

The Monitoring Mast of the WWII German W/T Station Be-2

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Abstract

A first visit on the site of the WWII German W/T station at Mont Saint-Michel de Brasparts (Brittany-FR), cover name Be-2, indicated sometime as either B 2 or B2, on 21st December 2009 allowed the identification of many components and to evaluate their preservation state. The secret Interpretation Report NO. G.590 of the No. 80 Wing RAF of 6th October 1942, dedicated to Be-2, mentioned a cable trench and a short mast may be for calibration purposes, not identified during the first visit, motivated the further visits on 13th - 14th May 2017 for searching their possible vestiges. This article presents the vestiges discovered, the feature of the mast and the reconstruction of Be-2.

Keywords

Atlantic Wall, France, Finistère, Saint-Michel, Brasparts, *Luftwaffe*, *FuSan* 724/725, Be-2, *Bernard*, Calibration, Monitoring Mast

1. Introduction

The WWII German W/T (Wireless/Transmission) station Be-2, indicated sometime as either B 2 or B2, at Mont Saint-Michel de Brasparts (Finistère-FR), was provided with an antenna *Telefunken FuSan* 724/725 *Bernard* for driving *Luftwaffe* bombardiers on their targets on Great Britain. The interest for this sophisticated and technologically advanced W/T station motivated a first visit for identifying the Be-2 surviving components and determining their preservation state.

2. First Be-2 Visit

The first visit of the Be-2 site (**Figure 1**) took place on 21st December 2009, following a suggestion of prof. Mevel of the Rennes University after a visit of the WWII German radar camp of Monterfil (Dupont et al., 2007), and permitted to identify the following Be-2 components (Tomezzoli & Dupont, 2011).

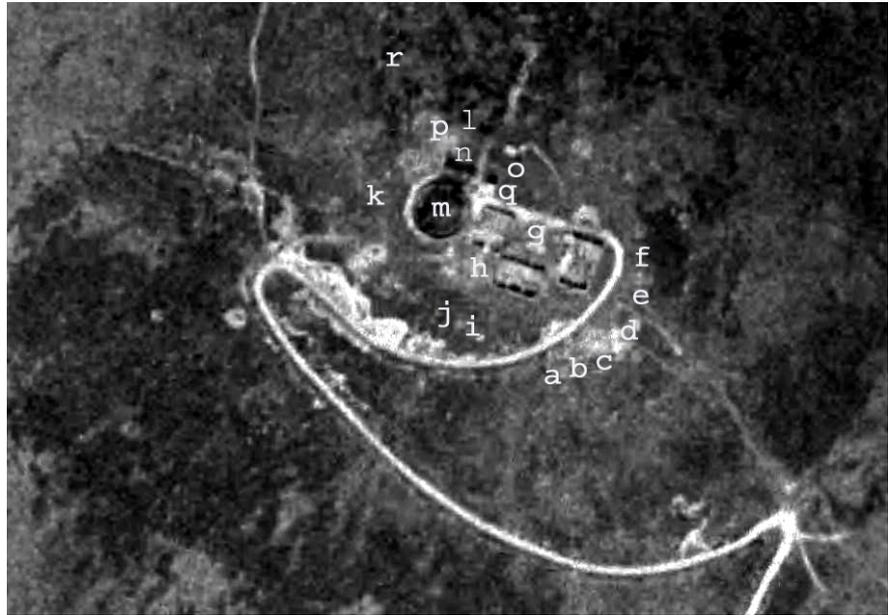


Figure 1. Be-2 site: (a) Concrete niches; (b) Emplacement for machine or *Flak* guns; (c) Possible stone bunker; (d) Emplacement for machine or *Flak* guns; (e) Emplacement for machine or *Flak* guns; (f) Emplacement for machine or *Flak* guns; (g) Barrack emplacement; (h) Cisterns; (i) Bunker; (j) Trench; (k) Bunker; (l) Two antenna cable anchorages; (m) *FuSan* 724/725 circular support; (n) 17th century Saint Michel chapel; (o) Ruins of a small construction; (p) Two antenna supports; (q) Transformer cabin; (r) Possible *Flak* emplacement.

