SECRET **A. D. I. (K) Report No. 125/1945**

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.

G.A.F.NIGHT FIGHTERS.

RECENT DEVELOPMENTS IN GERMAN NIGHT FIGHTING.

1. Between the opening of the Rundstedt offensive on 17 December 1944 and the night of 1st January 1945, fifty-nine German night fighter aircrew captured on the Western Front were brought to England for interrogation by A.D.I.(K). Of these prisoners, ten were selected as being suitable for special interrogation with the object of investigating current German tactics, and the extent of their deviation from methods employed up to the end of November and reported in A.D.I.(K) 508, 599, 620 and 700/1944.

2. The present report is based on the interrogation of these ten prisoners, who came from III/N.J.G.1, II and III/N.J.G.2 and II, III and IV/N.J.G.3, and of whom one had recently spent some time at the G.A.F. radar experimental station at Werneuchen. In addition, there was one prisoner who had spent one year as a ground radar mechanic with I/N.J.G.4 and had then transferred to the Schulstaffel of the same unit to train as a radar operator. The Schulstaffel had been dissolved at the end of October 1944 and its personnel posted to the infantry; this P/W fell into Allied hands as an unwilling member of the Waffen SS.

3. From interrogation of previous night fighter prisoners - captured between September and the end of November 1944 - it has been amply proved that the German night fighter force has been at a loss to overcome the successful Bomber Command spoofery and radio countermeasures and as yet has made no progress in its efforts to overcome this disadvantage.

4. From the present interrogations there are signs that the Germans, not content to let the matter rest as it is, are striving to gain the upper hand over Bomber Command by the introduction of at least two new measures. One of these,

discussed in the following paragraphs, is the employment of Bernhardine beacons for the dual purpose commentary and navigation, and the other - as yet in its early stages - the probable introduction of a new type of search equipment, the SN 3. Details of the latter are at present lacking, but evidence suggests that it may be of the nature of centimetre A.I.

BERNHARDINE – FuGe.120.

Earlier Vicissitudes.

5. As far as G.A.F. prisoners are concerned, Bernhardine is no innovation, as early as May 1942 hazy allusions to this form of navigational aid were made by prisoners, but the first mention of Bernhardine by name was made by an officer of 1(F)/121 captured in October 1943 (A.D.I.(K) 498/1943; thereafter nothing further was heard until K.G.66 opened its pathfinder operations over England early in 1944.

6. A prisoner from 5/K.G.66 captured in England on 25th March 1944 gave an account of Bernhardine which, in the light of the present interrogation proves to have been remarkably accurate (A.D.I.(K) 187/1944, paras.19 – 24)

7. In October 1943, 5/K.G.66 had had 1 Do.217-M equipped with Bernhardine, but after some experiments the experts had come to the conclusion that the apparatus was not sufficiently accurate for pathfinder operations; the P/W concerned had heard later that work on the ground installations had ceased.

8. In spite of continued interrogation of subsequent prisoners, nothing more was heard of Bernhardine until late in December 1944. The capture of a prisoner from III/N.J.G.1 on 17th December 1944 and other prisoners from II and III/N.J.G.3 later in the same month has now revealed that Bernhardine is being seriously considered - if not already used - not only as an aid to night fighter navigation but as a source of the commentaries.

Introduction of Bernhardine to Night Fighting.

9. Some time in October 1944, crews of 8/N.J.G.1 were given a preliminary lecture on Bernhardine in which its principles were explained, they were told that it was no new discovery but would shortly be introduced to night fighting. In III/N.J.G.3 crews had also been given frequent lectures and by November some of the aircraft of that Gruppe already had the necessary apparatus installed.

10. According to prisoners who attended these lectures, the transmissions from the ground station take the form of a conventional twin lobe polar diagram with an equisignal area and with a very small amount of rearward radiation. A signal transmitted from the ground station once every minute is translated by the airborne apparatus into a teleprint message on a paper tape giving the QTE (true bearing) of the aircraft from the ground transmitter followed by a further image in figures and letters which is a Divisional commentary of the type at present broadcast by the high powered W/T beacons.

11. It was explained that the Bernhardine transmitters would operate on 32 frequencies between 30.0 and 33.1 mc/s, and that the signal would be received through the normal E.Bl.3 in the aircraft. Thus the first 32 of the 34 spot frequencies of the E.Bl.3 would be used for Bernhardine whilst the remaining two, 33.2 and 33.3 mc/s, would be retained for blind landing purposes.

