were debating whether to attack certain other constructions, usually referred to as "supply sites". They believed that these constructions had something to do with the storage or maintenance of pilotless aircraft; but they were not sure. Nevertheless, two attacks on one of the sites were made about the end of May. From that time onwards, little was done to hinder the enemy's final preparations for the offensive.

48. This state of affairs was a natural consequence of the awkwardness of the "modified sites" as bombing targets, and our uncertain

* At that stage lack of communications and manning difficulties were expected to make the usual system of control impracticable

* The weapons actually deployed in the middle of August, 1944, when the campaign was in full swing, comprised 800 H.A.A. and 1,100 40 mm. L.A.A. guns, over 700 rocket barrels, and some 600 light guns (mostly 20 mm.) manned by the R.A.F. Regiment and the Royal Armoured Corps.