Two well preserved concrete niches (a), about $1.5 \times 1.0 \times 0.6$ m, one above the other on a side of the mount for storing ammunitions and/or materials for the nearby machine or *Flak* guns. On their vertical sides the joints for two closing wood doors were still visible.

A ground emplacement (b) in the terrain, probably for machine or *Flak* guns. Built by local stones, it was in a degraded preservation state and completely invaded by the vegetation.

A possible 5×3 m stone bunker (c), near the ground emplacement. Built by local stones, it was in a degraded preservation state. It cannot be excluded that originally it was an old country construction probably reused during the WWII as guardhouse or commandment place for the nearby machine or *Flak* guns.

A 2×2 m emplacement (d) for machine or *Flak* guns. Built by local stones it was in a degraded preservation state and completely invaded by the vegetation.

Two emplacement (e)-(f) for machine or *Flak* guns. Excavated directly in the terrain, they were in a degraded preservation state.

A barrack emplacement (g) for three barracks. The barracks were gone and only their traces and their concrete foundations were visible on the terrain.

Two well preserved 3×2 m open cisterns (h).

A possible bunker (i) buried in the terrain, having four 60×30 cm rectangular apertures on one side of its well preserved coverage, in correspondence with an aperture on one of its side walls. Probably it hosted an emergency electrical ge-

nerator and the apertures ensured its cooling. According to another interpretation (Tomezzoli & Dupont, 2011), it was the basis of a disappeared latrine barrack.

A degraded trench (j) still visible on the terrain, connecting the bunkers (i) and (k).

A bunker (k) ($48^{\circ}21'00\text{N}$, $003^{\circ}56'41\text{W}$) about 9×4 m, buried in the terrain. The descending entrance, oriented toward the *FuSan* 724/725, was filled by terrain; therefore the inspection of the interior was not possible. It was probably a protection bunker for the personnel or for Be-2 instrumentation in case of attack.

Two antenna cable anchorage supports (l) at their places on the terrain.

The *FuSan* 724/725 support (m) formed by a concrete, circular ring about 20 m in diameter and 1.5 m in width, with a circular, concrete construction about 4 m in diameter at its centre, slightly emerging from the terrain. The internal room of the construction was completely filled by terrain; therefore the inspection of the interior was not possible. The circular rail on the ring for the rotation of the *FuSan* 724/725 disappeared and only its fixation joints emerged from a light concrete layer covering the ring.

The well preserved 17th cen. Saint Michel chapel (n) having a short bell tower superimposed on its front facade. One of its doors was open, but surprisingly its interior was not vandalized or disfigured by modern graffiti. The chapel and its bell tower evidently have not interfered with the *FuSan* 724/725 radio emissions.

The ruins of a small construction (o), still intact in the year 1991, probably hosting a transmission centre.

Two antenna supports (p) at their places on the terrain.

A possible emplacement (r) for a *Flak* gun, excavated on a mount side.

At that time, the vestiges of the transformer cabin (q) (Figure 1) were not recognized and because of the lack of information, the vestiges of the cable trench (b) and the monitoring mast (d) (Figure 2) were not searched at all.



Figure 2. Be-2 site—(a) Mont Saint-Michel de Brasparts; (b) Cable trench; (c) Stone straight alignment; (d) Monitoring mast concrete support.

C3639-0431_1948_MISSIONBETAGNE9_0168, n° 168, Argentiqne, 16/04/1948.

3. Interpretation Report NO. G.590

The secret Interpretation Report NO. G.590 of the No. 80 Wing RAF of 6th October 1942 (Dörenberg, 2019b) based on photographs taken on 24th September 1942 during the Sortie Q/21, at the Contact Scale: 1:30,000 (F.L.12”), in the Locality: Morlaix, described a W/T station on the Mount St. Michel de Brasparts in the following terms:

1) Map Reference: (a) pinpoint: 48°21'03"N. 3°56'46"W.