12. It is claimed by P/W that Bernhardine signals are unjammable and that transmissions have a range of 400 - 500 kilometres.

13. A captured night fighter map, recovered from a recent crash in Belgium and issued by the signals officer of N.J.G.3, was marked with Bernhardine transmitters at approximately the following pinpoints;-

N° 0(?)	Berlin	52°13'N;13°6'E
N° 8	Alkmaar, Holland.	52°42'N;4°38'E
N° 9(?)	Leck	54°41'N;9° 2'E
N° 10	Thisted, Denmark.	56°42'N;8°33’E
N° 11	Breslau	51°25'N;17°5’E
N° 12	Pilsen	49°45'N;13°15’E

14. A further indication that Bernhardine may already be in operational use was found in a file of signals orders from an aircraft of II/N.J.G.1 shot down on December 31st. On the same page as the usual numbering of the Y-line frequencies was another column headed "Kanäle" (= channels); the channels were numbered from 1 to 32 and to each number was appended a frequency, commencing with 30.0 at No.1 and rising by .1 mc. to 33.1 mc/s at No.32.

15. Both of the above documents have been forwarded to A.I.4(b).

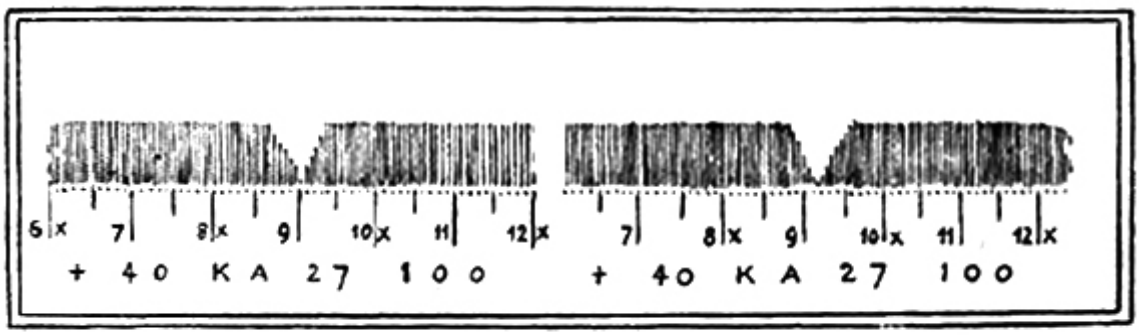
Airborne Apparatus.

16. The Bernhardine apparatus in the aircraft is contained in a box measuring some 60 cm in width, 30 cm in height and 20 cm

in depth, placed in the JU.88 in some cases to the right of the W/T operator on the lower port wall of the fuselage and in others to the left of the W/T operator or in the forward instrument panel.

17. The front of the box has a wide glass-covered slot about 40 cm. in length and 12 cm. in depth along which the paper tape travels from right to left after the necessary data have been printed upon it by a teleprinter contained in the box. The on-off switch for the apparatus, marked FuGe.120, is placed on the R/T operator's switch panel, and is used in conjunction with the click-stop frequency selector for the E.Bl.3.

18. From evidence supplied by the present P/W it is possible to give a description of the Bernhardine display and of the exact data which it supplies. An impression of the Bernhardine display is given below; it will be seen that the printed tape is divided into three horizontal sections, on the uppermost of which appears a series of close vertical lines shortening at intervals to a "V", on the central section a reading in degrees, and on the lower a coded image which is the commentary. One simultaneous printing of these sections takes place during ten seconds of every minute, the tape remaining stationary for the remaining fifty seconds, after which the process is repeated.



BERNHARDINE DISPLAY

19. In the lectures on Bernhardine it was stated that the ground transmitter makes one full revolution of 360° in sixty seconds; a section of the pattern of the ground transmission is repeated on the tape in the form of the series of vertical lines, the equisignal zone being represented by the apex of the "V".

20. In each printing lasting ten seconds a sector of 60° appears on the tape and in every case it contains a repetition of the equisignal zone. The reading in degrees appears in the central section of the tape in numbers representing 10's of degrees, and the point opposite to which the apex of the "V"

is printed represents the bearing in degrees of the aircraft from the transmitter. Accuracy of bearings was stated to be within 0.5°.

