



# *Air Intelligence Symposium*

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**Royal Air Force Historical Society**

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# *1. Welcome by the Commandant*

## *AVM M Van der Veen MA CEng FIEE*

Sir Michael Beetham, Air Chief Marshals, Distinguished Guests, Ladies and Gentlemen, I am very pleased to welcome so many members of the RAF Historical Society to Bracknell once more. As a founder member of the Society myself, I am delighted to see how the Society has flourished under the guiding hand of Air Marshal Sir Freddie Sowrey and the benevolent and omnipresent influence of Marshal of the Royal Air Force Sir Michael Beetham. Although I was, unfortunately, unable to attend the previous symposia at Bracknell, I have avidly read the Proceedings – and it is clear that they have all been exceptionally successful. And it is, of course, for this reason in part that previous Commandants have seen great value in incorporating the symposia into the Advanced Staff Course curriculum.

But it is also because Commandants have long recognised that there is some truth in the Head of the Historical Branch's complaint that RAF officers do not know their Arras from their Elbe. At the Staff College at least we have long tried to do something about that! Indeed no ex-Director of Defence Studies for the RAF would ever question the thesis that the study of history can provide useful pointers to the future. Air Intelligence is no exception to this, and I was delighted to discover – when I arrived here – that this was the subject of today's presentations and discussion.

It is of course a great shame that two of our would-be presenters cannot be with us today – Mr Edward Thomas, most unfortunately, because he died in January, and Professor R V Jones because he is in the United States to witness the award of a CIA medal, named in his honour. I met him when I was DDefS here in the mid-1980s, and he kindly consented to sit for a video interview for the Staff College archives. His was a fascinating story, and for those who wish to see what he had to say to me, the video tape is in the Library.

Again, let me say how very pleased I am to see such tremendous support for this symposium. We are very grateful to the various speakers who have come to Bracknell – some from quite some distance. We are also delighted to see so many retired air force officers here today – all good friends of the College, and a number of ex-Commandants. But, Ladies and Gentlemen of the RAF Historical Society, this is essentially your symposium, and I shall now give way to Sir Freddie who wishes to say a few things about Edward Thomas before Air Chief Marshal Sir Michael Armitage takes over as Chairman for the day.

## *2. Air Marshal Sir Frederick Sowrey*

The late Edward Thomas was described by *The Times* as a renaissance man. He had the enquiring mind and curiosity so essential to any intelligence operator. The nephew of Edward Thomas, the First World War poet, who was killed in that war, he won his DSC at sea in the pursuit and sinking of the *Scharnhorst*. A sensitive man, he described the most awe-inspiring sight he had ever seen as that of the *Scharnhorst* lying on its beam ends in the dark of an Arctic night. He was a musician, fluent in Icelandic and German, a gardener, and a man of feeling. He did much to support our Society. He is probably the only intelligence man to have had a plant named after him from the Malaysian jungle when he was out in Singapore. He was good company to be with at any time. He did us proud. We shall miss his presence today.

It now gives me great pleasure to hand over to Sir Michael Armitage, a former Head of Defence Intelligence, as our chairman for today.

### *3. Air Chief Marshal Sir Michael Armitage*

Perhaps as recognition of the vital part that intelligence plays in all aspects of warfare, the very first talk given to our Society back in 1986 was entitled 'The Intelligence War and the Royal Air Force', and the speaker was Professor R V Jones. Since that first meeting, and because of its pervasive nature, intelligence had been given at least a mention in virtually all our subsequent lectures and debates, but a search through past copies of our Proceedings shows that we dealt explicitly with intelligence on only three occasions. The first was the seminar on Photographic Intelligence in 1991; the second was when we heard a talk on the Y-Service about three years ago, and the third was when we heard about overflying the Soviet Union during the Anglo-American symposium in 1993. That is not much of a coverage, yet because of the impact intelligence – or the lack of it – can have, it is rightly of importance to an audience such as this. It is also a topic that is too often wrapped in mystery and secrecy.

Because of its fascination for the layman it is also a lucrative source of income for many authors, and it must be said that intelligence attracts a lot of cranks; I cannot resist telling you my favourite 'crank's' story. When I was CDI we had an officer whose job it was to deal with all the crank mail that came in. One day I was served with an injunction, properly drawn up. On the same day Margaret Thatcher received a similar injunction, as did John Jones, Head of MI5. The man who had sworn out the injunction said something like this: 'Thirty years ago you or your predecessors conspired to put into my bloodstream a number of tiny microphones. I did not object to this because it was clearly in the interests of national security, but my movements and my conversations were monitored in this way. In the last few months I have been feeling rather ill, and it has turned out that these tiny microphones are powered by nuclear energy and I am suffering from radiation sickness. I therefore request

that you agree to a surgical operation to remove these microphones, promise never to put them back in, and pay me compensation.’ Of course we all fell about the office laughing, but the man who did not laugh was the Treasury Solicitor who had to go along to court on behalf of the three of us and have the action struck down as a piece of vexatious litigation.

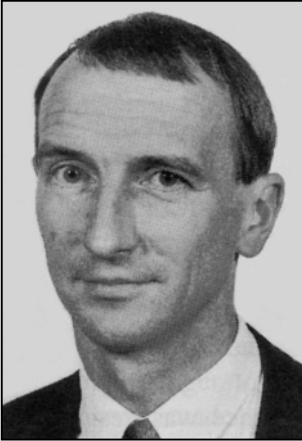
There are no cranks here today, and I should explain that there was very good reason for what may seem to have been undue reticence by the organisers in the Society for not tackling intelligence until today. First, with all the remarkable developments in intelligence collection during the Cold War a treatment that dealt only with intelligence during the Second World War would, we felt, leave many appetites unsatisfied; the story could be incomplete. Second, much that went on during the Cold War is still classified – some of it very highly – and we might one day need to use those same techniques again, and some are still being used today. So your organisers had the problem of security classification, and after much thought a compromise was reached. Our programme for today shows the result. In the morning we have five talks that will deal with intelligence and its achievements during the Second World War. After lunch we shall have our customary discussion groups, with opportunity to comment freely on the morning’s presentations. Then, after tea, our organisers have arranged at fairly short notice a special treat in the form of two more presentations, one covering strategic air intelligence post-war and the other RB-45C operations in the 1950s. Precisely because those talks take us on to ground which is still sensitive – if only because of the need to respect the generosity of the Americans in sharing so much of their intelligence resources with us – we think it best not to hold a discussion period afterwards.

It now gives me great pleasure to introduce our first speaker, Sebastian Cox, the Deputy Head of the Air Historical Branch – who, I learnt this morning, is to become the next Head of the Branch on 1 May. Many congratulations! He studied history at Warwick University and war studies at King’s College, London. He became Curator of Documents at the RAF Museum, and then 12 years ago joined the research staff of AHB. He writes and lectures widely on many aspects of RAF history, he edits the series of air power studies being published by Frank Cass, and he is at present leading the team which



is researching and writing the classified history of the RAF part in the Gulf War. His subject this morning is the organisation and sources of RAF Intelligence.

## 4. *The Organisation and Sources of RAF Intelligence*



*Mr Sebastian Cox*

My job this morning is to lay the groundwork for the other speakers by discussing some of the more mundane aspects of intelligence and thus set the scene for the more exciting topics to follow. I shall therefore be describing to you the varied sources of air intelligence before and during the Second World War, and explaining the organisational structure which was developed to produce the final intelligence product and the changes which were wrought in that structure to enhance its efficiency. I shall attempt to explain the influence of sources on organisation and the crucial importance of the latter in ensuring that the final appreciations are digestible and timely. I shall also make some brief comparisons between the British and German organisations and reflect on some more recent examples from the Gulf War.

The essence of intelligence consists of collecting, sifting and collating information, often in bulk, and then condensing it into usable form. Collection itself may often be the most difficult and certainly the most dangerous part of the process, but exploitation depends to some extent on the creation of an efficient organisation for collection and analysis. During the inter-war years the Air Ministry intelligence organisation, or AI, was reduced to a rump of only just under 40 officers, organised into some 25 sub-units. Half to two-thirds of the personnel were regular officers, and the remainder were re-employed retired officers. Under the Director of Intelligence, a group captain,

were an assistant director and three deputy directors. The first deputy directorate dealt with liaison with the Secret Intelligence Service, MI5, foreign attachés, wireless intelligence and air photography, with the last two coming under the assistant director. The second and third deputy directorates, DDI2 and DDI3, were organised on a geographical basis, one dealing with Europe, and the other covering the rest of the world, including the Soviet Union, the USA and the Middle and Far Eastern countries. The essential organisation of AI may therefore be said to have been geographical. That is to say, with the exception of the specialist sections, such as the wireless and photographic sub-sections, more than half the organisation was devoted to the collection, analysis and distribution of material relating to a particular foreign country or group of countries, whether allies, neutrals or potentially hostile. Each country or group of countries had its own sub-section, usually under a wing commander. Thus the German sub-section, AI3(B), would deal with all questions relating to that country whether it was the order of battle, strength and disposition of the *Luftwaffe*, the rate of production of the German aircraft industry, or intelligence on suitable targets and the assessment of attacks on them. The same held good for other countries.

This geographical organisation of intelligence was designed to meet peacetime requirements and largely reflected peacetime sources and needs. The most important sources were largely diplomatic – either open source through normal diplomatic exchanges, government announcements, attaché visits, open literature, etc, or clandestine channels through the SIS and friendly intelligence services. By their very nature all such sources tended to relate only to one country and were analysed as such. Furthermore the requests for intelligence assessments in peacetime seldom required material for more than one country at a time. Diplomatic sources were paramount. Very late in the day, before the outbreak of war, there was some very limited covert photo recce undertaken by Sidney Cotton under the auspices of the SIS, and from 1935 onwards there was signals intelligence on the German Air Force, particularly order of battle intelligence on long-range units obtained from traffic analysis – that is to say analysis of the types and patterns of signal communications, in addition to, or instead of, analysis of the actual content of messages. There was, of course, very little *Luftwaffe* signals traffic to exploit before 1935, for

the simple reason that the *Luftwaffe* did not exist. It was also available only for the W/T traffic from heavier aircraft, as the short range HF/VHF voice transmissions of fighter units, etc, could not be received in the UK, and were not regularly intercepted until the summer of 1940, when the war in the West brought these units within intercept range.

There was, for obvious reasons, no comprehensive PR cover of Germany or Italy, and no POW intelligence. Less understandably there were serious weaknesses in scientific intelligence – which will be covered in Professor Jones's paper – and in more basic technical intelligence on enemy aircraft and equipment. There was no fully developed technical intelligence section before the outbreak of war.

These then were the primary sources, and I shall consider one or two of them in a little more detail later. In the meantime they were, as I have said, reflected in the organisation of air intelligence, which remained largely unchanged for the first year of the war. This was partly because the phoney war period produced little impetus for change, since in most respects it differed little from the pre-war period. The catastrophic defeat in France and the Low Countries, and the hectic and dangerous period of the Battle of Britain provided little scope or time for reasoned reflection, and it was thus not until the immediate danger to the UK had passed in November 1940 that efforts were made to alter the organisation, which had become increasingly inappropriate for two principal reasons.

First the relative importance and value of the differing sources changed dramatically once the serious fighting started in the West in mid-1940. Second, German successes in Western Europe in 1940, combined with the entry of Italy into the war in June, and Axis success in SE Europe in the spring of 1941 had resulted in the *de facto* disappearance of national frontiers, and had made the geographical organisation of intelligence largely irrelevant. In effect the Axis powers were in control of most of Europe and had changed the political map and with it the intelligence map. It thus made little sense, for example, for one intelligence section to study airfields in Germany, another to study airfields in France, and a third to cover those in Norway, when all were in the hands of the *Luftwaffe*.