2) Position: On the summit of Mt. St. Michel, of the Montagne D’Arret, 1282 ft. a.s.l.

3) Description:

a) the installation consists of a low circular wall, about 98 ft. external diam., 4 ft. thick upon which was mounted diametrically a framework superstructure similar in appearance to the one at the W/T station at le Bois Julien, near Devsres. The two principal points of similarity are the heavy appearance of the superstructure, and the fact that it does not extend at either end beyond the circle.

b) The superstructure is presumably rotatable, as what appears to be trolley wheels visible at each end of it.

c) From the site a cable trench leads off on a bearing of 284°, for a distance of about 950 ft., terminating at a short mast, also in common with le Bois Julien, which may be for calibration purposes.

d) The installation appears to be still under construction and operating quarters, etc. have either not yet been constructed or may be underground and possibly covered with camouflage.

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The operating quarters mentioned in the rapport are visible in an after war French air reconnaissance image of Be-2 (Figure 1) and correspond to the components (a)-(r) identified in the first visit.

The mention of a cable trench and a calibration mast (Figure 2) not identified during the first Be-2 visit motivated the further visits on the Be-2 site.

4. Second Be-2 Visit

The second Be-2 visit, in the light of the Interpretation Report NO. G.590 information, took place on 13th May 2017. The weather initially rainy and windy permitted to ascertain that the Be-2 components (a)-(p), (r) remained in the preservation state evaluated in the first visit. But the following storm did not permitted the identification of cable trench vestiges and consequently to arrive to possible mast vestiges (Figure 2).

5. Third Be-2 Visit

The third Be-2 visit took place on 14th May 2017 with good weather. It was possible to recognize on the terrain the traces of the foundations of the transformer cabin (q) close to the chapel (n) and to ascertain that the cable trench (b)

(Figure 2) was no longer identifiable.

To arrive to the mast vestiges (d), I followed a stone straight alignment (c) visible on the terrain, which passed in proximity of their position (Figure 2 & Figure 3). The stones were posed directly on the terrain with no trace of excavation. Search for possible rests of cables or other military devices between or under the stones gave no result.

The mast concrete support ($48^{\circ}21'7.86''\text{N}$, $3^{\circ}57'28.14''\text{W}$) (Figure 4) was at about 915 m from the chapel along the stones straight alignment, displaced about 43 m south from it. The support was formed by a square concrete foundation about 3×3 meters just emerging from the terrain and a square mast metallic fixing frame. A thick concrete layer covered the foundation surface and the fixing frame. A failure on two sides of the concrete layer let visible part of the fixing frame. Originally, it was formed by four 2 m long, 20 cm high, L-shaped riveted metal beams fixed by bolts to the foundation. Only two beams were actually in place on the foundation, buried in the concrete layer. Three mast leg rests were in place on the fixing frame and emerged from the concrete layer. Two leg rests, along a fixing frame diagonal, appeared sawn. In particular, one of them (Figure 4(e) & Figure 4(f)), free from the concrete layer, showed the rivets securing it to the fixing frame near a bolt securing the fixing frame to the foundation. The third leg rest (Figure 4(a)), at a corner of the fixing structure, appeared not only sawn, but also broken along a vertical line and curved toward the exterior of the foundation. The pebbles of the EroVili (Tomezzoli & Marzin, 2015) mixed to the foundation concrete and the concrete layer were clearly visible.