21. A recognition letter is allotted to each transmitter and is repeated on the tape at every 20° on the scale; in the sketch the letter X - the recognition for the Leck transmitter is shown.

22. The commentary in the lowest section appears in each 10-second printing as a group of a maximum of ten letters and numerals, inclusive of two crosses denoting the beginning and end of a message. Should a message be of more than ten characters it wi11 be continued in the succeeding printing, a cross appearing at the end of the message.

23. Thus, the commentary message shown in the sketch, + 40 KA 27 100, just falls within the ten-character limit if the final + denoting the end of the message is omitted. The latter is therefore carried forward and appears at the commencement of the next printing; it denotes simultaneously the end of the one message and the beginning of the next. It was stated that a single message could be continued over three or four printings.

24. The commentary always appears in a standard order; analysis of the typical message shown in the sketch is as follows:-

+	=	beginning of message
40	=	height of head of bomber stream in 100’s of metres
KA	=	fighter-grid position of head of stream
27	=	course of formation in tens of degrees
100	=	estimated number of aircraft

25. It will be noted that the form of this commentary is exactly the same as that at present put out by the Divisions on the high powered W/T beacons (see A.D.I.(K) 599/1944 para. 57).

26. The present P/W had been told that, in addition to the Divisional commentary, instructions to individual formations of night fighters would be transmitted by the Bernhardine and printed on the lowest section of the tape. How, in such a case, the aircraft would be tracked or how the orders by the subordinate units would be coded, they did not know.

Operational Use.

27. The aircraft set is switched on soon after take-off, so that the bearing transmitter can be constantly watched. If the

W/T operator wants the fix, he switches over to the transmission of a second Bernhardine station for a gross bearing; it was stated, however, that quicker and more favoured method was to obtain a simultaneous cross bearing from a high powered beacon through the PeilGe 6.

28. As far as these prisoners knew, only the Bernhardine stations at Berlin and Leck are so far capable of transmitting a commentary and flying instructions; the latter station was only modified in this way at the beginning of November 1944 and aircraft of 9/N.J.G.3 made several test flights, usually taking off from Uetersen at about 0230 hours and remaining airborne for some four hours.

29. The present P/W of 9/N.J.G.3 had not taken part in these flights, but after the tests he had seen the tape, which he described as being printed on white paper in red letter, 4 - 6 mm. high as clearly as with a typewriter. He was told that there was sufficient tape to allow of continuous operation for 4 hours 20 minutes.

SIGNALS TRAFFIC.

German Spoof Signals.

30. An aircraft of 7/N.J.G.3 shot down in Belgium on January 1st carried a signal order on which appeared the word "Orgelpfeife" (= organ pipe). Interrogation of all the present P/W elicited the fact that Orgelpfeife is the codeword for spoof R/T and W/T traffic passed between small numbers of aircraft and the ground with the object of simulating large numbers of night fighters in operation.

31. According to a P/W of 9/N.J.G.2 Orgelpfeife was introduced in that unit, in mid-November; one crew in the Staffel had received special briefing and usually operated the spoof traffic. In operating R/T spoof, this crew's duty was to imitate a large number of night fighters operating by the simple expedient of all four members of the crew taking turns to speak, each using different callsigns.

32. It was said that the pilot of the crew in question, Oberfeldwebel GELLNER was something of an actor and was able to imitate various German dialects and different voices; P/W claimed that the single Aircraft could simulate as many as twelve night fighters.

33. The Orgelpfeife aircraft operated under Y control, since such importance was attached to its position in relation to the raiding force; the spoof aircraft patrolled an area near the estimated target and as the raiding force was approaching

the target, the simulation of night fighters operating commenced.

34. According to P/W the spoof aircraft carried large quantities of Düppel (Window).

35. It seems that only one aircraft in a Staffel operates Orgelpfeife; this was certainly the case in III/N.J.G.2, and another P/W of III/N.J.G.3 stated that similar conditions prevailed in that Gruppe.

36. None of the present P/W could give any useful information on the method of coding the Orgelpfeife traffic, but it was stated that the briefing usually gave two codewords or groups, according to whether the spoof was R/T or W/T, and the crew was to ignore all orders from the ground except those preceded by the operative Orgelpfeife codewords or group.