The breaking of the first *Luftwaffe* ENIGMA keys during 1940, together with the greatly expanded signals traffic once the war in the

West really got under way, meant that increasingly signals intelligence assumed the primary importance. Similarly the development of improved PR techniques and equipment, and the provision over time of systematic coverage of Western Europe, made PR a vital source. The start of serious fighting in the West also meant greatly increased opportunities for exploiting POWs and captured equipment. Conversely the opportunities for diplomatic intelligence gathering were greatly decreased, and additionally by the end of 1940 no friendly intelligence service survived intact in Northern Europe.

These twin changes, in the geopolitics of Europe and the value of the differing sources, led directly to a fundamental reorganisation of air intelligence between November 1940 and mid-1941. The first changes recognised a new strategic situation in which there were effectively two wars, an air and sea war against Germany, and a tri-Service war against Italy in the eastern Mediterranean. So far as AI was concerned the countries of the world were therefore divided into three groups, each under a deputy director of intelligence in the rank of group captain. Deputy Directorate 2 dealt with neutral and unthreatened countries; DDI3 dealt with Germany, the occupied territories, and all countries under threat from Germany; and a new deputy directorate, DDI4, dealt with Italy and Balkan and Mediterranean countries likely to be involved in the war with Italy. DDI1 continued to exercise its liaison function with other agencies. More fundamental than the changes in organisation, however, were the changes in working methods adopted within DDI3, the German section.

This section was reorganised internally onto functional, rather than geographical, lines, so that, for example, one sub-section, AI3(B), was now dedicated solely to dealing with the order of battle and organisation of the German Air Force and the air forces of countries occupied or threatened by Germany, whilst AI3(C) dealt with all matters relating to aircraft production and attacks on the aircraft industry, and AI3(D) handled all intelligence on airfields and *Luftwaffe* infrastructure whether in Germany itself or the occupied territories. This structure allowed much more flexibility, greater expertise in depth, and theatre-wide analysis. Further reorganisations at various times during 1941 saw a gradual increase in this functional specialisation, and in the summer of 1941, with the entry of the Soviet

Union into the war, the whole of the air intelligence organisation was altered to this basis. The outcome was a rearrangement which broadly speaking saw DDI2 become responsible for all information on technical subjects, airfields and the administration of industries in foreign countries, whilst DDI3 handled orders of battle, air operations by foreign air forces, target material, reserves and training. DDI4 now became a deputy directorate solely devoted to signals intelligence, which reflected its greatly increased importance. In addition new assistant directorates were created to deal with photographic and scientific intelligence, the latter under Professor R V Jones. A little later a further assistant directorate was created to deal with POW interrogation.

The entire Directorate of Intelligence was also placed under the control of a two-star officer, designated the Assistant Chief of Air Staff (Intelligence), with three directors in the rank of air commodore. No further significant changes in organisation were to be made before the end of the war, except for the addition of AI12, a section dedicated to liaising with and providing intelligence for the United States Army Air Forces when they arrived in Europe. In essence, the Americans took the conscious decision not to create their own parallel intelligence organisation in Britain, but instead to graft their own organisation into the existing British structure. This had several advantages – it tapped into ready-made British expertise and experience at source; it avoided too much unnecessary duplication and friction, and it produced a truly Allied structure as US officers were absorbed into the existing intelligence organisations.

By the end of the war the small band of 40 officers who had made up AI in 1939 had expanded to over 700 officers, and one of the organisation's strengths was its ability to draw in talented individuals from outside so that only ten of these officers, all in the rank of group captain or above, were regulars.

It may be helpful to examine the history of some of the sources of intelligence in a little more detail. As I have said, the most valuable sources during the war were to be signals intelligence, or SIGINT, and photographic reconnaissance, or PR. These were supplemented by various other sources, including POW interrogation, agents' reports, technical investigations of captured equipment, German press reports, and so on. Ironically, however, the central importance of the two

major sources of intelligence had not been foreseen before the war. Though some progress had been made on the development of the Y-Service, photo recce was considered almost exclusively in terms of tactical reconnaissance in co-operation with the Army. PR was the responsibility of a single squadron leader in 1939. There was little pressure from within the service to improve PR, with the notable, if not entirely surprising, exceptions of the two pre-war leaders of Bomber Command – ACM Sir John Steel and ACM Sir Edgar Ludlow-Hewitt. The latter, with remarkable prescience, was pressing as early as 1937 for a fast twin-engined aircraft for strategic recce. The idea eventually reached fruition as the Mosquito, and Ludlow-Hewitt's influence in the genesis of that aircraft has still to be recognised. The RAF, however, regarded PR as a task which could be undertaken by any competent airman flying ordinary service aircraft fitted with cameras. They were rapidly disabused of this notion when, of the first 48 Bomber Command recce missions, no less than 8 were lost, an attrition rate of 16 per cent. Over France in 1940 the loss rate rose to over 40 per cent. Only when the Service adopted the ideas of the maverick Sidney Cotton did matters improve. Getting the photos was difficult enough, but they then had to be interpreted. However, because of a long standing agreement with the Army which dated back to the First World War, photo interpretation was solely an Army responsibility. Thus, until the RAF unilaterally abandoned the agreement in 1938, there were neither interpreters nor interpreting equipment available. The RAF was therefore in the humiliating position of relying on the Army to interpret its recce photos. In March 1938 the first RAF officer was established in AI to look at air photos. Eventually a slick and well-oiled machinery for interpretation was established. Once a sortie had been flown successfully the initial interpretation was undertaken by an intelligence officer at the airfield who identified the most important prints for reproduction. These were then sent with the original film to a Central Interpretation Unit which was eventually at Medmenham. The first phase report made from the rush prints produced at the behest of this officer was usually available within two hours. Second phase interpretation was issued by the CIU within 48 hours. Third phase interpretation by specialists took much longer, occasionally several weeks. On occasions third phase reports were issued before second phase ones as was the case for some reports

on oil targets in 1945. Second phase reports were often concerned with operational activity, which had a perishable 'shelf life'. By the end of the war much of this information was collated in daily airfield, shipping and railway reports.

Having considered organisation and sources, it is perhaps appropriate to discuss in more detail one aspect which air intelligence studied, and airfields serve as a convenient example. Early in the war airfields were dealt with by the various geographical sub-sections, and the inadequate coverage which resulted is an illustration of the shortcomings of that type of organisation. Firstly, there was no agreed definition of what actually constituted an airfield, nor was there any agreement on where to draw the line between suspected and confirmed airfields, with the result that one section had five times the true number of airfields listed for its area. At the end of 1941 airfields became the responsibility of AI2(B), and by the end of the war 37 officers were working in this section alone. They utilised four major sources – PR, SIGINT, agents' reports and POWs. Of these PR was far and away the most important because it revealed not only the location, but also details of facilities, runways, dispersals and so forth, and a record of development and construction work which frequently portended operationally important changes. Agents' reports were useful in confirming the existence of less obvious airfields, and in helping to establish the layout and facilities and occasionally the resident units. Agents were, of course, much more active in the occupied territories. One enterprising agent contracted with the Germans to build the airfield whilst simultaneously supplying the Allies with the plans. Both SIGINT and POWs were prime sources for establishing which units were present on an airfield, with the latter often confirming the former. On one occasion the interrogators established which airfield a prisoner had flown from because they found a brothel ticket in his pocket and knew which airfield that particular recreational facility served. This nicely illustrates the fact that intelligence is a jig-saw, and the ability to cross-check and reinforce information from one source with intelligence from another was a vital part of the process. This meant that it was most important to disseminate information horizontally within and outside the organisation as well as vertically upwards. Intelligence is useless if it does not reach the right people in time to be of use. By and large AI



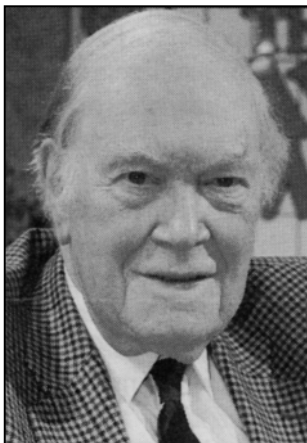
achieved this very well; for example a technical report on a new type of German ammunition was sent to the branch of the Ministry of Aircraft Production responsible for designing British ammunition. In contrast German intelligence organisations were fragmented and, because of the political conditions within the Third Reich, jealous of each other. They therefore only disseminated information vertically and not horizontally. Thus during the Battle of Britain, although German signals intelligence knew certain details of the British fighter control system, they do not appear to have told their own operations staffs.

But such problems of organisation are not necessarily confined to dictatorships. I have touched on some of the problems with organisations and sources that air intelligence had at the start of the war, but let me finish by leaving you with an example from a much more recent conflict. The following quote is taken from the US Gulf War Air Power Survey, a detailed multi-volume analysis of air operations in the Gulf:

‘General Schwarzkopf argued that theatre-level and CENTAF (*that is the air force in Saudi*) intelligence organisations did not perform well despite the quality of their personnel and equipment. What hurt them, in his view, was the way intelligence gathering, analysis, and reporting was organised and managed.’

There was also much criticism during and after the war about the provision of timely bomb damage assessments. The inability of the intelligence analysis to provide BDA quickly enough led to the planning cell by-passing the formal intelligence organisation and seeking their own intelligence from other sources. Although the sheer weight of coalition air power available meant that this was not a major problem, in any conflict where the matching of assets to targets was not on quite so generous a scale, such failures of intelligence organisation could have some unpleasant ramifications. The lesson, I suggest, is that there is little point in gathering and analysing the information unless you are organised to make timely use of it.

## 5. *RAF Scientific Intelligence*



*Professor R V Jones*

Chairman:

*As Mr Cox has pointed out, good intelligence is highly dependent on good organisation and it is not easy to get that organisation right. In London in recent years we seem to reorganise the intelligence set-up every time we come through a crisis in the light of the lessons we have just learnt; thank you for stressing that very important aspect of intelligence. Our next speaker was to have been Professor R V Jones but since he is in the United States he could not join us today. But all is not lost, and invoking the inherent flexibility of air power Group Captain Ian Madelin, the present Head of AHB, has kindly agreed to present Professor Jones's paper for him. A word about RV; he worked with the RAF and other Services on the problems of air defence in those crucial years from 1935 to 1939 and for the whole of the Second World War he was Head of Scientific Intelligence on the Air Staff and Scientific Adviser to MI6 and to GCHQ, where he was involved at the highest national levels of wartime intelligence. Afterwards, and until 1982, he was Professor of Natural Philosophy at Aberdeen University, heavily involved in research but still finding time for his many activities at home and abroad relating to his wartime work – including, of course, his invaluable participation in the proceedings of this Society. The talk is entitled 'RAF Scientific Intelligence'.*

Ten years ago, in 1986, I had the honour of giving the Inaugural Lecture of this Society, when I was invited to speak about the Intelligence War. Since then I have summarised many of my thoughts

in *Reflections on Intelligence*, which was published in 1989; and together with that book and my earlier one, *Most Secret War*, which came out in 1978 I have said nearly all that I could say about the subject of this present talk, so I have little original to add, beyond selecting some points which may, even now, appear worthy of emphasis, and pointing to any recent material which may throw further light on the subject.

In particular, the last three parts of the Official History, *British Intelligence in the Second World War*, have appeared: Part 2 of Volume 3 (1986), Volume 4 (1990) on Counter Intelligence, and Volume 5 (1990) on Deception. Scientific Intelligence was only on the fringe of Counter-Intelligence – our main involvement being in the frustration of the German *Abwehr*'s attempt to set up infra-red burglar alarms across the Straits of Gibraltar, which brought me into working contact with Kim Philby. Our involvement in Deception was, by contrast, much more extensive, and ranged from Electronic Countermeasures against *Knickebein* and the X-beams, the development of Window to deceive radar, the bewildering of the German coastal defences before the Normandy Landings, and the misleading of the V1 campaign against London in 1944.

