**Sir Arthur "Bill" Bonsall**

*Bletchley Park January 1940 - 1945. Air Section, Head of Fighter, later German, Sub-sections. Originator of BMP[1] reports. Interviewed April 2013.*

I might start by saying something about the Air Ministry's role, because, in a way, it was very obstructive throughout the war.

They had begun quite well in setting up pre-war interception arrangements for dealing with German Air Force operational communications. What they were interested in was the communications between controlling ground stations and various types of aircraft, on the one hand bombers using wireless telegraphy (W/T), and on the other fighters, using radio telephony (R/T).

The Air Section itself was under dual control of Government Code and Cypher School (GC&CS) and AI 4 at the Air Ministry, and it wasn't a very happy arrangement. On the surface, the Ministry was responsible for providing the resources and manpower for the Section and for controlling its outside contacts. They didn't have any say over the details of the work that we were doing; that was the role of GC&CS.

The Ministry had made a good start in arranging for the interception of wireless telegraphy, which was used by bombers, reconnaissance aircraft and minelayers. These aircraft tended to feature more prominently in the first part of the war, when the German Air Force was on the offensive. In the second half of the war, the defensive side of the German Air Force was much more prominent; Bomber Command and the American Air Force had begun their operations.

The Air Ministry had very fixed ideas. They hadn't any experience, because they hadn't even existed in World War I, so they relied on policies; they had decided on what should be done and what shouldn't be done. One of the things they had decided was that R/T, the voice traffic used by German fighters, was supposedly in plain language, therefore was nothing to do with GC&CS. To begin with, it wasn't even provided to us from the Air Ministry stations which were intercepting it from 1940 onwards.

Cheadle was the main RAF station taking the bomber W/T traffic and did very well during the Battle of Britain. Cheadle was able to determine where the raids were coming from, and give early warning

[1] Air Section reports on German Air Force defensive activity, originated by Bonsall, Millward and Prior.



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that they were on their way. Cheadle also, of course, got occasional warnings from the Enigma side of Bletchley, saying that there was planned to be a raid on such and such a place on a certain date, but that really was of no value to the RAF, because one didn't know if the raids were actually going to happen or not until the day, and very often they were cancelled for weather or other reasons. Fighter Command didn't put any aircraft into the air until they got information from Cheadle that an operation was imminent. So that was an important distinction between what were known as low grade codes and source, and the high grade source from Enigma.

Cheadle not only managed to give warnings of impending raids, but they could also indicate in which general area of the British Isles they were due, because the Germans used radio beacons to navigate with in the early days. They had lots of these, which Cheadle could intercept, and judge whether the raid was going to be down in the South West, or the London area, or the eastern counties.

The other source of information at the time was during the Battle of Britain when signals intelligence (SIGINT) came into its own, in a way. A group of stations had been set up, jointly by the Air Ministry and the Admiralty, along the east and south coasts of Britain. The idea of these, in the Air Ministry's mind, was a preparation against invasion; they expected there to be an invasion eventually.

These stations were equipped with VHF receivers, as this was the type of radio expected to be used by aircraft when they were attacking and also by small naval units. The job of these small stations was to report anything they heard to the nearest Air or Naval command. In practice, it was found that they needed to be controlled from a central point, operating entirely individually wasn't successful. Kingsdown became the co-ordinating point for these "Home Defence Units" as they were called.

They did extremely well during the war and they supplemented various failings of the radar chain. Those tend not to be mentioned too much in various histories, but radar couldn't see aircraft taking off as its range wasn't enough. Until German aircraft had reached quite a height, they just weren't observable by the radar chain. Kingsdown and its stations could tell that formations were preparing to take off – they could hear them tuning up their sets before they even took off – so that Fighter Command and its Groups got very early warning from R/T intercepted by the Kingsdown group of stations. And radar couldn't tell at what height aircraft were coming, or what sort of aircraft they were. Both of those could be answered by the R/T traffic because the orders

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intercepted were to fly at a certain height, in a certain direction and so on.

The Home Defence Units reported to their local Fighter Command group and to the central point, Kingsdown. Kingsdown reported to 11 Group, particularly, and 10 Group to some extent, and to Fighter Command. Groups and Commands would know within minutes what was going on.

Kingsdown therefore really can be credited with essential support to Fighter Command during the Battle of Britain.