37. In the captured briefing sheet mentioned above, the codewords for 7/N.J.G.3 on the night of December 31st were "Elfenbein" for the aircraft and "Hallore" for the ground.

38. A P/W of 9/N.J.G.3 stated that early in December R/T silence had been enforced amongst the normally operating night fighters of that Staffel.

Defence of the Ruhr by N.J.G.1.

39. The four Gruppen of N.J.G.1 have been allotted the special task of defending the Ruhr in night attacks by R.A.F. Bomber Command, and to achieve this aim all the Gruppen are based strategically at airfields in that area.

40. In operations over the Ruhr the Gruppen are not controlled separately as would normally be the case, but operate under the central control of a special Geschwader commentary put out on a M/F and an alternative V.H.F. frequency; the latter, however, is almost invariably jammed.

41. This commentary consists of tactical instructions to the aircraft as well as reports on the general situation; according to P/W, the latter are not based on a Divisional picture of events, but on data supplied by the Ruhr Flak defences.

42. When a Mosquito force is reported over the Ruhr area, and providing that flying conditions are suitable, all aircraft of N.J.G.1 are put up and ordered to orbit any of the beacons Börse, Bruno, Achmed, Gemse, Heide, Schnake, Paule, Ratte and Drossel to await further events.

43. In case of jamming of both channels of Geschwader control, two of these beacons, Achmed and Paule, are set aside for transmission of the Geschwader commentary. P/W also heard that a further alternative H.F commentary is to be put out on a 20 kW transmitter whose signals will be superimposed on a Cologne broadcast programme.

44. The aircraft of N.J.G.1 usually orbit the beacons for about an hour, and if by then no attack by four-engined bombers has materialised they are recalled; upon returning to base, the aircraft are immediately refuelled so that should a further attack be made a fresh sortie can be initiated immediately.

45. In the middle of December some 50% of the aircraft in N.J.G.1 were equipped with two white LC.50 flares carried externally under the outer rings, and in the event of a major bombing attack on a Ruhr objective these aircraft were to make for the target and lay the flares at the operative height of the bombers, so that the remainder of the night fighters could quickly close in the area for visual attack.

46. The flare-carrying aircraft were to be given an X-time for arrival over the target to coincide with the arrival of the bomber stream; at this time the Flak would have orders to cease fire, the flares would be laid and the night fighters would go in to attack.

47. Importance was attached to the flare-carrying aircraft arriving exactly at X-time, since a previous arrival would put them and the remainder of the night fighters in danger of being shot down by the Flak, and a late arrival would jeopardise the operation.

48. In such a case where the aircraft of N.J.G.1 had been put up against a spoof attack of Mosquitos and a four-engined attack developed against targets outside the Ruhr, the Geschwader commentary would transmit the codeword "Diogenes", at which the aircraft would revert to their respective Gruppe commentaries and would operate against the new attack in the normal manner.

49. Crews of the flare-carrying aircraft were instructed that in defending targets outside the Ruhr they could use their flares, but only if they were certain of the true target.

Jamming of Commentaries.

50. Prisoners of II and III/N.J.G.3 stated that the Gruppe commentaries were not seriously jammed in the Hamburg area;

although R/T could occasionally be heard, however, crews relied mostly on the morse commentaries.

51. They stated that intensity of jamming varied considerably from night to night. They could not understand the reason for this since they had been officially told that the jamming had been D/F'd and traced to the London area.

Verbandsführer (Formation Leader).

52. From the present P/W there are again conflicting reports on the success or failure of the system of flying in formation with a leader aircraft (A.D.I.(K) 700/1944, paras.34 – 49).

53. Whilst one P/W of N.J.G.3 stated that the system had been working well in that Gruppe up to mid-December and that leader aircraft operated under Y control, another prisoner, of 8/N.J.G.1, stated that in his unit the system had proved unworkable and had been dropped in October. He gave as one reason the dislike by the more experienced crews who flew as formation leaders of acting as flying beacons, with the attendant danger of being homed on by Mosquitoes.

I.F.F.

54. Much has already been said about the FuGe.25a in recent A.D.I.(K) reports but nevertheless interrogation has continued as to the conditions under which the apparatus is or is not switched on during operations. One P/W of 8/N.J.G.1, based at Düsseldorf, stated that if no intruders were reported at the time the night fighters were ordered up for an operation, he would switch on the FuGe.25a at take-off and keep it operating until well clear of the airfield.