In connection with the battle against the beams, let me record my appreciation of the presence here of one of the most generous of our opponents, Herr Albrecht Zetsche, who was a pilot of *KampfGruppe* 100, flying along the X-beams against us in 1940 and 1941; and of Professor Osthoff with whom he served later in the war in *Luftwaffe* Intelligence, one of whose tasks was to compile handbooks on the RAF and the USAAF. Among Professor Osthoff's most penetrating assessments was that which he made of Air Chief Marshal Sir Wilfrid Freeman, part of which ran:

'Freeman is regarded as an upright, honest, forthright plain speaking, open character with a special grasp of potential developments in technology and organisation.'

Apropos Herr Zetsche's assessment, if you care to look back at the text of my 1986 lecture you will find in it that I said:

'If I had to single out the senior air officer who has had least recognition from posterity for the magnitude of his contribution

it would be Wilfrid Freeman.'

and I hopefully suggested that:

'No one deserves a biographer more.'

Well, the biography is nearing completion, the successive work of Jeffrey Quill, Sebastian Cox, and Wilfrid Freeman's nephew, Anthony Furse, who is also with us here.

There were some basic factors which brought Scientific Intelligence into military prominence in the Second World War. The first was that science and technology had reached the stage where they were leading to new weapons and new techniques, such as radar; at the same time they were readily comprehensible to simple minds such as my own, which could therefore conceive such countermeasures as Window (or 'Chaff') from a knowledge of basic principles. We were at the stage of electronic development already manifested in the civil field by the introduction of 'steam radio' broadcasting in the '20s, where the technology was simple enough for an average man to make his own radio receiver.

The second factor was the opportunity created, particularly in Britain, by the perceived threat from Nazi Germany. To quote Dr Johnson, it was a case of: 'When a man knows he is to be hanged in a fortnight, it sharpens his mind wonderfully.' One result of that sharpening in Britain was the creation of the Tizard Committee in late 1934, the Committee for the Scientific Survey of Air Defence, which in particular sponsored the urgent development of radar.

A third factor in the involvement of Science in Intelligence was the experience of senior scientists such as Tizard and Lindemann, who had been concerned with such problems as flight in the Great War, and had begun then to form links with the Services. Not only did they blaze the trail for my generation to follow, but they also brought us on as their students.

Moreover the threat was so urgent that traditional barriers, particularly between scientists and serving officers, were breached as the two sides worked jointly in their efforts to devise new weapons and techniques with which to counter the common enemy. Summarising his experiences in 1946, Tizard pointed to the vital lesson when he said:

‘The first time, I believe, that scientists were ever called in to study the needs of the Services, as distinct from their wants, was in 1935, and only then as a last resort. The Air Staff were convinced of the inadequacy of existing methods and equipment to defeat air attack on Great Britain, and a Committee was established for the scientific survey of air defence. I want to emphasise that this committee, although it consisted on paper only of scientists, was in fact from the first a committee of scientists and serving officers, working together.

When I went to Washington in 1940 [*Tizard continued*], I found that radar had been invented in America about the same time as it had been invented in England. We were however a very long way ahead in its practical applications to war. The reason for this was that scientists and serving officers had combined before the war to study its tactical uses. This is the great lesson of the last war.’

Tizard’s phrase, ‘only as a last resort’, conveys something of the sense of urgency that so many of us felt. To appreciate its tremendous effect on our developments, it is only necessary to compare what happened, or rather did not happen, in Germany and America, which were both as competent in science as we were, and still better in engineering. The Germans in fact had started to develop radar ahead of us; but their scientists and serving officers had not come nearly so closely to working together. Air defence in 1939 seemed to them of only minor importance, whereas to us it was vital. Again, in 1939 it appeared of only marginal interest in America; and when the Tizard Mission in 1940 gave them the secrets of our advances in radar and in our methods of using it, the Americans realised how much progress we had made not only in the technology but also in its operational application.

At the same time, when the Tizard Committee found in early 1939 that it could get no answer from Intelligence as to whether the Germans were developing radar, an important gap was exposed – and, in short, I was transferred on 1 September 1939 from infra-red research to try to fill it. The urgency was so great that I was attached directly to the Air Section of the Secret Intelligence Service, MI6, rather than to one of the normal Intelligence Sections in the Air

Ministry. The MI6 Section was also known as AI(C), where I was sponsored by its Head, Wing Commander F W Winterbotham. The urgency appeared even greater when on 19 September 1939 Hitler made a speech in Danzig, and a mis-translation made it appear that he would attack us with a secret weapon – quote: ‘Against which no defence would avail.’ The resulting scare led to my being sent at once to Bletchley to examine the pre-war MI6 files, and this brought me into incidental contact with the cryptographers including Alan Turing, and the Deputy Head, Commander Edward Travis, with whom I shared billets. The contact, thus originated in the secret weapon scare, was soon to become of priceless value.

My original remit was not to look for secret weapons but to suggest what arrangements ought to be made for the organisation of Scientific Intelligence. I proposed that each of the three Service Intelligence Directorates should have sections, along with another in MI6 itself.

My proposal was backed by Tizard, and it had been almost generally agreed when it was opposed by the Deputy Director of Scientific Research in the Admiralty. His opposition was so strong that Tizard and the Service Directors backed down, and when Tizard tried to elicit support from Air Commodore Archie Boyle, the Director of Air Intelligence, the appointment of a single assistant to help me was vetoed by the Admiralty on the grounds that there was quote: ‘Not enough work to justify the employment of two people.’ This may appear incredible, but Tom Bower has unearthed the actual Minute in the PRO (Reference CAB 21/1421) and recorded it in his book, *The Paperclip Conspiracy*, published by Michael Joseph in 1987, along with other sidelights on the early months of Scientific and Technical Intelligence.

That was in February 1940, and the Director of Scientific Research in the Air Ministry, Dr D R Pye, even considered pulling me back from my Intelligence post. Fortunately, I persuaded him to let me stay, even alone, because I believed that sooner or later something important could result.

Within four months, of course, something important did result, this being our discovery of the *Knickebein* and X-beams in June 1940. Even then I still had no help until one of Winterbotham’s officers, Flying Officer Harold Blyth, became interested in my work and attached himself unofficially as my assistant. Beside drawing maps

and diagrams, he introduced me to his system of filing – a simple assembly of labelled boxes which I have used ever since.

But it was only in November 1940, when I had already begun to deduce in advance the nightly targets of the *Luftwaffe*, that I was given any scientific assistance, and that was only after I had pointed out that if one of the *Luftwaffe* bombs put me out of action there would be no one to warn Fighter Command and Civil Defence, and so it was essential that there should be at least one other person who could learn the necessary technique from me. I was at last allowed to recruit my friend F C Frank.

Fortunately for us our tasks were eased by the Germans having no equivalent of the Tizard Committee, and so not realising the possible scientific gap in their intelligence organisation. I had thought that I might well have had an opponent in Scientific Intelligence on the German side, and that he might have been my friend of student days, Carl Bosch, who was a brilliant practical joker and would know of my weak points and could exploit them in providing me with misleading clues. For a natural corollary to Intelligence itself would be the practice of deception on the enemy by leading his Intelligence system up the garden path. All through the war, I wondered what Bosch was doing, but it turned out that there had been no German Tizard to put him into Intelligence, although he did work on infra-red and on the radio guidance system for the V2.

I found myself being drawn into deception, for example when Tizard asked me whether I could mislead the *Luftwaffe* when Bomber Command lost one of its trial aircraft testing the GEE system over Germany in August 1941, with all the necessary equipment from which the Germans could deduce its purpose, six months before it could be brought into operational use.

That invitation to deceive, in which I was offered all possible facilities, even to building stations to transmit bogus beams – the J-beams – was an earnest of the confidence that scientists like Tizard and Lindemann and senior air officers had by that time come to place in us. We won the confidence, too, of the American Services. Before D-Day in 1944, for example, the American naval officer responsible for briefing the American Navy about the German radar defences on the Channel Coast had so much respect for our work that he ordered that each of our reports being sent to his Service should be headed by

a warning quote: 'THIS REPORT MUST NOT BE COPIED – EXCEPT IN ITS ENTIRETY'.

If I am verging on the self-congratulatory I must therefore point to another of the lessons which needs to be stressed. It is typified by Dean Inge's provocative dictum that, 'Nothing fails like success!', for success too easily leads to complacency which in turn may lead to disaster. The 1939 Admiralty, with a century or more of success, was complacent enough to believe that battleships could not be sunk by bombs. Bomber Command believed that it could find its targets in Germany without electronic aids. And in civil life after the war we found that the railways complacently believed that road transport could never compete with it. In all three cases, the men with the heavy ironware, especially if they had a century of success to look back on, were too complacent in face of a new threat. In contrast with Fighter Command, which readily accepted Tizard's help, Bomber Command in 1939 considered it unnecessary; and it was only after the Command ran into difficulty that it would make use of our help.

The organisation of Air Intelligence during the war is being dealt with elsewhere. The range of activities it covered was wide, and often involved field work, for example in examining crashed enemy aircraft or setting up radio listening posts, both at home and overseas; and Scientific Intelligence was concerned with them all, even including contact on occasion with our Embassies, for example in briefing our Ambassador in Madrid so that he could protest to General Franco about the intended German 'burglar alarm' across the Straits of Gibraltar.

Those of us who had the privilege of seeing the effects of our work on operations were sometimes depressed and sometimes exhilarated. Up to and beyond the fall of Crete in 1941 we often felt that the main result of our work, and especially that of Bletchley, was to enable us, as it were, to read tomorrow's newspaper today: for even when we knew what the Germans planned to do, our forces were too weak in the early years to be able to stop them. But as our strength grew, with the Americans as the most powerful of allies, we increasingly saw the rewards of our work in its contribution to successes in battle. But whether the news was depressing or exhilarating, life in Air Intelligence was a continuous education in technology, human nature, enterprise, and discipline both intellectual and operational. And



friendships formed in those testing days have lasted through our lifetimes.

## 6. *USAAF Intelligence and the European War - Daylight Strategic Air War in Europe*



*Dr Diane Putney*

Chairman:

*We are very grateful to Professor Jones for the benefit of that most thought-provoking paper, and to Ian Madelin for delivering it. Our next speaker is Dr Diane Putney, who joins our activities for the first time today; I welcome her most warmly to the Society. Diane studied history at Marquette University, Milwaukee, and is now a historian with the Air Force History Support Office at*

*Bolling Air Force Base, Washington. From 1983 to 1989 she was a historian for the Office of the Assistant Chief of Air Staff Intelligence and Air Force Intelligence Agency, where her duties included writing the annual histories and special studies. She also edited the book *Ultra and the Army Air Forces in World War II*. From 1989 to 1992 she was a senior historian working in the office of the Air Historian, the equivalent of our own Air Historical Branch. She is currently writing the book, *Air Power Advantage: Planning the Gulf War Campaign*. We look forward to hearing you speak on *United States Army Air Force Intelligence and the European war*.*

In November 1944 the Director of Intelligence for the United States Strategic Air Forces in Europe wrote: ‘...the most powerful air striking force in history would be utterly blind without intelligence’.<sup>1</sup> This paper will briefly discuss three slices of the story of how the

Americans acquired and used intelligence in the daylight strategic air war in Europe to enable war fighters to employ air power knowingly, not blindly. The first slice will focus on the inter-war years and note some of the obstacles preventing American airmen from collecting intelligence to support strategic operations. The second will discuss the role of British officials and organisations in supporting American air warfare, and the third will examine a type of intelligence that to this day remains little known, yet was extremely valuable for planning and executing air operations.

