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Document Title: Operational Research in Bomber Command

Author(s): Basil Dickins

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Item Description: This is a draft manuscript of a lengthy report compiled by the RAF Bomber Command Operational Research Section, probably some time in 1945. The report was authored by Dr. Basil Dickins, a rising star in the field of physics who served as Section head during the war. Using a thematic approach it explores in excellent detail the challenges inherent in strategic bombing, making it a valuable source for both historians of air power and those studying Europe in the Second World War.

Keywords: Bomber Command; Operational Research; Operations; Technique; Bombing; Navigation

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APPENDIX No. 3

FORMS USED FOR RECORD OF AIRCREWS OBSERVATIONS

The attached forms were used for the recording of aircrew observations intended for use in operational research. They were filled up at the interrogation of the crew after an operation, usually by a specialist officer from details either recorded during the flight or memorised.

It was frequently possible to include considerable detail on these forms by the use of certain recognised abbreviations. Thus, the following symbols were used to record contacts observed on Fishpond or Visual Monica.

A. Contact within 1 mile.
B. Contact behaving suspiciously.
C. Combat developed.
VF. Contact identified as friendly by sighting.
EV. Contact lost by evasive action.
P. Contact passed away.

When a combat took place supplementary detail was provided in the Combat Report prepared by the Gunnery Officer at the Squadron.

The use made of the several attached forms was as follows.

Form No. 1 Early reports on G.L./G.C.I. Boozer. One Report Form for use by each aircraft.

Form No. 2 Later report form for Triple Channel Boozer. One report for use by each aircraft.

Form No. 3 Report on AI Boozer. One form used for the squadron.

Form No. 4 Report on Aural Monica. One form for use by the squadron.

Form No. 5. Early form for Visual Monica, introduced into No. 5 Group, one form for use by each aircraft during the period of experimental development of the visual presentation.

Form No. 6 Later form for Visual Monica, one form for use by the squadron. In the final version, the 'Remarks' column was included a statement of the number of operations performed with the device by each operator.

Form No. 7 Early Fishpond report, one form for use by each aircraft.

Form No. 8 Later Fishpond report, one form for use by the squadron. The column left for recording of the number of contacts observed at some selected locality or time underwent several changes and was finally deleted. In the final version an indication was given of the number of operations performed with the device by each operator.

Form No. 9 A.G.L.(T) report as used throughout almost the whole operational history of the device, one form for each aircraft.

Form No.10 A.G.L.(T) report as coming into use at the end of the war, one form for use by the squadron.

Form No. 1

COUNTERMEASURE 'BOOZER' QUESTIONNAIRE

(To be completed and despatched to H.Q.B.C. marked 'for attention of O.R.S.' after each operation)

Squadron No. Date of Operation Name of W/Op:

A/c Letter: Target:

Time at which lamp lit up	Behaviour of lamp, e.g. Steady, Intermittent	For how long did lamp remain alight ?	Place	Height	Was evasive action taken ?	Did Flak, S/L.s or Fighter Attack follow the lighting of the lamp ? If so, how long afterwards ? Give all other details	Other Remarks

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Form No. 2

'BOOZER' REPORT

Date: Pilot: Squadron:

Target: W/Op: A/c Letter:

Time	Type of Indication (D, B or Y)	Duration	Height	Position	Observations (Flak, Fighters, S/L seen, etc)

Form No. 3

REPORT ON AI 'BOOZER' INDICATIONS

Date: Target: Squadron:

A/C Letter	Time	Position	Height	Duration of Indication	Was indication associated with a sighting of an E/A	Indications associated with visuals of E/A			
						Type of E/A	Was indication received before or after sighting	Direction of approach and range of E/A when sighted	Did E/A Attack

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Form No. 4

MONICA 'WARNING' RETURN

Target: Date: Station:

A/c Letter and Squadron	No. of occasions on which Monica Warning was received		
	British A/c seen	Enemy A/c seen	A/c causing warning not seen or not identified

Any remarks by Int. Officer, Squadron Commander, etc:

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Form No. 5

No. 5 GROUP VISUAL 'MONICA' REPORT FORM

Enemy Coast	Height	Time	Latitude and Longitude	No. of A/c on Tube
Time base used				

2.
At a position between enemy coast and target.

Position	Height	Time	Latitude and Longitude	No. of A/c on Tube
Time base used				

3.
At a position between target and enemy coast.

Position	Height	Time	Latitude and Longitude	No. of A/c on Tube
Time base used				

4.
Maximum range on tube at which aircraft could be detected ... yards.

5.
Minimum range on tube at which aircraft could be detected ... yards.

6.
Number of aircraft located on tube which approached within 600 yards .....

7. Incident Report

Range and position of any visuals obtained of enemy aircraft by the air gunner before the Wireless Operator was warned by the Tube.