On the other hand, although this R/T traffic was classed as plain language, and it was just pilots talking into microphones, in fact the Germans took the idea of radio security very seriously, and they had equipped their aircraft with code words and maps with encoded grids on them. The Kingsdown group weren't really able to interpret those and in a sense of desperation, because it was against their principles, the Air Ministry suddenly decided that GC&CS should receive all this traffic and we were asked to assist Kingsdown by solving the map grids and interpreting the code words.

The linguists, just two or three to begin with, and gradually increasing in number, made a very good job of providing this support; they really tackled the traffic. And in the process of solving these little puzzles, we began to find that we had a much better understanding of what had actually happened during these raids where our fighters were involved, than had been produced at the time by the Kingsdown group. They had reported their results to the RAF within seconds, but their attempt to create a picture inevitably couldn't be thorough because they had to move on all the time; their job was to keep up to date with the activity.

We were suddenly landed with sacks full of old R/T traffic and we learned how to understand it and then we moved on to dealing with the current traffic as it came in day by day. We learned how to interpret this material and produce a picture, really a fairly detailed picture, of what had actually happened. And we suggested to the Air Ministry that this extra information that we had created would be of interest to RAF Commands and Groups. But the Air Ministry's theory was that it wasn't our job to interpret this stuff, so they said no, and they maintained this view for almost half the war, that it wasn't our job to produce information. We weren't even allowed to send it to the Kingsdown station itself, to help them. It was extraordinary the Air Ministry should do this and they were responsible for, no-one will ever know how many, losses of aircraft and crew as a result of that policy.

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In the end, the Air Ministry agreed that these reports should be distributed to the RAF. By that time the Americans had arrived with their aircraft and they had no tactical SIGINT support of their own in the European Theatre. They relied entirely on Cheadle, Kingsdown and the Air Section at Bletchley for their SIGINT support. And they were very keen, they became our best customers and I think the Air Ministry gave in at that point and allowed us to report. But they didn't allow us at first to have any direct contact with the RAF people in the Commands who were receiving these reports for the first time, and we didn't know whether what we were providing was in the sort of detail they wanted or anything like that. We just sent off these reports and never heard anything more about them. And it took them half a year to agree that we could get in touch with our customers and find out from them what they wanted. Again, I think the American influence was there, because they insisted on having dealings with us right from the start, in fact they were almost a nuisance in a way, because they used to ring up every day, and they wanted to hear as well as get a piece of paper from us on what had happened on a previous operation. They wanted to hear it from the analyst who had worked the picture out. And that was time-consuming; we wanted to get on with the next job.

What I think is remarkable, is that this source of R/T was never complete, it was never possible to intercept all of it, therefore you started off with a partial source. You had to guess what it meant, based on experience, and that obviously could be wrong. So here was a source that was never perfect, on the other hand, experience proved that it was mostly right.

The Americans, in particular, wanted to make full use of this ability at Bletchley. They began to establish air superiority over the Germans with long range fighters, which could fight battles with the German Air Force even in Germany, and these were superior fighter aircraft to what the Germans could produce, the Me 109s and so forth. The Americans desired Bletchley Park German Air Section actually to design raids by their fighters; they wanted us to plan operations.

I was never too happy with that, because it was a heavy responsibility. On the other hand, there is a record of a meeting in London with the Air Ministry present, and the American Air Force and the Bletchley Air Section people, at which it was agreed that we would do this. Well, we limited it; we never tried to do absolutely full detail of a raid, but we used to give ideas to the Americans, how to use the fighters to best advantage. At the end of the war, the analysts who developed this ability were having to produce a report, against the clock almost daily, whenever there was a major operation overnight. They were

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producing a report with diagrams in time for the early morning meeting at Bomber Command, with Bomber Harris present, which was sent by special RAF messengers. Our reports contained diagrams, such as curving arrows showing the course of German and RAF formations which could not be teleprinted in those days, so we had to send them by despatch rider.

It was mostly young women who were doing this; some of them in the WAAF and some civilians, and the RAF were always rather slow to use this type of report. Bomber Harris didn't think much of intelligence; he'd had some early experiences in the war, and before, where he was asked if he would be interested in Intelligence and was shown some samples of work from MI 6, and it was absolute rubbish and I think that rather influenced him. Inevitably, as he was such an influence and a wonderful leader of the whole Command, his idea of being not too keen on Intelligence permeated the whole organisation. There was one exception on the RAF side, 100 Group, the people who were responsible for counter-measures, were very much the same sort of people as these young men and women in the Air Section and they got on very well together. But the formal Intelligence side of Bomber Command was always slightly less than keen on our stuff.