In the late 1930s the airmen of the US Army continued their struggle, begun at the end of World War I, for the establishment of an independent US Air Force. The struggle for autonomy was keenly felt within the air intelligence function. Aviators in the Army Air Corps chafed under US War Department restrictions prohibiting the collection of intelligence to support strategic air operations.<sup>2</sup>

The Air Corps Tactical School at Maxwell Field, Alabama, taught doctrine for the Army Air Corps in the 1930s and taught a generation of air leaders. The faculty espoused that air power should support US ground forces and defend hemispheric interests. Choosing from the corpus of ideas from Hugh Trenchard, Giulio Douhet, and Billy Mitchell, the faculty moved into controversial and revolutionary doctrine by proclaiming that air power should also be used in a strategic role and would be decisive in combat by destroying the means and will of an enemy nation state to resist. Refining their doctrine, they proclaimed that high altitude, daylight, precision bombardment against vital industries, a nation state's 'industrial web,' could force an enemy to surrender.<sup>3</sup>

For the 1935-36 school year, when the faculty and students studied the types of intelligence required to prosecute strategic air operations, the Military Intelligence Division of the War Department forbade the school from assembling information on the economies of foreign countries. To circumvent this prohibition, students examined industries in the United States and speculated on the effects of strikes against key industries and production facilities in the north eastern part of the nation.<sup>4</sup>

In his memoirs, Maj Gen Haywood S Hansell Jr, a key air planner before and during the war, recalled his days in the Intelligence Division of the Office of the Chief of the Air Corps, and his attempts

to analyse the economic, industrial, and social systems of foreign powers; to identify vital target sets and individual targets; and to develop target folders. He explained: 'This latter activity involved a completely new venture. The Army's G-2 gave us no help whatsoever. On the contrary, we ran into vigorous opposition to the collection and analysis of such information on the grounds that it did not relate to the proper role of military intelligence.'<sup>5</sup>

In June 1941 the War Department and Army established the Army Air Forces (AAF), along with the Army Ground Forces and the Army Service Forces. The following month, the first Assistant Chief of Staff, Intelligence, the A-2, criticised the Army's chief intelligence officer, the G-2, for restricting his ability to collect intelligence to prepare for the strategic mission. The A-2's arguments for more independence in the intelligence arena passed to General George C Marshall, the Army Chief of Staff. In September 1941 the War Department ruled in favour of the G-2, subordinating the A-2 to the G-2, an arrangement persisting throughout the war.<sup>6</sup>

At the start of America's official involvement in the war in Europe, the AAF lacked the intelligence products and the intelligence collection and dissemination processes to support strategic air warfare. In part, this was due to the Army's constraints and restrictions placed upon the airmen, and in part, to the airmen's inability in the 1930s to conceptualise, visualise, and understand the vast number of intelligence requirements associated with strategic air power. In addition, the airmen paid little heed to the officers at the US Army Command and Staff School at Fort Leavenworth, Kansas, who taught that intelligence officers must thoroughly understand an enemy's capabilities to thwart and prevent the accomplishment of a mission. Air intelligence officers and operators did not appreciate the strength of the German Air Force (GAF) nor fathom its resilience and growth potential. Their focus was on the enemy's economic structure not the air force protecting it.<sup>7</sup>

In contrast to the Army G-2's failure to support the aviators' strategic mission, the RAF was extremely helpful to the American airmen. In 1941 Major Hansell of the Intelligence Division travelled to England at the invitation of the RAF with the specific purpose of learning about British air intelligence. The major was one of scores of officers streaming to England as observers, facilitated in this role by

the ABC conferences, the secret, congenial talks between British and American military officials from January to March 1941. Group Captain Alfred C Sharp was Major Hansell's host and guide, who arranged for the RAF to give to the Americans 'priceless gifts of intelligence', as Hansell described them, which were classified target folders – nearly a ton of them.<sup>8</sup>

In December 1941, shortly after Japan attacked Pearl Harbor and Germany declared war on the United States, Air Vice-Marshal Charles Medhurst, the Assistant Chief of Air Staff (Intelligence) travelled to the US to secure agreements to satisfy both RAF and AAF wartime intelligence requirements. The British readily agreed to supply the US airmen with target material and intelligence about the GAF.<sup>9</sup> In early 1942 Lt Col Richard D Hughes, a planning officer, arrived in England to work at the skeletal advanced headquarters of the newly established US Eighth Air Force. Within days of Colonel Hughes's settling in at his office on Davis Street in London, the British Ministry of Economic Warfare flooded him with targeting studies. The colonel recalled:

'This vast British agency was busily engaged in producing voluminous studies covering every conceivable facet of the economies and industries of the Axis countries. What seemed like a truck load of paper emerged from their offices every day. Not only could I not find time to read these reports, but for one man even to keep up with their titles and general subject matter was a physical impossibility.'<sup>10</sup>

The US Eighth Air Force was the principal American force in Britain waging daylight offensive warfare against Germany in 1942 and 1943. In January 1944 the United States Strategic Air Forces (USSTAF) were formed, commanded by Lt Gen Carl 'Tooe' Spaatz, headquartered at Bushy Park on the outskirts of London, and having operational control of the Eighth Air Force and Fifteenth Air Force. Maj Gen James 'Jimmie' H Doolittle commanded the Eighth Air Force, and Maj Gen Nathan Twining commanded the Fifteenth Air Force, based in Italy.

The official history of the AAF in World War II concluded that the Eighth Air Force was probably more indebted to the British for intelligence support than for support in any other field or function. The history stated:

‘Reliance on the RAF and other British agencies for intelligence would characterise the American air effort in Europe throughout the war, and this was especially true of intelligence in its more fundamental aspects. . . . The British initially supplied the Eighth with most of the information from which it prepared its target data. The Americans developed in time increasingly helpful services of their own, but it was decided wisely at the outset to avoid unnecessary duplication of effort by placing American personnel in already existing British organisations.’<sup>11</sup>

In July 1945, the USSTAF’s Assistant Chief of Staff, Intelligence, Brig Gen George C McDonald, explained:

‘When America entered the war against Germany, we found that the British had in existence a large and efficient Air Intelligence organisation. It was decided to integrate our own Air Intelligence with that of the British on a basis of full and frank co-operation, and not to duplicate facilities or compete in the exploitation of basic intelligence sources. The British contribution remained predominant throughout the war, although American participation gradually expanded both in extent and significance.’<sup>12</sup>

Co-operating with the British, the Americans were able to procure intelligence for the daylight air war in Europe in all the varied fields of that function: communications and electronic intelligence, photo intelligence, human resource intelligence, and technical and scientific intelligence.

The US airmen had a separate USSTAF liaison section at the Air Ministry, AI3 (USA), headed by Col Kingman Douglas, and Americans were placed in offices throughout the Air Ministry. The splendid official history, *British Intelligence in the Second World War*, noted that the Air Ministry’s Technical Intelligence Section, Target Intelligence Section, and Order of Battle and Operational Intelligence Section were ‘thoroughly Anglo-American’. An American officer served as deputy head of the German Air Force subdivision of the Aircraft Production Section. Americans helped to staff the Air Ministry’s target material production centre at Hughenden Manor near High Wycombe, and the centre produced for

the Eighth and Fifteenth Air Forces enormous amounts of targeting material, including maps, target illustrations, and information for briefing air crews. In May 1944 the great photo interpretation centre at RAF Medmenham was redesignated the Allied Central Interpretation Unit, and although responsibility for phases 1 and 2 photo interpretation of daylight bomber strikes had shifted to General Spaatz's USSTAF headquarters, Medmenham continued to produce phase 3 analysis of American bomber strikes.<sup>13</sup>

The Americans did not place official representatives within the Ministry of Economic Warfare, but did receive vital targeting support from MEW and other British and American units, especially the Enemy Objectives Unit, working from the American Embassy in London.<sup>14</sup>

The Americans also received intelligence from prisoners of war interrogated at the Combined Services Detailed Interrogation Centre; messages sent in high-grade cyphers, broken and analysed at the Government Code and Cypher School (GC&CS) – ULTRA intelligence; British and American attaches in neutral countries in Europe; and agents in the British and American clandestine services.<sup>15</sup>

Although General McDonald acknowledged the dependence of the Americans on the British for most of their intelligence, he did identify in November 1944 four types of intelligence, the procurement of which resulted in American airmen functioning nearly independently from their British allies. The intelligence derived from:

- (1) combat air crew interrogation reports;
- (2) photo reconnaissance and some photo interpretation;
- (3) preliminary technical analysis reports; and
- (4) airborne 'Y' radio interception.<sup>16</sup>

When General McDonald spoke of airborne Y, he was referring to the airborne interception of GAF radio voice messages in plain text and simple code. The Americans first tried airborne interception in the Mediterranean theatre in the autumn of 1943. The Eighth Air Force tested airborne intercept equipment and procedures in December 1943 and February 1944. As of May 1944, six airborne intercept operators regularly flew missions with the Eighth Air Force's heavy bombardment divisions, and in September nearly 100 operators were in training or flying missions. In her marvellous memoir, *The Enemy is Listening*, Aileen Clayton discusses the RAF Y-Service, which

produced Y intelligence, and describes how experienced RAF personnel tutored American airborne intercept operators.<sup>17</sup>

Y intelligence, or what the Americans referred to as 'radio intelligence', has to this day remained hidden in the shadow of ULTRA. Since the 1970s, scores of books and articles have been written about ULTRA high-grade signals intelligence, but authors have neglected Y intelligence, derived primarily from messages in plain language and medium- and low-grade codes and cyphers, direction finding (D/F), and message traffic analysis. General McDonald considered Y intelligence 'a major source of air intelligence'.<sup>18</sup>

The US Army's Signal Intelligence Service (SIS), headquartered in 1942 at Arlington Hall Station in Virginia, was responsible for the interception of enemy radio message traffic and code breaking for the Army and the Army Air Forces. Before the Pearl Harbour attack, the SIS had achieved outstanding success with breaking the high-grade cyphers of the Japanese diplomatic message traffic, produced by the sophisticated cypher machine the Americans dubbed 'PURPLE'. The Americans called the signal intelligence emerging from their cryptanalysis 'MAGIC' and gave a PURPLE device to the GC&CS.<sup>19</sup>

In the spring of 1942, representatives of the British Y Committee travelled to the US and rather easily secured agreements with the SIS for the co-ordination of radio intercept programmes and the development of equipment and techniques, the exchange of intercepted material, and the eventual establishment of an Allied Y Committee. In June the SIS established a subordinate organisation in the European theatre, headquartered in London, first at Grosvenor Square, then on Weymouth Street. (The unit was later designated a 'division'.) The Air Ministry's AI4C section was most helpful in supporting the organisation with intelligence products and training. Two American radio intelligence companies received training in the United Kingdom in 1942, with one subsequently leaving for North Africa, and the second, the 124th Signal Radio Intelligence (SRI) Company, remaining to function as the SIS Division's own intercept unit. The members of the 124th SRI Company trained and began operations at Tidworth Barracks, Hampshire. In 1943 and 1944 many Americans received instruction at RAF schools and on-the-job training in conjunction with intelligence operations at Bletchley Park,



RAF Kingsdown, RAF Cheadle, and Cheadle's American sub-station at Tean in Staffordshire.<sup>20</sup>

The head of the SIS in London, Col George A Bicher of the Signal Corps, represented the Americans on the British Y Committee. He helped negotiate the agreement in May 1943 between the SIS at Arlington Hall and the GC&CS at Bletchley Park which stipulated rules for the sharing of intelligence and cryptanalytic information and for segregating high-grade SIGINT from Y and other forms of intelligence.<sup>21</sup>

In early 1944 the AAF received War Department authorisation to establish 'radio squadrons mobile', intercept units operating independently from the Army SIS and assigned directly to air force commands. The 3rd Radio Squadron Mobile (RSM) was a field unit assigned to the Ninth Air Force, the American air component of the Allied Expeditionary Air Force, and the 3rd RSM was responsible for voice and Morse intercepts, direction finding, and cryptanalysis.<sup>22</sup>

The Eighth Air Force used Y intelligence to plan and execute operations. Planners of daylight bomber missions learned from GAF radio intercepts the location of active German fighter bases; how fighters assembled, timed their attacks, and defended against American bombers; and the range and endurance of the fighters. Planners initially used diversionary sweeps and deceptive measures to lure fighters away from the main bomber force, and Y intelligence revealed which aspects of their planning had confused fighter controllers. Planners studied Y intelligence when they developed a system of fighter escort relay to enable fighters to spend longer periods protecting the bombers. Y intelligence also disclosed changes and improvements in the enemy's fighter control system, and when deep penetration raids occurred, it supplemented and, sometimes, supplanted reports from air crews.<sup>23</sup> In September 1943, Brig Gen Orvil A Anderson, the Chairman of the Combined Operational Planning Committee (COPC), which drafted the tactical plans for the Eighth Air Force bombers, stated: '. . . this Committee derives very great benefit from the existing 'Y' service, without which the production of plans for the daylight bombing (offensive) against Germany would be severely handicapped.'<sup>24</sup> The superb Y intelligence, however, could not negate the vulnerability of heavy bombers flying deep into Germany without long range fighter escort.

