

THE FOLLOWING INFORMATION HAS BEEN OBTAINED FROM P/W AS THE STATEMENTS HAVE NOT AS YET BEEN VERIFIED, NO MENTION OF THEM SHOULD BE MADE IN INTELLIGENCE SUMMARIES OF COMMANDS OR LOWER FORMATIONS, NOR SHOULD THEY BE ACCEPTED UNTIL COMMENTED ON AIR MINISTRY INTELLIGENCE SUMMARIES OR SPECIAL COMMUNICATIONS.

### THE BERLIN GERÄT.

1. A recent German Army prisoner, a doctor of Physics of Vienna University, had worked for fifteen months up to 23rd October 1944 in the High frequency research laboratory of the G.E.M.A. G.m.b.H. at Berlin and latterly at Wahlstatt, near Liegnitz. During that period one of his tasks had been to determine the characteristics of the transmission lobe from the aerials of the Berlin Gerät.

2. The Berlin Gerät is a German development of the British H2S, on a wavelength of 9.1 cm., but employs a totally different aerial system developed by Siemens. Whilst P/W's description of the apparatus given in the following paragraphs, is considered to be reliable, he had no knowledge of its eventual operational use.

3. Acknowledgements are due to A.D.I.(Science) for their collaboration in the interrogation.

### AERIAL SYSTEM

4. The sketch in the Appendix to this report gives an impression of the Berlin aerial unit.

5. The four rods forming the aerial array are composed of a plastic called Trollitul and are of circular cross-section about 4 to 5 cm. in diameter at their base, tapering somewhat to a rounded end. The rods lie parallel to the plane of a circular metal plate of about 1 metre diameter, and about 15 cm, clear of it.

6. The energy to be radiated is led to the aerial rods by a concentric feeder which forks into too branches where it enters the metal plate and again fork; making 4 branches to feed the four aerials. At each of the forks the concentric feeder widens into a funnel shape called a transformer piece, the sloping side of which is a half wavelength long, that is, 4,5 cm.

7. A Trollitul dome some 40 cm in depth covers the aerial array and fits, flush to the edge of the circular metal plate.

8. The whole unit including the aerials can be made to rotate. This prisoner had never seen the apparatus fitted either to an aircraft or a ship and he did not know the speed of rotation; he has an idea however, that the axis of rotation was at an angle to the geometrical axis of the cylindrical disc, so that in an aircraft the transmission beam would be thrown slightly downwards or in a ship, upwards.

### **TRANSMISSION LOBE**

9. The Berlin Gerät has a half-value lobe  $10^\circ$  in width in the plane of the four aerial rods and  $35^\circ$  to  $37^\circ$  in width at right-angles to the plane. The lobe was measured by the normal method; the aerial unit, however, was not resting on a metal surface as it would have done if built into an aircraft. Under these conditions the lobe was symmetrical about the axis of the Aerial array. P/W presumed that if the aerial system were built under the fuselage of an aircraft shadow effects would cause the lobe to be asymmetrical or to be deflected.

10. The experiments which P/W had conducted were in the open air; he had found that when rain covered the Trollitul dome with a layer of moisture, no transmissions could be detected, even at a range of 20 metres, along the line of the axis of the aerial rods. He thought that in these circumstances the whole lobe was strongly deflected.

### **PRESENTATION.**

11. This P/W had read the regular reports of the "Rotterdam Sitzungen" - a special committee on centimetre radar - and one of these reports contained a description of the Berlin presentation, including photographs taken in an aircraft flying over Kiel Bay.

12. From this report he could remember that the presentation was on a circular screen; coast-lines of the mainland and of islands showed as white ribbon-like stripes and towns appeared as white areas, whilst individual ships in Kiel bay could be seen as small elongated white blobs.

13. He had the impression that distant towns, although slightly distorted in the picture, still retained their approximate shape. He thought that in the photographs of the presentation an area of about 60 km. in diameter was represented; he did not know, however, at what height the aircraft had flown.

**RECEIVER MAGNETRON.**

14. It was stated by P/W that a weak point of the Berlin apparatus was the receiver valve, which frequently broke down. This valve was a magnetron contained in a glass envelope, with a solid metal anode in which four or six holes had been drilled. An impression of the valve, which P/W believed was called the MD2, appears in the sketch in Appendix I.

**USES OF BERLIN GERÄT.**

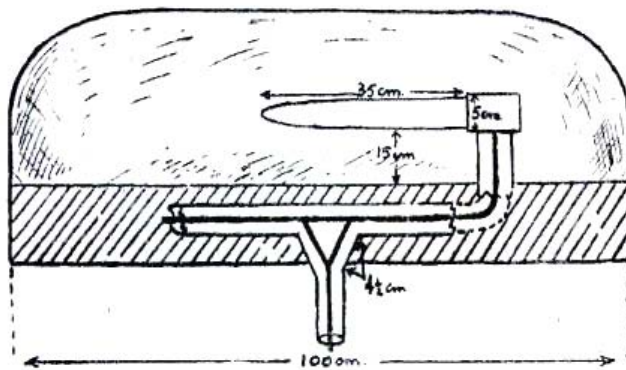
15. Apart from its use in giving a panorama of the ground over which an aircraft was flying, P/W knew of no other air uses of the apparatus. He understood, however, that the device was to be installed in U-boats as an aircraft warning device.

A.D.I.(K) and  
U.S. Air Interrogation.  
24 February 1945.

S.D. FELKIN  
Wing Commander

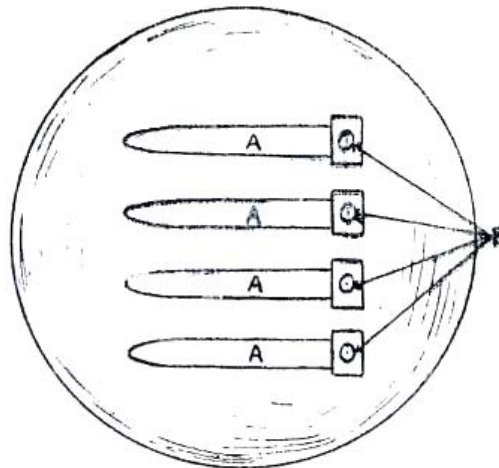
# IMPRESSION OF BERLIN GERÄT

ELEVATION



SHOWING THE FUNNEL-SHAPED TRANSFORMER PIECE WHERE CONCENTRIC FEEDER FORKS

PLAN



A: TROLLITUL RODS 4-6 cm. THICK AT THEIR BASES

B: CONNECTING FEEDERS

## MAGNETRON RECEIVER VALVE

