

DOPE SHEET FOR RECORD 177

<u>Shot Order</u>	<u>Description of Scene</u>
1	Q/S W.A.A.F. Plotter, receiving instructions from Radar fitter room over headphones, camera pans down to plotting rod and then to map as she places Arrow head, indicating Hostile Aircraft position, on table
2	M/S W.A.A.F. Plotters at work around plotting table, Sgt. (called "Floor Supervisor") Standing in B.G. checking their work.
3	L/S From Above. Plotting table with plotters at work, camera pan L. to R. upwards to disclose the Controller and Assistant Controller sitting watching the plotting table. The Controller seeing Hostile A/C formation over coast of France, orders Spitfire Squadrons to take off and patrol a certain Area. In the Separate Bay in Extreme B.G. sit the two Army Ask Ask Liaison Officers.
4	M/S From Behind Controller (sitting R. of Screen) and Assistant Controller (sitting L. of screen) looking down on plotting table, with the plotters at work.
5	M/S From the Army Liaison bay, showing the controller and Assistant Controller in the centre bay, and in the extreme B.G. the Royal Observer Corps Liaison Officer and the Raid Recognition Officer sitting in a separate Bay.
6	L/S On the floor of plotting room. The plotters at work around the table, and the floor Supervisor (a Sgt.) giving instructions. In the B.G. sitting below the controllers bay are "Tellers" whose job it is to pass information to the plotters and also to Sector Ops. rooms etc.
7	M/S Different angle - of plotters at work with "Tellers" sitting in B.G.

EXPLANATORY NOTES FOR COMMENTARY

A Group Operations room is the nerve centre of air defence against Air attack. It is from this nerve centre that the whole course of the Battle is followed and plotted - from before the enemy A/c leave the French Coast, until after the A/c formations have been broken up and chased back over the French or enemy coast - and furthermore it is from here that the plan of Battle and dispositions of air Defence forces is made. The man directing the whole battle always subject to the Air Officer Commanding's instructions - is called the Controller. The Controller sits in a glass bay overlooking the plotting table, on which is recorded movements of Hostile and Friendly A/c even before they cross the Channel. From this vantage position the Controller decides according to the information on the plotting board re Strength height and direction - the probable Target and the number of fighters he has available to meet each attack. He is in direct contact by a broadcast system to each of the Sector Ops. rooms in the Group, he gives them the instructions to send certain Squadrons on patrol, and later when the fighters are in the air gives them the instructions when and where they are to intercept the hostile A/c.

PAGE 2Shot OrderDescription of Scene

- 8 G/S Plotting table, showing coast of England and France. Hostile A/c being plotted, leaving French Coast, by small arrow heads, and the positions of our friendly A/c indicated on the English Coast.
- (Note the Cards with Numbers on the table, are called raid blocks and give the following information - The number of the raid on the top layer, the approx. number of A/c on the middle layer, and the approx. height of the formation on the bottom layer)
- 9 M/S Army Ack Ack Liaison Bay, from Below. Sitting below the Bay, Three A.F.S. Girls are "Telling" the positions of hostile A/c (as indicated on the table) to Gun Operation rooms. Officers above in the bay are supervising this and adding supplementary details.
- 10 G/S Of plotting Board showing Cherbourg Area, where a Hostile Diversion raid is approaching Portsmouth, 2 Plotters in P.C. are plotting the positions of the Hostiles and our own fighter A/c intercepting them. (Note: These diversion raids aimed at splitting our fighter interceptor force and by so doing lessen our effective resistance.)
- 11 M/S Of the Royal Observer Corps Liaison Bay. The Observer Corps Liaison Officer sitting L. of screen, the Raid Recognition officer sitting R. of Bay.
- 12 M/S Of the Controllers Bay. Controller and Assistant sitting in position. W.A.A.F. Tellers sitting below - Controller seeing Hostile A/c approaching our coast - as plotted on Table - speaks into broadcasting telephone and orders fighter patrols to intercept Enemy forces.

EXPLANATORY REMARKS FOR COMMENTARY

The Sector Ops. Rooms are in the same immediate contact with the fighters in the air, so there is never a moment wasted between orders. It is interesting to consider the tremendous responsibility resting on the Controller, particularly in the Battle of Britain days when we were so short of A/c. The Controller had to decide in a matter of seconds, which was the main raid and which the diversion - sometimes more than one - and dispose his very meagre fighter strength to intercept each prong of the attack, with no prior knowledge of the Enemy's route and possible target. He has got to if possible get his fighters off the ground early in order that they have time to climb to at least an equivalent height to the enemy A/c and so few were the A/c available in those days that on occasions two A/c were sent to intercept Hostile flights of 50 or 100 A/c to try and break up their attack.