In October 1943, after the Americans lost 60 bombers in the raid against ball bearing plants in Schweinfurt, the unescorted long-range operations were suspended. Shorter range bomber missions did continue, and planners continued to exploit Y intelligence.

Eighth Air Force planners used four types of reports, developed from Y-Service intercepts. Arthur William Bonsall's Fighter Section in the Air Section of the GC&CS daily produced the BMP reports, named after the report's initial authors, A W Bonsall (B), Phillip Moyes (M), and Freddie Prior (P). The Eighth Air Force received its first BMP reports in September 1942, during the time of its initial shallow penetration raids. BMPs included intelligence from ground-to-air and air-to-air voice intercepts and from coded messages sent by radio telegraphy by the German Observer Corps and the German radar stations giving early warning of US raids. BMPs were checked against ULTRA, but did not include ULTRA.<sup>25</sup>

The second type of report was the Kingsdown Digest, based on voice intercepts. RAF Kingsdown teleprinted these short-term reaction reports to the Eighth Air Force headquarters a few hours after each bomber mission.<sup>26</sup>

Starting in November 1943, the Air Section produced 'TAC' day reports and sent them to Eighth Air Force and other units. They described German defensive fighter tactics for a period covering six major American bomber missions. The following month, the Air Section produced and disseminated the BMP Digest or 'DISTAC' report, which analysed each American bomber raid in terms of the enemy fighters' level of effort, the significant events of the enemy defence, and the important features of each mission.<sup>27</sup>

The Eighth Air Force also exploited Y intelligence operationally, during actual missions, just as the RAF had done during the Battle of Britain and thereafter. Activated in July 1943, the Kingsdown Hook-Up was the means to produce and disseminate near-real-time intelligence from voice intercepts to the American pilots of the VIII Fighter Command as they flew escort missions and fighter sweeps. RAF Kingsdown was the centre of a network of voice intercept stations in the United Kingdom, known by their cover name, 'Home Defence Units' (HDU). External telephone lines connected Kingsdown to the HDUs, the Air Section at GC&CS, and other parties, and internal telephone lines allowed intelligence officers to

discuss and evaluate voice intercepts and D/F bearings being telephoned to Kingsdown. The officers identified significant operational combat intelligence which they telephoned to the fighter control room of AJAX, the headquarters of the VIII Fighter Command, which in turn passed it to the control centres of the commands' three fighter wings. A second telephone line linking AJAX and Kingsdown enabled the signal intelligence officer at AJAX to discuss and clarify intelligence flowing over the first line. Two hours before each mission, the VIII Fighter Command would brief the officers at Kingsdown the route, timing, and targets of the impending mission.<sup>28</sup>

During operations the Kingsdown Hook-Up provided information about the American bombers as they flew beyond the range of British-based radar. Y intelligence informed American fighter controllers not only where German fighters were assembling but where American formations were located. If bombers withdrew off course, the controllers would vector fighters to reposition themselves to provide cover for the wayward formations. As longer-range fighter escort became available, the Kingsdown Hook-Up increased in value as wing controllers, operating on Y intelligence, vectored pilots to enemy fighter assembly areas to engage the GAF pilots far from the bombers and to disrupt the enemy's plan and sequence of attack. The Kingsdown Hook-Up was fully operational during Big Week, 20-25 February 1944, when the Eighth and Fifteenth Air Forces pounded the German fighter aircraft industry by day, and the RAF struck related target areas at night. By the end of March 1944 GAF units had retreated to air bases farther from the coast which drastically curtailed the number of voice intercepts heard by the HDUs in the United Kingdom. By this time, the Eighth Air Force was commencing its airborne intercept operations during deep penetration raids. The Air Section and the COPC both exploited the raw intercept logs.<sup>29</sup> When the Eighth Air Force set up its microwave early warning radar station, first in England in June 1944 and then in Holland in November 1944, Y intelligence was an integral part of the fighter control system. The Eighth Air Force was an enthusiastic lobbyist for the establishment of an RAF intercept station on the continent, a mini-Kingsdown unit, which, although delayed by the Ardennes offensive, was operational in early 1945.<sup>30</sup>

In conclusion, American intelligence officers entered the war in Europe unprepared to support daylight air operations. In 1942 and 1943 they streamed into RAF intelligence collection and processing organisations, and later, assumed full responsibility for select intelligence functions. In a co-operative enterprise of unprecedented scale, Allied officers and enlisted personnel, men and women, satisfied the voluminous, complicated intelligence requirements supporting daylight strategic air warfare. They ensured that the Americans used air power with an understanding of the enemy's vital targets and with extensive knowledge about the enemy's resourcefulness in defending them.

#### Notes:

<sup>1</sup> Brig Gen George C McDonald, Director of Intelligence, USSTAF, to Lt Gen Carl Spaatz, 8 Nov 44, frame 1443, reel A1871, Air Force Historical Research Agency (AFHRA), Maxwell AFB, AL.

<sup>2</sup> Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, Vol 1, *Plans and Early Operations, January 1939 to August 1942* (Chicago: University of Chicago Press, 1949, 1956; reprint, Washington, DC: Office of Air Force History, 1983), pp17-33; Robert Frank Futrell, 'US Army Air Forces Intelligence in the Second World War,' in Horst Boog, ed., *The Conduct of the Air War in the Second World War: An International Comparison* (Berg: Oxford, 1992), pp530-35.

<sup>3</sup> Craven and Cate, *Army Air Forces in World War II*, Vol 1, pp51-52; Robert T Finney, *History of the Air Corps Tactical School, 1920-1940* (Maxwell AFB, AL: Air University Press, 1955; reprint, Washington, DC: Center for Air Force History, 1992), pp55-78.

<sup>4</sup> Draft manuscript, John F Kreis *et al*, *Piercing the Fog: Intelligence and Army Air Forces Operations in World War II* (Washington, DC: Air Force History and Museums Program, n.d.), pp1-12.

<sup>5</sup> Haywood S Hansell, Jr, *The Strategic Air War Against Germany and Japan: A Memoir* (Washington, DC: Office of Air Force History, 1986), p22.

<sup>6</sup> Futrell, 'US Army Air Forces Intelligence,' p531.

<sup>7</sup> *Ibid*, p528; Finney, *Air Corps Tactical School*, pp73-75.

<sup>8</sup> Hansell, *Strategic Air War*, pp24-25.

<sup>9</sup> Draft report, 'History of US Army Air Force Liaison with Air Ministry,' frame 1138, reel A5700, AFHRA.

<sup>10</sup> Memoir excerpt, Chapter VIII 1941-1945, Richard D Hughes, frame 211, reel 40505, AFHRA.

<sup>11</sup> Craven and Cate, *Army Air Forces in World War II*, Vol I, p623.

<sup>12</sup> Memo, Brig Gen George C McDonald, A-2, to Gen Henry H Arnold, 25 Jul 45, 'Anglo-American Air Intelligence Projects in European Theater,' frame 1155, reel A5700, AFHRA.

<sup>13</sup> Draft report, 'History of US Army Air Force Liaison with Air Ministry,' frame 1138, reel A5700, AFHRA; F H Hinsley, E E Thomas, C F G Ransom, and R C Knight, *British Intelligence in the Second World War: Its Influence on Strategy and Operations*, Vol 2 (New York: Cambridge University Press, 1981), p49, p654 and Vol 3, Pt 1 (New York: Cambridge University Press, 1984), pp465-66; 'Intelligence Review 1944', HQ 8AF, 9 Jan 45, 18, frame 1458, reel B5058. AFHRA.

<sup>14</sup> Draft report, 'History of US Army Air Force Liaison with Air Ministry', frame 1140, reel A5700, AFHRA.

<sup>15</sup> Memo, Brig Gen George C McDonald, Director of Intelligence, USSTAF, to Lt Gen Carl Spaatz, 7 Nov 44, frame 207, reel A5719, AFHRA; Diane T Putney, ed, *ULTRA and the Army Air Forces in World War II* (Washington, DC: Office of Air Force History, 1987).

<sup>16</sup> Memo, McDonald to Spaatz, 7 Nov 44.

<sup>17</sup> Lt Jakob Gotthold, 'Report on Airborne Interception of Enemy R/T Traffic Carried Out by Fifteenth Air Force,' 1 Nov 44, frame 483, reel AI342, AFHRA; F/L J.D. Simmonds, 'Airborne R/T Interception by MASAF,' 21 Mar 44, frame 1709, B5063, AFHRA; Memo with atch, Gp Capt Daubney, DDI4, 'Airborne Interception of Enemy RIT,' 5 Mar 44, frame 1170, reel A5220, AFHRA; Memo, A M Stewart, COPC, to Col Humphrey, 'Airborne 'Y' Situation,' 9 Nov 44, frame 1611, reel B5063, AFHRA; Aileen Clayton, *The Enemy Is Listening* (New York: Ballantine Books, 1982), pp330-32.

<sup>18</sup> Memo, McDonald to Spaatz, 7 Nov 44.

<sup>19</sup> See Special Research Histories (SRH), 361 and 364, *History of the Signal Security Agency*, Vols. 1 and 2, Record Group (RG) 457, National Archives and Records Administration (NA).

<sup>20</sup> Hinsley *et al*, *British Intelligence*, Vol 2, p56; SRH-405, *History of the Signal Intelligence Division, European Theater of Operations*, US Army RG 457, NA.

<sup>21</sup> *Ibid*, Vol 1, Pt 1, p152, p192; SRH-391, George F Howe, *American Signal Intelligence in Northwest Africa and Western Europe*, 171-173, RG 457, NA.

<sup>22</sup> See the following SRH studies on the 3 RSM in RG 457, NA: SRH-047, 399, 400 and 401.

<sup>23</sup> Report, 'The Contribution of the Y Service to the 'Target Germany' Campaign of the VIII USAAF,' Directorate of Intelligence folder, box 297, Carl A Spaatz papers, Manuscript Division, Library of Congress (LC); Hinsley *et al*, *British Intelligence*, Vol 2, pp271-73 and Vol 3, Pt 1, pp320-21.

<sup>24</sup> Memo, Brig Gen 0 A Anderson, Chairman, COPC, to Under Secretary of State for Air, 25 Sep 43, 512.311A, 1943-44, AFHRA.

<sup>25</sup> Interview tape, Sir A W Bonsall by Diane Putney and Thomas Johnson, 2 Aug 95, Center for Cryptologic History, National Security Agency. For a sample of a BMP report, see ZIP/BMP No. 412, 512.63 I 4G. Jul-Sep 43, AFHRA.