55. During operations he would have the instrument turned off, but on returning to base would again switch it on shortly before reaching the airfield - provided no warning of intruders was in force.

56. A P/W of 9/N.J.G.3 knew of the British air-to-air I.F.F. and knew that R.A.F. A.I. included a button which, upon being pressed, identified the friendly aircraft on the A.I. picture.

57. Crews in this Staffel were told that a German air-to-air I.F.F. was shortly coming into operation, but no further details were given.

58. A prisoner of 11/N.J.G.3 remembered having seen a note in a G.A.F. intelligence summary stating that the R.A.F. was using infra red air-to-air recognition.

Hermine Beacons.

59. One of the present P/W had first heard of Hermine V.H.F. beacons in March 1944, and at the time had learned that these were radio beacons of new type from which pilots of single-engined aircraft could obtain bearings.

60. He stated that the beacon, which has an effective range of 200 – 300 kilometres, rotates through 360° in about three minutes. The beacon transmits a continuous tone over about 359° with a silence zone of 1° which sweeps through 360° as the beacon rotates; additionally a "speaking clock" counts continuously from 1 to 360 and the continuous tone is superimposed over this speech.

61. The pilot in the aircraft hears the continuous tone and the counting on the FuGe.16Z, but hears the bearing spoken clearly when in a line with the silence zone; he thus hears his bearing to the beacon.

62. It will be remembered that prisoners of the Wilde Sau single-engined night fighter unit I/J.G.301, captured in July 1944, had made mention of these radio beacons, albeit not by name. The Kommodore of a single-engined day fighter Geschwader had suggested that "Hermine" is derived from Oberst HERMANN, founder of Wilde Sau night fighting.

INTERCEPTION EQUIPMENT.

Spot frequencies of SN.2.

63. The word "Streuwelle" in conjunction with SN 2 has been mentioned for the first time by the present batch of prisoners. Although none was able to define the word Streuwelle or its origins, one suggested an alternative word "Frequenz"; A.D.I.(Sc.) has supplied an agreed translation of "Streuwelle" in the term "Spot frequency".

64. It has already been reported that in I/N.J.G.2 an attempt had been made to reduce the effects of electrical jamming by mounting the SN 2 aerial arrays diagonally instead of vertically. These prisoners confirmed that this had also been the case in other units, but the present interrogations have established that this arrangement of aerials has no connection with the spot frequency of the SN 2. In many cases prisoners have known the differing aerial arrangements to exist in several aircraft all equipped with SN 2's of the same spot frequency.

65. These prisoners knew of three Streuwellen at present in operational use, namely 4, 5 and 6; in two units, 8/N.J.G.1

and IV/N.J.G.3 some of the aircraft carried No.6, and other prisoners stated that aircraft of their units were equipped with 4 or 5 or a mixture of both. In 5/N.J.G.3, for example, Streuwelle 5 had superseded 4, whilst 8/N.J.G.1 was equipped with a mixture of 4 and 6, the latter having been delivered in October.

66. It is worth noting that aircraft equipped with Streuwellen 5 or 6 are forbidden to fly over enemy territory unless the boxes have previously been removed; no such security measures, however, exist with Streuwelle 4.

67. One prisoner had heard that a JU.88 equipped with SN 2 and Flensburg had landed at an airfield in East Anglia last summer and that the British were therefore in possession of an SN 2. He naturally assumed that the latter apparatus was of Streuwelle 4. Upon being asked how it was known that a German night fighter had landed in England he replied that the information had been given by British prisoners in Germany.

68. Not one of the present P/W could supply the respective frequencies of Streuwellen 4, 5 and 6, but the radar servicing mechanic P/W, who had been with N.J.G.4 up to the end of October, was able to give a few details of 4 and 5; up the time when he left the unit he had not encountered No.6.

69. He was certain that the frequency of 5 was slightly higher than that of 4; No.5 has one more induction coil and has a range exceeding No.4 by 5 kilometres, being provided with an extra switch giving two range pictures, one at 5 km. and one at 10 km.

70. He and other prisoners stated that no matter which Streuwelle, 4, 5 or 6, is installed in an aircraft, the aerial array remains unchanged and in all cases the same CRT's and the same electrical length of connecting cables are employed.

71. The ground radar mechanic stated that outwardly there is little difference between the three Streuwellen, and to avoid confusion by the ground staff all boxes have the appropriate number painted on the back; the boxes of different Streuwellen are not interchangeable.

