

221; of this total 104 were destroyed on seven days, thus:—

15 August, 1940	...	15
18 "	"	22
24 "	"	10
31 "	"	20
2 September, 1940	...	13
7 "	"	14
15 "	"	10
		104

(b) A considerable number of enemy aircraft were claimed as Probably Destroyed and Damaged.

(c) The total amount of H.A.A. expended was 75,000 rounds.

(d) The total amount of Bofors ammunition expended was 9,417 rounds.

8. Ground Defence

Preparations were made by all A.A. defences to assume a secondary ground defence rôle; Bofors were provided with A/T ammunition, and sited to cover approaches to aerodromes, V.P.s., &c. Certain 3.7 inch guns suitably sited were given an anti-ship rôle, and preparations were made for barrages to be put on certain beaches. Under the immediate threat of invasion in May 1940, mobile columns of A.A. troops were formed, but these troops reverted to their A.A. rôle before the Battle of Britain began.

9. Lessons Learnt.

(a) The outstanding lesson learnt from this intensive air attack was undoubtedly the soundness and suitability of the organisation and arrangements of the control and direction of the anti-aircraft defences. These measures devised in peace time and perfected during the earlier and quieter period of hostilities, stood the severe test with amazing resilience and adaptability. No major alterations in the system were indicated or, indeed, were made subsequent to these operations.* The way in which the activities of the anti-aircraft linked in and were capable of co-ordination with the major partners in the venture—R.A.F. Fighter Command, No. 11 Fighter Group, and sector commands—is perhaps worthy of special note.

* This statement applies only to the higher organisation, and must not be taken to mean that no improvements were made in the control and direction of A.A. gunnery.

(b) Other lessons learnt are by comparison of minor import. Chief among them was the great vulnerability of aircraft if caught by accurate H.A.A. fire when in close formation. A good instance of this occurred in an action on the 8th September, when a geschwader of 15 Do. 17s, flying in formation at 15,000 feet, approached a gun site South of River Thames. The opening salvo from the four 3.7-inch guns brought down the three leading aircraft, the remaining machines turning back in disorder, scattering their bombs on the countryside in their flight to the coast.

The value of H.A.A. fire as a means of breaking up bomber squadrons to enable them to be more easily dealt with by our fighters was demonstrated on numerous occasions in the Thames Estuary.

The importance of A.A. shell bursts as a "pointer" to fighters, even though the guns cannot themselves effectively engage the enemy, was also frequently demonstrated.

(c) A somewhat negative lesson was the inability of A.A. guns, however well served, to completely deny an area to penetration by determined air attack. Evidence, however, was overwhelming that accurate fire, apart from causing casualties, did impair the enemy's aim, and thus avoid, or at least mitigate, the damage to precise targets.

(d) A rather unexpected result was the high proportion (about 10 per cent.) of planes brought down by A.A.L.M.G. fire. It is doubtful, however, whether with the increased armour now carried by enemy aircraft this lesson still obtains.

(e) The value of training in recognition was repeatedly emphasised throughout these operations. Fortunately, very few instances of friendly aircraft being engaged occurred. Apart from the accuracy of the information as to movement of aircraft furnished to gun sites, this was no doubt due to a reasonable standard in recognition having been attained.

It was, and still is, continually brought home to the A.A. gunner that, before all else, he must not engage a friendly aircraft. With this thought firmly impressed on the G.P.O., some instances of late engagement or failure to engage perforce occurred. In some cases, had the standard of training been higher, to enable the earlier recognition of a machine as "hostile beyond reasonable doubt," the number of machines destroyed would have been increased.

Chelmsford, August 2, 1941.

APPENDIX "C.A."

H.A.A. GUN DEFENDED AREAS AND ARMAMENT.

G.D.A.	August 1940.			October 1940.		
	4.5-in.	3.7-in.	3-in.	4.5-in.	3.7-in.	3-in.
Harwich	—	15	8	—	8	7
T. and M. North	32	8	12	24	4	12
T. and M. South	32	32	14	28	20	10
Dover and Manston	—	12	16	—	12	16
Wattisham	—	—	4	—	—	4
Biggin Hill	—	—	4	—	—	4
Kenley	—	—	—	—	—	2
North Weald	—	+ 4	4 + 2	—	—	4