The system or working of a Groups operations room is very briefly as follows:

PAGE 1

Shot Order

Description of Scene

- 13 M/S From Behind Controller and Assistant looking down on table.
- 14 O/S English Channel Area on plotting table. Showing position of Hostile A/c approaching our coast, and making for London. And our Fighter positions hurrying to intercept them.
- 15 O/S Controller seeing Hostile positions plotted on table, lifts broadcasting telephone and orders more fighter patrols to intercept.
- 16 O/S Of English Channel Area. Showing hostile A/c crossing the coast and penetrating to London.
- 17 M/S Controller Bay - Controller and Assistant watching the plotting board.
- 18 O/S Of W.A.A.F. in "Ops. B" Section situated in plotting room checking by phone with the central Met. rooms the weather conditions at each of our fighter stations.
- 19 O/S Airman chalking up latest weather conditions on Boards appertaining to each station. So that the controller can see at once the exact Met. situation at each station.
- 20 M/S W.A.A.F. in "Ops B" Section finishing her telephone conversation, with plotters and plotting table in B.C.
- 21 O/S Of 11 Groups score Board - with the Groups total score etc. to date.

EXPLANATORY NOTE FOR OBSERVATORY

The first indication of Enemy A/c is picked up by Radar before the A/c leaves the French Coast. This information together with details re their strength and height, is passed direct from the Radar Fitter room to the W.A.A.F. plotters through their headphones. Each W.A.A.F. plotter is responsible for a certain sector of the plotting table, and she indicates the A/c positions, by means of little arrows which she places on the plotting board.

Once the Hostile A/c have crossed our Coastline, the information re their position etc. is passed on to the W.A.A.F. plotter direct from the Royal Observer Corps. (This applies to all Friendly A/c flying over Great Britain) So that at all times a complete picture is presented on the board, of the position of Hostile A/c and air fighter patrols.

In a separate bay on the right of the controller sits the Ack Ack Liaison officers who are responsible for giving full information re the enemy positions etc. to all the Gun Operations Rooms, and to coordinate the Ack Ack defence with the fighters. On the other side of the Controller in separate bay sits the Royal Observer Corps Liaison officer, who acts as Liaison officer between the Observer Corps Stations and the Ops. Room.

Down below in the plotting room, is the "Ops B" section who is responsible for keeping up to date the Met. Boards so that the Controller can see at a glance the weather on each Station. The Squadrons already ordered off on patrol and times etc. and when the fighter A/c return to base and are to take off once more.

Box 10-1036980

Air Force and Signal Corps via Hearst, Navy via Pathe, Library
RADAR

1. SV soldiers operate radar
2. SCU operate radar
3. SV soldiers at controls
4. CU Aterna
5. Angle v soldier looking thru screen
6. SV soldiers operating radar
7. SCU man looking at screen
8. Diagram showing waves hitting ship and bouncing back to radar ship
9. Diagram wave hitting ship - returns and clock comes on screen
10. CU tube
11. Diagram - wave hits ship and pip comes on
12. Diagram - ship moves in and insert moves in also
13. Elev v Panama Canal LIB
14. SV Guard on duty at Canal "
15. Diagram - ring around plant - pan to waves going out and hitting approaching plane - pan back to waves returning
16. SV soldiers working radar set at night
17. CU soldier looking thru screen
18. CU altitude unit
19. CU range meter
20. Int. v plotting room
21. SCU two men at work
22. SV people working in plotting room
23. CU course of plane plotted and masteral 38-1 placed on table
24. SV soldiers operating radar
25. CU target centered
26. SV soldier turns on switch
27. CU searchlight goes on
28. CU soldier looking thru glasses
29. SV plane flies into single beam
30. SV soldier turns around and hollers
31. SV two beams onto plane
32. Int. v plotting room - soldier gets up and crosses fingers
33. Night scenes - artillery fire
34. CU plane coming down in flames
35. CU remove chart from plotting table and erase calculations
36. Diagram of plane with transponder

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RADAR (Continued)

PAGE -2-

- 37. Air v fleet
- 38. CU scope operating
- 39. Air v Fleet
- 40. Diagram of harbor
- 40A. CU outline of shore on radar screen
- 41. Air v planes in flight
- 42. SCU planes in flight
- 43. CU pilot operating radar direction control
- 44. Angle v Radar antenna on plane being turned
- 45. SCU flier looking at screen in plane
- 46. Diagram showing planes passing ship on left - then right- then left again- then right - then shoreline
- 47. Air v plane thru fog
- 48. CU pilots looking at the screen
- 49. CU enemy ship registers on radar screen
- 50. CU pilot talking into 'phone
- 51. CV warship steaming along
- 52. CU sign aboard ship "Radio Center"
- 53. Int v men at work
- 54. SV two men at radar stations
- 55. SCU man looking at screen
- 56. CU image on radar screen showing the ships on right track
- 57. SV ships going by at night
- 58. Angle v guns ready
- 59. CU men at radar controls
- 60. CU screen showing target center
- 61. CU man talking into speaker
- 62. Night barrage aboard ships
- 63. SV men looking at radar screen
- 64. Angle v plane in flight
- 65. CU worried-looking pilot
- 66. CU motor on fire