72. An example of the effects of jamming on the differing Streuwellen was given by one of the present prisoners. In May 1944 all aircraft of his unit were equipped with Streuwelle 4 with provision for the alternative frequency. In July 1944, however, Window jamming made the set useless.

73. In October 1944 Streuwelle 5 and then 6 were delivered, both with the alternative frequency; these, however, were

seriously jammed by the so-called Rauschsender (electrical jammer). It was found, however, that the remaining SN 2's of Streuwelle 4 were not so seriously upset by electrical jamming, and the result was that many crews asked for No.4 back again and their wish was granted.

74. According to the radar mechanic, the C.R.T's used in the SN 2 are manufactured by both Lorenz and Siemens Nürnberg; the latter are the more satisfactory in service.

75. One P/W had spent six months up to May 1944 installing SN 2's in Me.110's at Werl; he stated that installation work for Ju.88's was carried out at Gütersloh.

Serviceability of SN 2.

76. Considerable trouble in the servicing of the SN 2 was experienced in misty or wet weather; the chief source of trouble was rain water percolating into the pulse distributor at the base of the antennae and was the cause of squints and the blowing of valves.

77. In units recently examined, night flying tests are no longer made; in the experience of one P/W of II/N.J.G.1 some 30% of the SN 2's were found to be u/s if the unit had been stood down for more than three or four days.

78. Should radar equipment be found to be u/s after an aircraft has taken off on an operation, the order is that the sortie must be completed. This is a state of affairs which rattles the crews, particularly if the SN 2 is not working and they are robbed of backward cover.

SN 3.

79. As compared with prisoners captured up to the end of November 1944, the present P/W gave the impression that developments in the SN 3 have reached a further stage.

80. No prisoner has yet been encountered who has seen an SN 3, but several had heard some scraps of information. It was stated that the aerial array for this set is carried inside the aircraft, and that Major SCHMAUFER, Kommodore of N.J.G.4, is already flying an aircraft with this new search equipment.

81. There is no doubt that the Germans are in possession of details of British centimetre A.I. and it has recently been freely discussed by G.A.F. aircrew under the name "Grille" (= grid).

TAIL WARNING.

SN 2 Tail Warning.

82. The present P/W were able to add considerably to information obtained on night fighter tail warning equipment and set out in A.D.I.(K) 700, paras.13-16. The present interrogations, leave no doubt that the tail warners now extensively fitted to German night fighter aircraft are a part of the SN 2 equipment and that the picture appears on the SN 2 azimuth tube.

83. No height or bearing, but only a range reading can be obtained from the backward aerial; forward and backward displays do not appear simultaneously on the SN 2 tube, but the set is provided with a switch which can select one or the other. The method employed by the radar operator is therefore to search for contacts with the forward aerials whilst occasionally switching over to rearward aerial to see if an enemy night fighter is following.

84. A tail warning tactic recommended to crews of III/N.J.G.1 is one of not taking immediate action when a rearward contact is picked up, but of waiting until the range begins to close in. When this occurs, the pilot increases speed and if the blip closes in to 600 metres the pilot then takes evasive action.

85. In the above-mentioned unit evasive action has been ordered to take the form of a 180° hard turn to port or starboard. If the pursuing aircraft has been seen by the crew, the turn will be made according to its position; when the pursuer is to port, the pilot of the night fighter will turn in to port, or vice versa.

86. Previously, the tactics of the night fighter in those circumstances was to peel off towards the pursuing aircraft, but this resulted in losing 1500 to 2000 metres in height which took about ten minutes to regain.

87. The newer tactic described above was ordered in III/N.J.G.1 late in November to obviate this loss of height and time and in that unit at least, the tactic of peeling off is now forbidden except in extreme urgency.

88. A number of P/W knew the SN 2 tail warning as the D (or Dora) Zusatzgerät (= the Dora attachment).

Fu.Bl.2 as Warning Device.

89. Yet another piece of German Airborne radio equipment, the Fu.Bl.2 has been added to the list of sets that are capable of giving a warning of approach of an aircraft.

90. Three P/W had heard that if the Fu.Bl.2 is switched on, the red marker beacon warning lamp lights up when a radar-equipped aircraft is in the immediate vicinity.

Naxos as Tail Warning.