The Americans, on the other hand really were so keen and we ended up regarding them as our best customers.

When these daily deliveries of sacks of R/T messages from Home Defence Units started, Josh Cooper, who was head of the Air Section as a whole, involved me in it because I was then in charge of what was then called the Small Cipher Section. I dealt with map grids and various odd sorts of codes. And I remember him saying to me, "Help them as much as you can", "them" being these young linguists, just a handful of them to begin with. Well, I never received any other indication from Josh Cooper that I had any responsibility for this work; just that I should help them. In fact it was almost the end of the war before I was appointed Head of the German Air Section.

Meanwhile, helping them meant making sure they had the information we were receiving, the intercepted material and all the rest of it. Part of my job was to make sure they understood this, the way in which the various sorts of low grade codes that were going around could be of help. For example, one of the things we were getting was a broadcast by the German Air Force, from their reporting system. It used to broadcast the routes taken by enemy (i.e. RAF and USAAF) aircraft and that clearly tied up with the radio-telephony of the aircraft involved in opposing the raids that were coming along. And I acted as a sort of

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ideas man in a way. I made sure they got all the information they could get.

One way or another, I was supporting these people; I wasn't in charge of them, absolutely no admin responsibilities. People had to go on leave, I didn't have to handle that, who was on leave and that sort of thing, never had to bother. I never knew whether Josh Cooper realised what the situation was. He must have forgotten that he hadn't asked me in any way to be responsible for them. But, nevertheless, an occasion did arise when one of the BMP reports that we were producing was a dud one; various people had been on leave and the substitute hadn't written it very well, and a reprimand had to be issued. And he asked me to reprimand this person. Well, that's part of a Head of Section job. However, Josh may have thought he'd asked me, but he hadn't told anybody else. He certainly hadn't told me.

So I was very much in the background. I knew all about it. I could advise them on what to do and how to do it.

Incidentally, it was the policy of the Air Ministry not to provide other source information to the Air Section because, they said, it would influence our results. Josh Cooper, who had to deal with them, said his staff knew about intellectual honesty, so they wouldn't be influenced unduly by this. So we never got any supporting information from the body in the Air Ministry responsible for us. On the other hand, we did get information from other parts of the Air Ministry which didn't come under them. It was just this body of RAF people in AI 4 who had all these theories about who should do what, and how, which didn't help us at all.

One of the things I was particularly interested in was the codes which reported the conditions at airfields used by the German Air Force, including weather. They used to report on the availability of all their airfields in Western Europe for the benefit of any German aircraft that might need to land and had to choose an airfield that hadn't got bad weather. This was a broadcast involving a low grade code and, tied up with R/T and other information, it would show which airfields were perhaps not suitable for providing aircraft for a fighter operation.

For another example, looking at the interception source, I began to realise, actually I think I was a bit slow to realise about it but I did in the end, that the sort of traffic that we had been intercepting from the German fighters from the beginning of the war was on High Frequency (HF) - short wave. The Germans had begun to replace their HF equipment with Very High Frequency (VHF) equipment. They started



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with their most northerly based fighters in Germany and Norway, and they were obviously intending to introduce this for the whole of their fighter organisation.

Everybody knew that VHF was a very good way of controlling short range fighters, but it wasn't very good for someone trying to hear them, it wasn't supposed to be. VHF was much more difficult to intercept from ground stations, and there was a danger we would lose most of our traffic. The Air Ministry did their best; they did very well on the Signals side of this. They equipped their stations very rapidly with VHF sets, but it was a threat to the source.

I had the idea that we ought to intercept this traffic from aircraft of our own. So I wrote a little note on this to the Head of the Air Section and he sent it on to the Air Ministry. The Air Ministry adopted this as an idea. The Americans adopted it, also, to an immense extent, they really did a wonderful job in developing their airborne interception capability and by the end of the war, every major 8th Air Force bomber raid carried German-speaking radio operators, who not only recorded the raw material for Intelligence study, but they were able to warn their formation commander "Germans are approaching from such-and-such a direction" or "some are landing at some other place". They were exploiting it. It was a wonderful development of airborne interception.

My only role in that was that I happened to notice this was the threat. I didn't have to do anything about it. I mean, I never had any idea how one would set about intercepting, what sort of aircraft you would have to use for this. That was an Air Force job, and they did it. But the American Air Force did it in dozens, not ones; they really were remarkably good following up. So that's, I was in the background. I wasn't a front performer for this outfit.

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