<sup>26</sup> Air Historical Branch Narrative, *Air Ministry Intelligence*, p90, Air Historical Branch (RAF), Ministry of Defence; Memo, Maj Herbert R Elsas, HQ 8AF, to Director of Intelligence, 5 May 45, Directorate of Intelligence folder, Box 297, Spaatz papers, LC. The Kingsdown enterprise moved to Canterbury in the summer of 1944, and the name of the digests changed. For samples of the Kingsdown/Canterbury

Digests see reel A5395, AFHRA.

<sup>27</sup> Air Historical Branch, *Air Ministry Intelligence*, p91. For a sample of a TAC report, see PEARL/ZIP/TAC/D3, 1 Feb 44, 508. 6314C-1, 1943-45, AFHRA. For a DISTAC sample see PEARL/ZIP/DISTAC/D25, 15 Feb 44, AIR 40/548, Public Record Office (PRO), London.

<sup>28</sup> Hinsley *et al*, *British Intelligence*, Vol 1, pp180-182 and Vol 3, Pt 1, p321; 'Outline History of Operational Employment of 'Y' Service,' told by Major Elsas to Maj. Leon Benson, 6 Jun 45, Directorate of Intelligence folder, box 297, Spaatz papers, LC; Lt. Col. Waldo H. Heinrichs, A-2, 66 Fighter Wing, *Achtung Indianer! A History of the VIII USAAF Fighter Command*, pp133, 138-39, frame 954, reel B5I84, AFHRA; Air Historical Branch, *Air Ministry Intelligence*, p91; Memo, RAF Station, West Kingsdown to H D Units *et al*, 'Amended Hook-Up Organisation', 14 Jun 44, AIR 40/2229, PRO.

<sup>29</sup> Heinrichs, *Achtung Indianer!* p133; Elsas, 'Outline History of Operational Employment of 'Y' Service,' 6 Jun 45; Memo with atch, Col Laurence K Callahan, 'Suggestions for 'Y' Service,' 20 Jun 44, Directorate of Intelligence folder, box 297, Spaatz papers, LC; Hinsley *et al*, *British Intelligence*, Vol 3, Pt 1, p321.

<sup>30</sup> History of the 401st Signal Company, 8FC, 8AF, 1 Nov 44-31 Mar 45 14, frame 628, reel A0422, AFHRA; 'Outline History of Operational Employment of 'Y' Service,' 6 Jun 45; Air Historical Branch, *Air Ministry Intelligence*, pp92-93; 'Intelligence Review 1944,' HQ 8AF, 9 Jan 45, p6.



*Camera installed in a Lancaster prior to a raid*



*ACM Sir Arthur Tedder examines PR material in 1943*

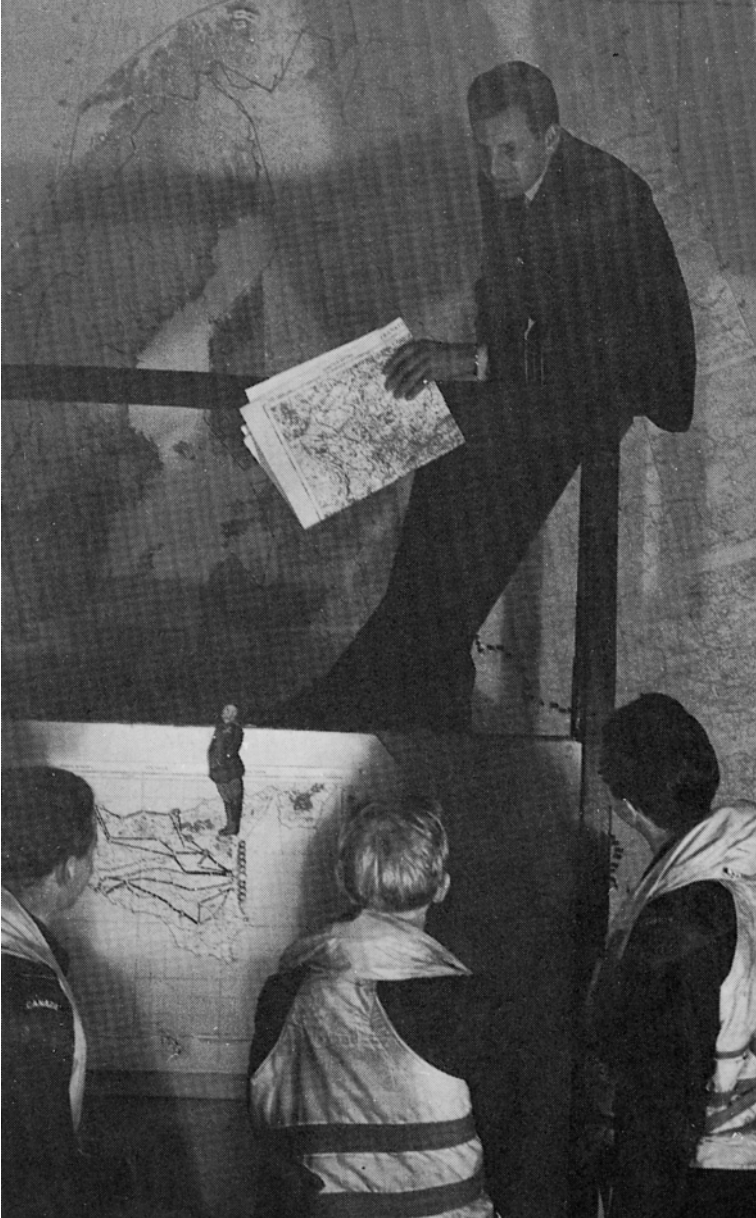


*F24 camera (foreground) and a Mosquito*



*Camera being loaded into a Spitfire*





*PR Pilots being briefed by IO*



*Negatives being numbered*



*RAF photographic observer with his camera – probably from a Blenheim squadron*



*Continuous film developing machine – 1943*



*Inspection of detail in a photograph of German positions at an RAF HQ, probably 1939*



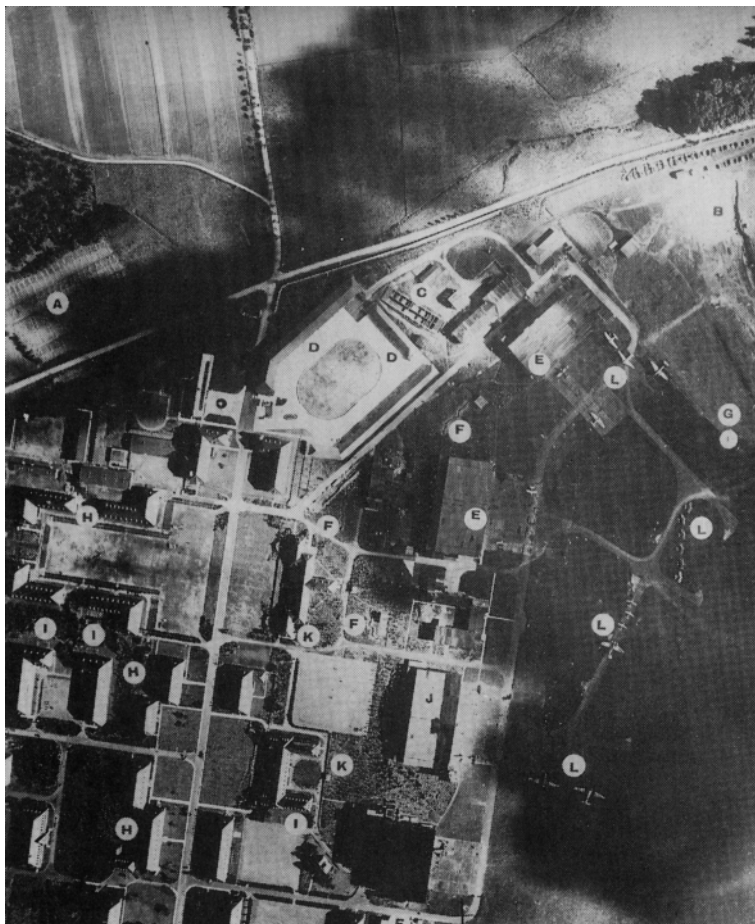
*Prints of German areas photographed being placed in appropriate positions on a map – probably 1939*



*Bomber crews receiving instructions in the Flight Office in France. This department is in a village near the airfield, probably 1939*



*ACM Sir Arthur Tedder, AOCinC ME, Wg Cdr Bragg, CO of a long-range fighter squadron, and AVM L H Slatter, looking at photographs recently obtained by a squadron aircraft.*



*Detmold aerodrome. Detmold stands on the Weser, 48 miles SW of Hanover. Key to annotations: A - crops just cut and stacked; B - small hillock being levelled to make an extension of the aerodrome; C - building under construction; D - motor transport sheds; E - hangars on which a novel form of camouflaged has been attempted; F - shelter trenches; G - compass swinging base; H - barracks and crew quarters; I - tennis courts; J - more hangars; K numerous small trees have been planted between buildings; L - aircraft, including two He 111s, two Ju 52s, a Do 17 and a number of smaller machines. Date unknown.*



*The CO, in tin hat, listens as a Hurricane pilot makes his report to the Intelligence Officer, June 1940*



*Following a raid on Berlin, 2/3 Sep 41, a bomber crew is debriefed by the IO*





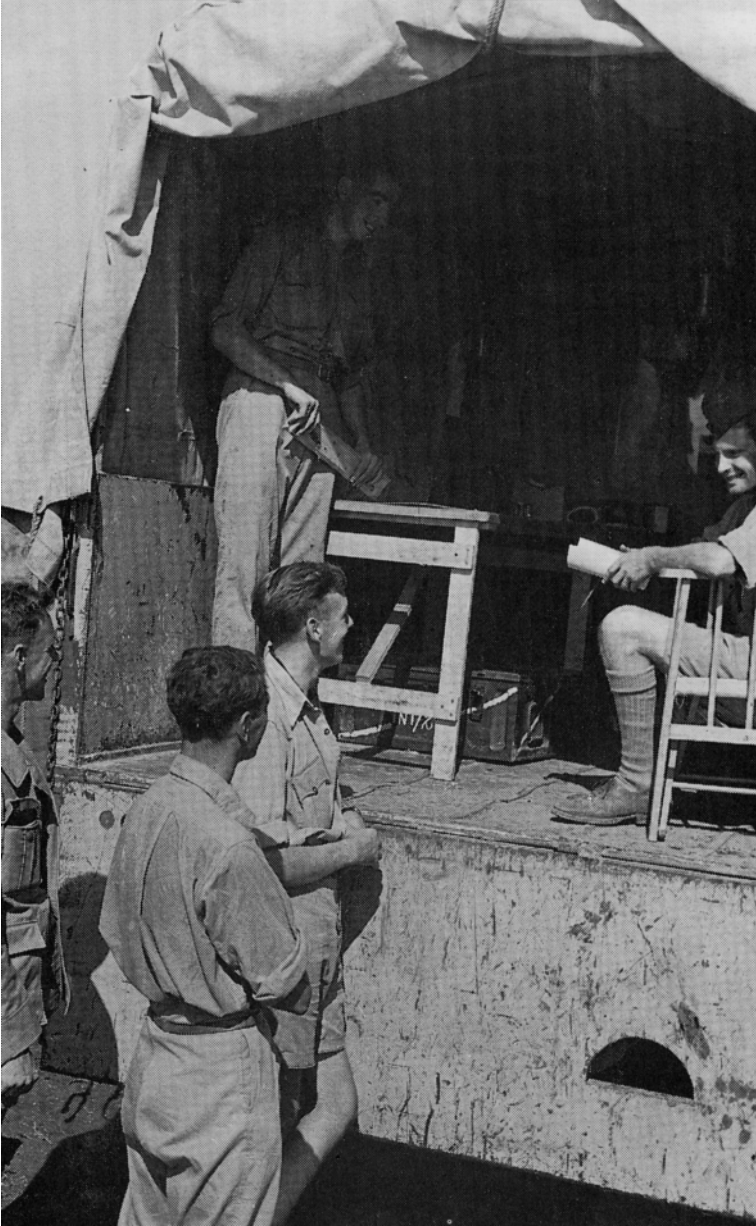
*More than 170 armoured vehicles, including thirty heavy tanks which the Germans had parked at Trouville (on the coast, two miles west of Calais) caught by an RAF camera*