91. Crews of 8/N.J.G.2 had recently been told officially that Naxos is capable of acting as a warning of the presence of enemy A.I.–equipped aircraft. No such information had been given to any of the other units examined during the present interrogations, and none of the other prisoners knew that Naxos had such capabilities.

92. It was pointed out by the one P/W concerned that Naxos can do no more than give warning of A.I. radiation on a given bearing, and range of the source of the radiation cannot be measured; a bearing reading would, however, at least indicate the probability of an enemy night fighter in pursuit.

HOMING EQUIPMENT.

The Naxos as an A.I. Instrument.

93. Since the first mention of Naxos by a prisoner in July 1944 (A.D.I.(K) 407/1944) and in the subsequent fuller account of other aspects of Naxos and its tactical use (A.D.I.(K) 508 and 620/1944) it has frequently been reported how some night fighter pilots have claimed to have used Naxos as an A.I. instrument. There have been frequent claims usually by lecturers at Werneuchen, that night fighter crews have shot down four-engined bombers with their upward armament without having used SN 2 at any time during the pursuit, but no prisoner has been encountered with first-hand knowledge of this fact.

94. Amongst the present P/W was a crew of 4/N.J.G.2 who had six victories, each with the help of Naxos to a greater or lesser extent. On five occasions they had located the bomber stream with Naxos and had made the final approach with SN 2. On the sixth occasion, however, they had shot down a four-engined bomber with upward armament after an approach with the sole use of Naxos.

95. In an attack on Berlin in March or April 1944, this crew took off from Twente and flew towards the Baltic coast. At about 54° 30' N; 11° 30' E some eight H2S contacts were obtained from a height of 4,500 metres; one of these was

selected by manipulation of the Naxos brilliancy knob and followed to about 13° E and then southward over Berlin.

96. The contact was held and followed from Berlin towards Leipzig whilst the night fighter gradually approached its target by making contact with the edge of the H2S cone, throttling back to avoid penetrating too far and being detected, then climbing and again making contact with the cone in horizontal flight; a visual of the R.A.F. bomber was obtained near Frankfurt-am-Main when the night fighter was at a height of 7,800 metres.

97. The pilot closed in to make the attack but missed the bomber; after a second unsuccessful attempt, the rear gunner of the bomber fired a burst but missed. On the third attempt by the night fighter the bomber was hit and was claimed as a victory by this crew.

98. Early in October H2S contacts in the Naxos began to be fewer, and such contacts as were made invariably disappeared abruptly. The pilot who, incidentally, had a very high opinion of his own capabilities, put this down to his radar operator and blamed him for inefficiency; the result was that the crew was continually quarrelling and was engaged in heated argument when shot down.

The Naxos Aerial.

99. The radar mechanic had been with I/N.J.G.4 had attended a Naxos course at Werneuchen in May 1944 and subsequently had had some experience in servicing the apparatus. The interrogation of this P/W on the subject of Naxos was carried out with the co-operation A.I.2(g), with the result that he was able to add some useful details to the substance of A.I.2(g) Report No.1734.

100. In August 1944, Naxos began to be delivered to 1/N.J.G.4. The Naxos-equipped Ju.88's first delivered to the unit had the aerials installed on the after part of the fuselage, but in later deliveries, the plexiglass dome containing the aerials was fitted to the jettisonable hood of the cabin – a position known as "Ausführung A". It was feared, however, that the hood would be difficult to jettison and in some aircraft the original position of the aerials was again adopted.

101. When this P/W left I/N.J.G.4 in October 1944 the display unit in use was the Naxos-Post, but he did not know which type of aerial array was associated with this display, and he knew of no further designation of any part of the equipment.

102. When Naxos was first introduced to the unit, the aerials consisted of two plastic rods, of a material known as Trollitul, of square cross-section with rounded ends and measuring some 40 cm. in length and 5/6 cm in thickness. This type of rod was, however later superseded by one of circular cross-section with a diameter of 3-4 cm. and of the same length.

103. These aerials were fixed parallel to one another and about 3 - 4 cm, apart, being held in position at their central points by a bakelite clamp made in two halves. Rotation of the aerials was in a clockwise direction about an axis which was vertical when the aircraft was in flying position, the aerials cleared the aircraft skin by about 5 cm. Speed of rotation was estimated by P/W at about 3000 r.p.m.