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RADAR (Continued)

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- 67.SCU pilot looking thru radar screen
 - 68.Angle v Antenna
 - 69.Angle v men at controls
 - 70.CU plane crashing into water
 - 71.CU pinning SOS on chart
 - 72.SV ship passing iceberg LIB
 - 73.SV iceberg LIB
 - 74.CU plane lying in fog
 - 75.CU ~~making~~ hand pushing switch on aural signal
 - 76.CU type talking into mike
 - 77.CU plane flying thru fog
 - 78.CU BV pilot looking at beam indicator
 - 79.CU pilot putting on switch
 - 80.CU indicator showing planes on right course
 - 81.SV plane landing at night
- FADE OUT

CAMERAMAN'S REPORT.

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CAMERAMAN: David Prosser.
DATE & LOCATION: Thames Estuary.
ASSIGNMENT: Naval Radar - Navigational.
FOOTAGE: 800ft.
SOUND: Silent.

The purpose of this story is to show that Radar can well be applied to simplify peacetime mercantile navigation in no uncertain manner.

The exterior scenes show the bridge of a ship under normal conditions of weather, navigating in confined waters. In these circumstances it is not hard for a competent seaman to set his course by buoys and shore landmarks, and to avoid other shipping in the area. All these are shown from the ship under fairly normal conditions.

However, when a thick fog is encountered the whole situation is altered, scenes show the ship running into fog and still navigating the estuary. This can only be done by radar. On the bridge the captain has a repeater PPI (Plan Position Indicator) which actually shows a chart of the area in which the ship is navigating, the centre spot being the position of the ship at any given moment. The land masses are represented by heavy white masses and lines on the PPI, and other shipping is shown by white spots moving about our centre spot. In this case the PPI scenes have been shot at slow speed in order to give the necessary visible motion and to achieve the required exposure. As a result of all this the captain does not have to see anything outside of the ship which he commands - he can set his course and navigate entirely from what he sees on the PPI. He is shown watching this and then passing orders to the officer of the watch, who passes the course to be steered down the voicepipe to the coxswain, who in turn puts the ship on her course. All this has necessarily been photographed in clear weather in order to show the detail required.

The run shown on the PPI scenes is up river, i.e. East to West. First a landfall is shown off the estuary, and the ship passes through the boom defence - which shows clearly as a line running across the river mouth with two breaks representing the "gates" through which shipping may pass.

True north is at the top of the screen. The slight rocking of the image is due to the fact that the gyro compass control of the Radar Set has an error of one degree and so the whole picture is liable to rock slightly within that limit.

Having passed the boom, Southend pier shows up clearly on the uppermost (northerly) side of the river, while a little to the west is another pier on the opposite side which is actually the remains of an earlier boom defence system.

As the shipping is clearly moving at high speed in the picture on the PPI it will be necessary to make it clear in the commentary that this was not actually taken in fog - or else to cut the story in such a way as to explain that this is what is possible in complete fog, when using radar. Also it may be necessary to 'stretch' some of the PPI material in order to make the point clearer and to give the public time to appreciate the detail.

For purposes of clarification shots are provided of a chart of the area, side by side with a chart of the same area made from photographs of the Radar picture of the scene.

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Box No 14074 PMA

20. 9. 45.

" R A D A R "

500 ft.

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Daylight Exterior.

- Shot 1. Line of Guns. Gun crews standing by for action.
- 2. Close up shots. Gun crews at action stations.
- 3. Radar. Aerial revolving 20 ft. for Main Title (G.L. Receiver)
- 4. G.L. Mark 2. Transmitter. General shot revolving.
- 5. G.L. 3B General view, followed by close up cups (Still) and Revolving.
- 6. Command Post Interiors. A.T.S. working apparatus. R.W. Close up A.T.S. Girl at Machine Control.
- 7. Three A.T.S. working computer - close up officer giving orders.
- 8. Target Control Officer group of four. Marking position on chart close up officer and marker.

Night shots.

- 9. Loading and firing Gun. Taken different angles.
- 10. Command Post. Two A.T.S. and officer. Target identifying aircraft.
- 11. Target Identification - Four A.T.S. & officer.
- 12. Radar Mark 3B (British) girls work in van at controls. Close up hand on panel control.
- 13. Screen picking up aircraft; Inside Radar Mark 3B also exterior shot of van.
- 14. Searchlight switching off and on.

Very poor
 H. Swoback
 Cameraman - Mumford.