*Army IOs piece together photographs brought back by a recce pilot in 1942*



*A pilot of a Mustang squadron being interrogated at a mobile airfield HQ by an Army Intelligence Officer during an exercise in 1943*



*Int Room in the back of a lorry on a Spitfire airfield, Sicily, 4 Aug 43*



*A Fortress crew being briefed with the latest intelligence prior to a sortie, May 43*



*A Fortress crew debrief after a sortie, May 43*



*He pilot and navigator of a Beaufighter who recently shot up the squadron's 100th Japanese locomotive in Burma are seen at the debrief with the Intelligence Officer after the flight which completed the 'century'*



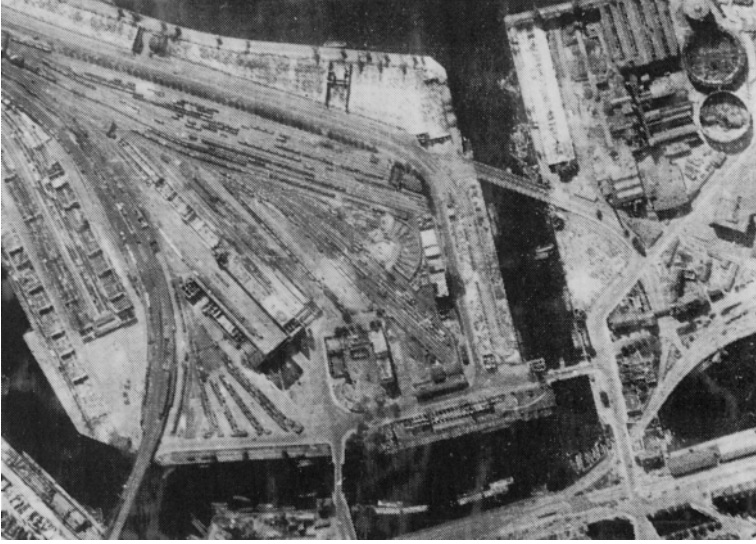
*Canadian and Australian aircrew who took part in a raid on Berlin, 27/28 Jan 44, are debriefed by IOs*



*PR Mosquito*



*Instant intelligence – pilots being debriefed in Normandy, 16 Jun 44*



*Post-raid intelligence – the port of Hamburg, Jul 43*



*PR Spitfire*

## 7. *A Luftwaffe View of the Intelligence War*

*Dr Horst Boog*

Chairman:

*Thank you very much for making space in your busy programme to tell us about USAAF intelligence. I venture to say that what you told us was new to virtually everyone here. I for one found it fascinating, particularly the clash in the early stages between A2 and G2 and the way your people cleverly overcame all the obstacles put in front of them. Our next speaker is well known to the members of our Society; we are very pleased that Herr Dr Boog has once more travelled over specially from Freiburg to be with us today. He first became familiar with air warfare when he was on the receiving end of Bomber Command's efforts during the Second World War; then in 1944, aged 16, he trained as a glider pilot and later transferred to the Volkssturm, which was a kind of Home Guard but one which – unlike ours – saw a great deal of action. After the war he worked for a short time as an interpreter and translator at Nuremberg and then went to the USA as an exchange student, after which he returned to Germany to work for the USAAF on intelligence duties. Later he worked in the Military History Research Office in Freiburg, first as a Senior Air Historian and then as Chief Air Historian. He has lectured widely in Germany and abroad, and is the author of several very important books on the Second World War – particularly of the German Air Force. It is a great pleasure to invite you to give a Luftwaffe view of the intelligence war.*

Let me first thank my good friend, Air Commodore Henry Probert, for inviting me again on behalf of the RAF Historical Society; my thanks also to the Commandant for inviting me again to the RAF Staff College. It is almost like a homecoming. I should say now that there



are two gentlemen in the audience who know more than I about German intelligence in the Second World War – they were members of the intelligence department of the *Luftwaffe* General Staff, Professor Osthoff and Herr Zetzche. When they entered the intelligence department it functioned very well but it was not believed by their superiors and indeed it did not matter anyway because from 1942 onwards the war was already lost.

Since I have time to give you only a rough outline of the German Air Force Intelligence Service, I shall emphasise some of its specific characteristics rather than dwelling on individual results and the details of how it worked.

For simplicity's sake let us begin with its position in the staff structure, which is an important indicator of the value which was attributed to it. The intelligence departments, branches, sections or officers were always subordinated to, or parts of, the staff of the Chief of Operations or the operations officer. This was so in the army, too, from which the system derived, so there was no manual for air intelligence work until late in the war, when provisional outlines were issued. Therefore the Armed Forces Handbook 'General Staff Service in War' of 1939 and the 'Army Intelligence Manual No 89g' of 1941 must be considered the basis for air intelligence work and organisation. Both stipulated that it was the commander with his Chief of Staff or operations officer who prepared the situation assessment, because the basis of all evaluations and estimates of the situation was one's own operational objective. This in itself limited intelligence requirements pretty much to what was needed for the next operation or campaign. Of course, the intelligence officer was to be asked for his opinion when necessary – if he was asked at all. What I mean becomes clear in comparison with the Allied and the post-war NATO staff organisations, where the A3 and A2 were on one level and – though sometimes only formally – co-equals.

There are plenty of examples – besides the conduct of the entire war – which give evidence of the precedence given to strategic or operational objectives over intelligence (and logistics), and of wishful thinking – preferring the best case to the worst case. This was a peculiar feature of Germany's overall military leadership in the war. Despite the setback before Moscow in late 1941, which was also a result of the euphoric under-estimation of Soviet potential by both the

army and air force after the quick victories in Poland, Norway and France, Hitler (in April 1942) ordered 'Operation Blue', the offensive to take the Caucasian oil wells and break up the British Empire in the Middle East, before a new assessment was made, and when this was completed it was again optimistic, disregarding the unreliability of the previous assessments. Doubts certainly existed, but the objective was to be reached. This time the optimism was essentially reinforced by Japan's entry into the war, which promised a splitting up of Allied power. Air Intelligence also continued to underrate future Soviet aircraft production on the old inadequate basis, and it was only after the new offensive had been ordered that the strength of personnel in the Foreign Air Forces East Section of the *Luftwaffe* General Staff was increased to enable them to do adequate work. Beside Crete, the Balkans and the Mediterranean, the most spectacular example of the inverted sequence of staff work was the Norwegian campaign of 1940. Ordered at short notice it came almost as a surprise to the military planners, with intelligence on Norway being collected in a hurry and to a large extent by means of the 'Baedeker' travel guide.

As I mentioned before, this reversal of proper planning procedure applied also to logistics and armament production. General Georg Thomas, Head of the Economy and Armament Department of the Armed Forces Supreme Command, complained in January 1942 that Hitler, in his directives, started out from his political and strategic objectives and then ordered the implementation of the necessary armament programmes, which usually exceeded the capacity of industry. 'But with our love for the fatherland', the general concluded, 'we shall do our best to meet the requirements.' This method of directing an armaments economy was later called '*Kommandowirtschaft*' – command economy – by historians. It largely disregarded the special characteristics of industrial production and the country's economic potential as a basis to start out from, and rested on the false belief that industry could be switched quickly to ever-new production programmes just as soldiers could be ordered to turn left or right.

But let us return to intelligence. Since knowledge of foreign countries was of peripheral importance to the military leadership, intelligence was not organised efficiently. About twelve major intelligence services existed in Germany. They were run by the armed

forces staff, by the army, navy and air force, by the Nazi Party and by some ministries, but there was no real evaluation centre or clearing office for all. They all ended in Hitler, who was already overburdened with other tasks. According to the '*Führerprinzip*' he was the ultimate authority. While all these agencies co-operated as much as they competed with each other in a social-Darwinistic manner, Hitler used them as he deemed appropriate from time to time on the principle of 'divide and rule'; only in 1944 were the military agencies placed under the general surveillance of the SS.

Air intelligence was organised no less badly. There were eight intelligence collecting agencies: the Foreign Countries and Counterintelligence Office of the Armed Forces Supreme Command; the air force signals intelligence service; the long-distance reconnaissance group of the CinC *Luftwaffe*; the war booty staff of the Air Technical Office; the air force interrogation and evaluation centres east and west; to some degree also Goering's *Forschungsamt* (research office); the air attachés; and the press group of the air staff. Only the latter two, which were considered unimportant, were directly subordinated to the Chief of Intelligence of the Air Force General Staff, and the attachés frequently complained about the lack of directives or of interest on the part of their superior. Signals intelligence, with the most important deciphering centre, was a sort of private domain of the Chief of Air Signals Communications.

Air intelligence evaluation took place in the 5th (Intelligence) Department and the 8th or Air Historical Department of the *Luftwaffe* General Staff, in the Foreign Air Armament Department of the Director-General for Air Armament (separated by a gulf from the General Staff), in the trooping staffs and in a special office of the construction branch of the Air Administration Office. Information on radar was evaluated by ten agencies. Again there was no central evaluation but much rivalry and friction between the most important offices, the 5th Department of the Air Staff, the Foreign Air Armament Office, and the Chief of Air Signals Communications. Instead of forwarding technical information immediately to the 5th Department, which was in essence the head office for air intelligence, the Foreign Air Armament Department frequently prepared the information using the meticulous approach of engineers, a method which could take weeks. Sometimes, too, information was deliberately

withheld, because to know more than others gave one more influence.

It is very difficult to assess the results of intelligence work or reconstruct its impact on important operational decisions, since most of the *Luftwaffe* and air intelligence records were destroyed shortly before the end of the war. A sufficient number survived, however, to justify the general impression that, in the decisive first three years of the war, the three major opponents, Great Britain, the Soviet Union and the USA, were fatally under-estimated. During these years, however, air intelligence learnt the hard way to do things better. With a larger staff and using scholarly methods successful attempts were made with some success – as the long-time Chief of Intelligence confirmed to me 25 years ago – to prepare long-range assessments, which were quite accurate. But now a new problem arose. While intelligence was not given much attention to begin with, Hitler and Goering did not believe it any more – or want to believe it – because the failures in the Battle of Britain and in Russia had disappointed them. Intelligence officers were called ‘defeatists’; if their estimates were too unfavourable for the *Luftwaffe* their products were considered as ‘lies’ by Goering. Hitler and Goering must have known that high figures such as those of US aircraft production were correct, but they tried to suppress such depressing facts which did not fit into their plans. While General Halder, the Army Chief of Staff, instructed his intelligence officers in the winter of 1941/42 not to discourage higher staffs by issuing unduly high estimates of Soviet strength, General von Bötticher, air attaché in Washington, wrote after the war that in his reports to Hitler he began to reduce figures by one third or more in order to make him read them. Even Field Marshal Milch, as he said later, tried to present his information on the British and American air forces in an optimistic fashion in order not to discourage his staff by telling them the truth. He did not do this by minimising foreign strength figures but by spreading the hope that German production would reach these figures in a foreseeable time. Self-delusion became the counter to intelligence.

As regards Britain, a comprehensive intelligence handbook on her economic and military potential, the ‘*Studie Blau*’ (Blue Study), had been prepared in the last pre-war years by officers, university professors, economists and industrialists. This could have been a good model for future intelligence work. But it remained the last study of its

kind for almost four years, because in wartime intelligence work was considered to be a purely military matter. It was only in the summer of 1943 that the Chief of the *Luftwaffe* General Staff ordered that intelligence assessments on Russia and Britain be again prepared in consultation with the civilian experts of Speer's armament ministry.