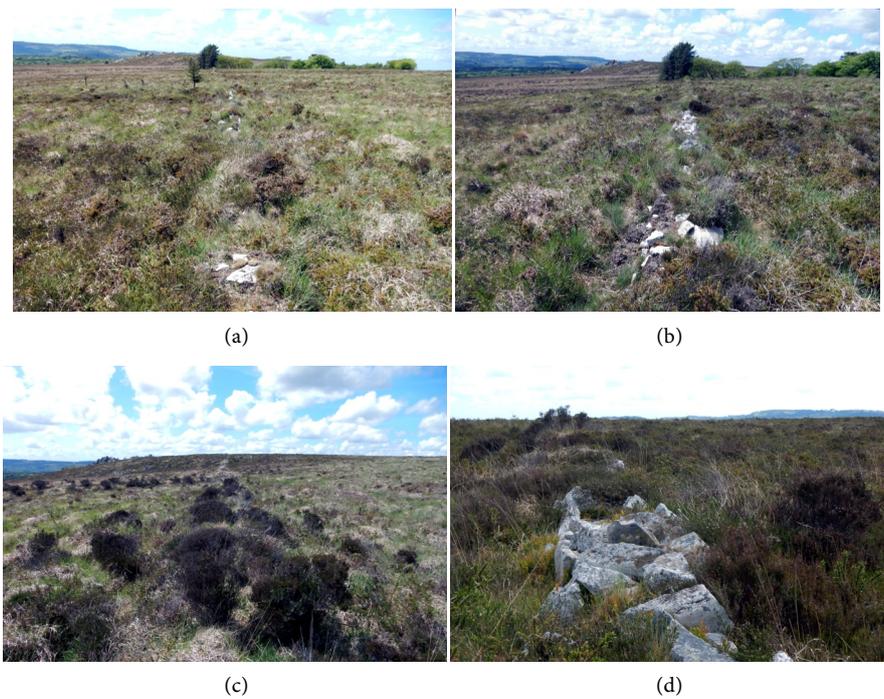


Figure 3. Third Be-2 visit—(a)-(d) stone straight alignment.



Figure 4. Mast vestiges—(a) Mast support, north vision; (b) Mast support, east vision, on the background the 17th cen. Saint Michel chapel (n) on Mont Saint Michel de Brasparts; (c) Mast support, south vision, on the background group of basaltic blocks emerging from the terrain; (d) Mast support, west vision; (e) Mast fixing structure, thick concrete layer with EroVili pebbles; (f) Mast fixing structure, rivets and fixing bolt.

6. Discussion

The secret Interpretation Report NO. G.590 informs that on 6th October 1942, i.e. well after the conclusion of the Battle of Britain, Be-2 was under construction, but the cable trench and the mast were already in place.

The mast was about 921 meters distant from the centre of the Be-2 ring, i.e. not about 950 ft. (289.5 m) from the site as written in the Report. The mast distance is the longest compared to those of the other W/T German Be stations. The mast distance was selected for avoiding radio interferences from other Be-2 devices, allowing measuring the *FuSan* 724/725 radiation pattern cleanly and avoiding saturation of the mast receiver (Dörenberg, 2019a). The cable trench

disappeared either because both it was covered by terrain and vegetation, in which case the cable, probably an Erdkabel RLM with external insulation and four conductors (Dörenberg, 2019a), would be still in place, or was filled up by terrain after the cable removal.

The fixing portion beams and the sawn legs indicate that the mast was a metal, square and four legs truss mast. Thus, it was similar at least to the masts of Be-0 at Trebbing/Glau (Germany), Be-3 at Le-Bois-Julien (France), Be-10 at Hundborg (Denmark) and Be-11 at Trzebnica (Poland), this last preserving (2014) (Dörenberg, 2019a) the mast still in place. The mast was therefore 20 m high (Dörenberg, 2019a) and manufactured according to a common, normalized project, by the same company *Hein, Lehman & Co* which manufactured the other masts and, under *Telefunken* licence, the antennae *FuSan 724/725* (Dörenberg, 2019a).

The mast therefore comprised a lightning protection, a remote, tunable diode receiver near the base and a vertical 2.6 meters high antenna on the top (Dörenberg, 2019a). The *FuSan 724/725* was thus calibrated by emitting its signals toward the mast antenna from where the signals collected by the receiver, through the trench cable, reached the concrete construction of the *FuSan 724/725* support (m) where they were analysed for deducting and eventually correcting the features of the emitted signals. The mast also monitored (Dörenberg, 2019a) the *FuSan 724/725* emitted signals during its normal functioning.