Range	Position	Time	

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8.
Range and position of visuals of enemy aircraft reported by the Air Gunner after the Wireless Operator was warned by the Tube.

Journey to the Target

Range	Position	Time

At Target

Range	Position	Time

Journey from Target

Range	Position	Time

To be completed on return

Date: Target: Squadron and Letter:

Form No. 6

VISUAL MONICA RETURN

To: O.R.S., BOMBER COMMAND

Date: Target Squadron:

A/c Letters	S ... Serviceable U/S ... Unserviceable M ... Missing	No. of a/c seen on Visual Monica within 1,000 yards while over enemy territory	Incident Report		General Remarks
			Details of suspicious plots on Visual Monica. Action taken if differing from No.1 Group Tactical Instruction. State if confirmed visually, and whether en route or in Target Area	Details of A/c seen without previous warning on Visual Monica. Give range and direction or approach, and whether en route or in Target Area	

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Form No. 7

'FISHPOND' REPORT

Squadron: Date:

Aircraft Letter: W/Op/AG:

Position A - 30 mins before target.

Position B - 30 mins after target.

Position A: _ _ _ _ _ _ _ Time A. ..... Height A: .....

Position B: _ _ _ _ _ _ Time B: ..... Height B: .....

Number of Responses (a) .....

(refer letter PFF/S/3513/RADAR dated 19. 10. 43) (b) ....

(c) .....

Short Narrative by W/Op/AG
(covering results generally and use of equipment

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Form No. 8

'FISHPOND' REPORT (ISSUE II)

To: H.Q. Bomber Command (Radar Section)

Date: Target: Squadron:

A/c Letter	DIFFICULTIES State whether due to :- (a) H2S u/s or faulty. (b) Only Fishpond u/s or faulty. (c) Manipulation of H2S or Fishpond. (d) Pre-setting of controls before take-off.	No. of A/c seen on screen between 1 and 2 miles at enemy coast		USE (a) Details of suspicious plots on Fishpond. Action taken and if confirmed visually give time and position. (b) Details of E/A seen without previous warning. Give range and direction of approach, particularly whether above or below. Give time and position. (c) General remarks.
		Outward	Homeward	

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Form No. 9

A.G.L.(T) PROFORMA

Date: Target: Squadron: Letter:

Captain: W/Op: R/G:

Failure of equipment or difficulties in manipulation of A.G.L.(T) Fishpond, GCS, Type 'Z' etc.

Time	Equipment	Difficulty

2. Use of A.G.L.(T) and Type 'Z'

A.G.L.(T) Contacts. Maximum Range _____ Minimum Range _____
Number of aircraft picked up by A.G.L.(T) _____
Maximum number of aircraft within range at any one time,
en route _____ in the target area _____
How many times were combat manoeuvres taken on A.G.L.(T) indications
_____

Give details:

What was the shortest range at which any aircraft was identified friendly _____
Number of contacts not identified by Type 'Z' _____
Give brief details with ranges.

3. Use of Fishpond

How much use was made of equipment ? (e.g. in giving warning and keeping watch for other approaches when gunner was holding suspects).

Approx. No. of VI contacts seen first on Fishpond.

Form No. 10

Date:
Squadron No.
Target:

A.G.L.(T) OPERATIONAL REPORT

To: H.Q. Bomber Command (Radar Branch)

Total No. Sorties:
Abortive (T or U/t):
Missing (T or U/t):

A/c Letter	T or U/t	Faults		Reason for Unserviceability	No. of Contacts	No. of Contacts Identified by Type 'Z'	Contacts not Identified by Type 'Z'		Fishpond Contacts before A.G.L.(T)	Action taken
		A.G.L.(T)	Type 'Z'				Range	Reason		Ranges, Combat Manoeuvres, opening fire, etc. State if fire opened on Presentation

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