104. The aerials were mounted on a vertical axle running in a ball Bearing flush with the aircraft skin and driven directly from an electric motor which P/W recognised as being similar to that illustrated in A.I.2(g)1734.

105. A copper lead came away from each plastic aerial rod and joined the axle on which the aerial rotated; between the ball bearing and the electric motor, a right-angle plug led the signals received by aerial out of the axle and through a length of single 1 mm. copper high tension wire to the Abgleichkasten (cable matching box). P/W had also heard the term "Hochpass Einrichtung" in connection with this box.

106. The cable matching box was shaped in cross-section like a half ellipse and measured about 25 x 8 x 8 cm. The screws securing the lids were sealed, and if any fault developed, the box had to be sent away to the Gruppe repair and servicing depot; the Staffel servicing staff were forbidden to break the seals.

107. This P/W had seen a box open at the Gruppe at the servicing depot and remembered that it contained a special type of coil and detector of a type similar to that shown in the A.I.2(g) Report. He was under the impression that there were six such detectors.

Daily Inspection of Naxos.

108. The daily inspection of Naxos consisted of running up the aerial array on ground batteries and using an ordinary buzzer working from a torch battery as the transmitter. The oblong box containing the buzzer had to be held so that one of its ends, called the Strahlenseite (radiating end) pointed towards the aerial and was in their plane of rotation. A

lightening of the appropriate part of the Naxos trace showed that Naxos was in order.

AIRBORNE PLOTTING TABLE.

109. In the autumn of 1942 one at the present P/W had taken part in some flying trials of a television device which was being tried out at Werneuchen. For the purpose of the trials a television receiver which was to repeat an 18 cm. square picture of the Seeburg Tisch of a night fighter box, was installed in a He.111.

110. In the trials reception was remarkably good and a clear definition was obtained, the two spots of light representing the friendly and enemy aircraft could be seen, but the only means of distinguishing between the two was by the insertion of a cardboard arrow on the Seeburg Tisch. In a similar way cards bearing written vector instructions were placed on the plotting table in view of the camera.

111. At that time the Germans were experiencing no difficulties with box-control of night fighters and since continual troubles were experienced with the television transmitter the trials were discontinued toward the end of 1942.

GERMAN H2S - THE BERLIN GERÄT.

112. The same prisoner had heard of a German version of the H2S called "Berlin" which he understood, was an improvement on the British apparatus.

GERMAN KNOWLEDGE OF 100 GROUP R.A.F.

Activities.

113. In lectures on night fighting given to 8/N.J.G.1, 7/N.J.G.2 and 9/N.J.G.3 in October and November 1944, crews had been given some details of the activities by 100 Group R.A.F. which gave them the impression that the German Higher Command has the greatest respect for the efficiency of those responsible for planning that unit's activities. Some details of these lecturers which prisoners from the above units could remember show that the Germans are now accumulating considerable knowledge of the equipment and tactics of 100 Group.

114. At recent briefings to 8/N.J.G.1 great importance had been attached to the part played by 100 Group, and the many occasions when warning of an impending attack had been given and the aircraft had been airborne only to find the advertised

raid melt away, were now ascribed to the wizardry of that same unit.

115. It was stated that the Group is equipped with Mosquitoes and Lancasters - amongst whose crews were some expert bombers - and that both these aircraft types carry the jamming equipment which together with ground jammers upset the commentaries and the SN 2. Long range intruders were also ascribed to the same unit.

116. In a lecture on 100 Group given to 7/N.J.G.2 early in November 1944, crews were told of so-called 'D' aircraft which has the duty of putting out spoof R/T and W/T instructions to German night fighters; one instance was related in which a whole night fighter Gruppe had returned to base as a result of spoof orders by one of these D aircraft. The W/T operators at the 1ecture were advised that if they paid sharp attention to their R/T and W/T signals they would be able to distinguish between the false and genuine instructions.

117. It is now widely known by G.A.F. night fighter aircrew that Mosquitos are equipped with a search equipment, the Grille (= grid), that has a range of 15 kilometres (about 10 miles) and is said to work on a frequency of 3 cm. An interesting extra piece of information given in these lectures was that Grille was capable of homing on SN 2 transmissions, a point that was noted by crews with some consternation.

A.D.I.(K) and
U.S. Air Interrogation.
27th January 1945

S.D. Felkin
Wing Commander