The concrete foundation was similar in dimensions to the foundations of Be-0, Be-9, Be-10, Be-11 and Be-13 at Buke (Germany), but it was the only one in which the foundation surface and the mast fixing structure were covered by a concrete layer. The purpose of this layer was to insulate the mast fixing structure from corrosion due to the weather. Differences in the construction technics indicate that the foundations were manufactured by local companies or artisans under the supervision of personnel of the *Organization Todt*.

The failure of the concrete layer on two sides, the absence of the corresponding two fixing frame beams and the third mast leg rest sawn but also broken and curved toward the exterior of the foundation, indicate that during the mast removal, at least three legs were sawn and the mast fall in the direction of the third leg. The fall of the mast on the terrain broken and curved the third leg rest. During the fall, the fourth leg tore up the two missing fixing frame beams which caused the observed failure of the thick concrete layer. The mast, and may be the cable, was removed between the 1946, when the antenna *FuSan 724/725* was sold for demolition, and the 16th April 1948 date to which it is no longer visible in the air reconnaissance image C3639-0431_1948_MISSIONBETAGNE9_0168 (Figure 2).

The transformer cabin (q) was a classical transformer cabin connected to the local/regional electrical system (Dörenberg, 2019a). It was completely demolished after the WWII because un-useful after the *FuSan 724/725* removal and anti-aesthetically close to the chapel (n).

The absence of rests of cables or other military devices along the stone straight alignment indicates that it was simply a stone border between two adjacent pri-

vate estates.

The now available information permits to reconstruct Be-2 as it was during the WWII and as seen by the personnel in service (Figures 5-7).

7. Conclusion

The information in the secret Interpretation Report NO. G.590 allowed the

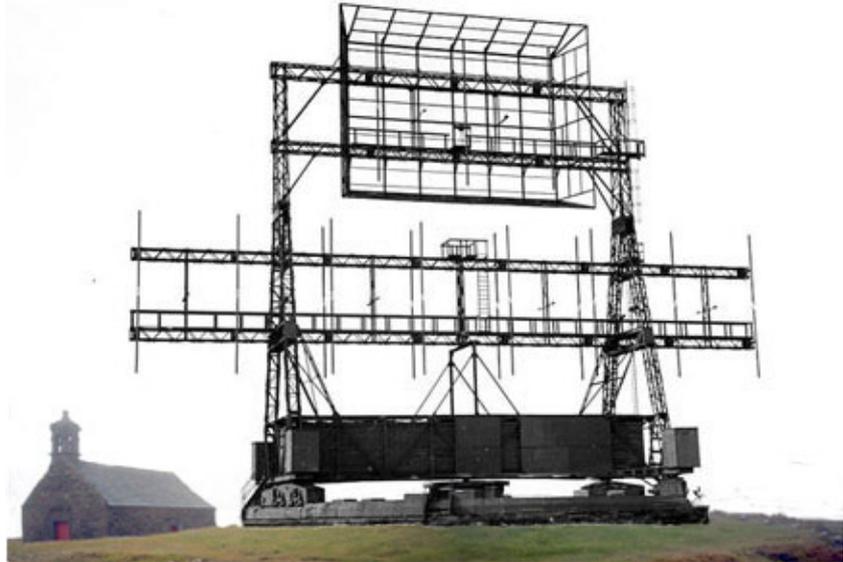


Figure 5. Be-2 reconstruction—*FuSan* 724/725 during normal functioning, on the left the 17th cen. chapel (n) on the top of Mount Saint Michel de Brasparts.



Figure 6. Be-2 reconstruction—*FuSan* 724/725 during calibration, seen from the base of the monitoring mast.



Figure 7. Be-2 reconstruction—monitoring mast seen from the base of the *FuSan* 724/725.

identification of Be-2 components not identified in the first Be-2 site visit, to clarify details of the *FuSan 724/725* calibration and monitoring and to proceed to the Be-2 reconstruction at more than seventy years after the WWII end. I hope that this article would stimulate the interest of archaeologists, scholars and a large public for the German sophisticated and technologically advanced structures mixed with the defence structures of the Atlantic Wall.

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Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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