I will now give you some illustrations of intelligence relating to Britain. In the Battle of Britain *Luftwaffe* intelligence and leaders were not sufficiently aware of the importance of the radar stations along the coast; otherwise these would have been persistently bombed. British fighter strength was underestimated in late summer 1940 on the basis of obsolete figures of 'Study Blue', whereas the radio listening service of signals intelligence produced a true picture. In his belief that the British were short of fighters – and for other reasons – Goering ordered London to be bombed thinking that he could finish the rest of them while they were defending the capital and thus gain air superiority over what was to be the invasion zone. The offensive should have been concentrated on the fighter airfields, yet the *Luftwaffe* also attacked those of Coastal Command; obviously German intelligence did not know the difference. The impact of the German air offensive was further weakened by bombing too many industrial and economic targets in England and without sustained effort on any particular ones. Here again there does not seem to have been enough knowledge about the industrial bottlenecks, the destruction of which would have dislocated the economic, industrial and military system. Strategic bombing of Britain in the First World War had not yielded pertinent experience, because the forces employed were too small to produce conclusive evidence. Nevertheless the first major reverse of the *Luftwaffe* in the Battle of Britain was not so much the fault of German air intelligence as of the top leaders, who conducted a strategic air offensive with a tactical air force and without thorough preparation – despite the fact that investigations in 1938/39 into the possibility of the success of such operations had yielded negative results. Again wishful political and military aims had priority over other considerations. It must, however, be pointed out that it was the intelligence department of the *Luftwaffe* General Staff that advocated the bomber offensive shortly before it was launched in the summer of 1940. The intelligence information available was not good enough for an air campaign whose success depended above all on intelligence. As

Douhet wrote in his *Command of the Air*: 'The choice of enemy targets . . . is the most delicate operation in air warfare . . . It is precisely in this field that the commanders of future Air Forces will be able to give proof of their ability.'

German air intelligence was deceived about British aircraft production by agent 'Ostro' operating from Lisbon. When all the German agents in England were either executed or 'turned around' and when German air reconnaissance over the island was no longer possible from 1941 to 1944, he became the only source of information about England that was relied on by the *Luftwaffe* intelligence department. In his reports he greatly exaggerated the effects of German air raids on the British aircraft industry in 1940/41 and, until 1942/43, reported output figures up to 50% below actual production. When the air intelligence department discovered the deception in 1944, it no longer mattered much, and events had already proved the falsity of assumptions based thereon.

As regards tactical air intelligence for army support operations on the land fronts and also in the air battle over Germany the *Luftwaffe* was much better because troop intelligence, POW interrogations, the examination of war booty and, above all, signals intelligence of all sorts functioned very well. About 80 per cent of all tactical information on the enemy stemmed from the latter, in particular from the radio listening and radar observation services. In deciphering high-grade English language intercepts the cipher office of the Commander-in-Chief *Luftwaffe* was not very successful, as the last chief of the so-called '*Chiffrierstelle*' told me several years ago. It was, however, excellent on Russian intercepts. Goering's research office also seems to have been quite good at deciphering international messages of a political and economic nature, but it had nothing to do with military matters of a tactical nature and was extremely secretive.

Finally I will briefly sketch what I think were the main characteristics of German air intelligence, or German intelligence as a whole, and then try to explain them.

The air intelligence picture was initially allowed to be overshadowed and distorted by the euphoria that followed the early victories, by political deliberations based on ideological bias, by the conviction of the superiority of the German warrior over the Anglo-American tradesman, and by the feeling of cultural superiority over

the Russians and East European peoples on the one hand and the Americans on the other. British and American society was considered to be liberal with people only out for profit and incapable of a united war effort. This weakness did not apply to the authoritarian German society, the '*Volksgemeinschaft*', and to German industry: German society, it was believed, could take more punishment than the British, who were expected to revolt against their government if subjected to bombardment. A similar image of the Germans existed in Britain, and both were false. The German air attaché in Washington, Army General von Bötticher, who in himself represented the German underestimation of America as a potential air power (otherwise an air officer would have been sent), misinterpreted the fact that the US Army, during its speedy build-up, appointed businessmen and industrial experts to officer rank as a symptom of its corruption by capitalism, because in German militarised society an officer's career had to be started from below, regardless of his civilian qualifications. Scientists in Germany, who could have done more for the war effort in their laboratories, were drafted first as common soldiers. Intelligence frequently judged the foreign aircraft industry by its number of skilled workers, because the German industry, which was far less rationalised than the Ford automobile works in America, depended very much on them. Again the picture was wrong.

As far as front-line strength, equipment, training, organisation and matters of a tactical and operational nature were concerned, air intelligence assessments – with exceptions – usually proved right. But the assessments of overall national war potentials were generally wrong in the first few years, and British aircraft production figures were greatly underestimated in the pre-war and early war years.

Why was that so? There are several reasons. First it was mainly the general staff officers who held the major positions within the air intelligence community. They had been trained predominantly in the military fields of tactics and operations and less so in fields pertaining to grand strategy such as economics, science, technology, industrial production, the mentality of other nations, intelligence and so on. Because of these priorities the best general staff officers in the air force were put into A3 positions. This does not mean that there were no good officers in the intelligence service. On the contrary, there were very capable people, mostly reserve officers with good education

and from pertinent trades and professions, but they usually held low ranks and had no influence. Fighting qualities in the field and in tactics and operations were considered to be of higher value in a society with a strong military tradition than good performance in assignments in the rear areas, in the logistics sector and at the desk of the intelligence officer. This happened in other countries too, but in Germany it was excessively so:

Intelligence work was traditionally disdained in Germany, because spying and cloak and dagger activities were held in low esteem. That good intelligence was essential for working out the all-important relationship between ends and means, especially in a long war of attrition, and that intelligence activity was a scholarly and scientific task, rather than dirty work, was only realised too late. The British, who for centuries had had to use intelligence for holding together a huge empire with but a few soldiers, took a different stand *vis-à-vis* intelligence and made much better use of it. There was a tradition of short-war thinking in Germany, since the experience of the preceding 200 years had shown that long wars could not be sustained for lack of natural resources. Therefore all possible military force must be applied right from the beginning of a war so as to win it quickly, before the enemy's strategic potential could unfold. Strategic intelligence, therefore, was not so urgent, whereas tactical intelligence was all-important.

The second reason for the failures of the German system was that the shortcomings of general staff officer training were not compensated for by an organisation comparable to that in Britain. Here there was a committee system which linked together all the parties and agencies necessary for the conduct of a modern war of attrition, guaranteed a steady flow of pertinent information, and made military and civilian specialists, scientists, engineers, economists etc. work together on an equal footing. This was hardly possible in a militarised society. On the contrary, Hitler's basic order No 1 of 11 January 1940 on military secrecy forbade anyone to know more than he required for the execution of his task, or to be given that information earlier than necessary. Nor was there any war plan as the basis for the long-range intelligence perspectives; the only plans were for campaigns, prepared on an *ad hoc* basis, for Hitler usually made his intentions known only at short notice, leaving little time for



thorough intelligence work.

The final reason was that in German air doctrine the principle of the offensive was paramount. This was due to Germany's unfavourable geo-strategic position in the middle of Europe, which, in the eyes of the military planners, required that a war should be carried offensively into enemy territory from its outset in order to protect German soil and spare the civilian population – which had collapsed in 1918 – the inconveniences of war. The air force therefore had to assist the army in obtaining a strategic outer rampart for air defence and early warning. As David Kahn observed, the attacker usually wants to force his will upon the attacked and is therefore more interested in developing the maximum military power than in gaining intelligence information about the defender. This kind of thinking tied in very well with the voluntarism of Nazi ideology, which – personified by Hitler – frequently turned against the generals and general staff officers, whom he wanted to be true believers in himself rather than the logical thinkers which their profession required. Only when Germany was thrown back on the defensive did the air force intensify its intelligence activities; because the defender is usually weaker than the attacker, he must make up for his weakness by good intelligence about the attacker in order to take appropriate defensive measures. This was, by the way, one of the reasons why the German Air Force stressed the development of radio navigational systems for its bombers more than the development of radar, an essentially defensive device, in which it was eventually and fatally outstripped by the centimetric radars of the western Allies.

In conclusion German air intelligence and intelligence in general was suited to a continental power with limited objectives but proved inadequate for inter-continental war, to which it was adjusted too late. The under estimation of the war potential of its opponents before and during the early years of the war was a major factor in Germany's final defeat.

(This is a shortened version of parts of Dr Boog's article with the same title in *Intelligence and National Security*, Vol 5, No 2 (April 1990), pp 350-424, where all the sources can be found.)

## 8. *The Achievements of Air Intelligence*



*Mr Edward Thomas*

Chairman:

*I am sure we are all agreed that a seminar on air intelligence in the Second World War without a German perspective would have been a very distorted affair. We are very fortunate indeed that Dr Boog was able to travel over specially in order to give us the benefit of his unique research and experience. Our last speaker before lunch was to have been Edward Thomas, but as Freddie Sowrey has already told us he sadly passed away in January. Fortunately for us he had already prepared his paper for this symposium and rather than lose what he intended to contribute Air Commodore Henry Probert has agreed to present his paper. Edward Thomas studied German and music at university and during the Second World War he joined naval intelligence. He served in Iceland, in Hut 3 at Bletchley Park, and was Staff Officer Intelligence to the CinC Home Fleet, Royal Navy, in the battleship Duke Of York. After the war he spent many years as a research officer with the Joint Intelligence Bureau, and in 1971 he became a founder member of the team led by Professor Harry Hinsley which wrote the official history of British Intelligence during the Second World War. He contributed to two of our earlier Bracknell seminars, 'The Battle Rethought' and 'Seek and Sink'. He had just written the draft of the presentation we are about to hear when he suddenly died. Henry, we are most grateful to you for standing in under these sad circumstances for the late Edward Thomas.*

The story of Air Intelligence in World War II is worthy to stand

beside the most historic achievements of the RAF, to which it made a notable contribution. Today, however, I can quote only a few examples.

Air intelligence was provided for both operational and strategic use. Underlying both was an *accurate* and *up-to-date* understanding of the Order of Battle of the German Air Force, and the Air Intelligence (AI) Branch of the Air Ministry worked on this with conspicuous success throughout the war. AI owed this success chiefly, but not entirely, to the daily breaking by Bletchley Park – from 22 May 1940 until the end of the war – of the GAF's general purpose ENIGMA cipher, supplemented by breaks into the ciphers of many other GAF commands and authorities. These yielded reliable and up-to-date intelligence about the composition, designation, location, strength, serviceability, casualties, wastage and reserves of every GAF unit in every theatre of war. It also frequently revealed the GAF's operational intentions, its appreciation of *Allied* strengths and intentions, and daily reports of operational results, weather, location of airbases, depots and training stations.

This copious intelligence, known as ULTRA, informed AI's daily appreciations of the constantly changing state of the GAF and imparted realism to the work of the strategic planners and decision-takers. It was also transmitted at high priority to RAF operational commands in every theatre of war. Sadly, few records survive of its impact on their daily operations; mostly it would have gone into immediate orders transmitted by telephone or word of mouth. But it must have been of enormous benefit to the RAF in its daily task of supporting Allied ground forces, defending bases and communications, and so forth.

ULTRA was not the only source of intelligence. It also came from PR – next in value to ULTRA and often complementing it – prisoners of war, captured documents and equipment, RAF 'Y', censorship, and many non-secret sources. Their usefulness was enhanced by being evaluated against the comprehensive and reliable ULTRA material.

In the early days, however, there was *no* reliable source of intelligence on GAF strength, organisation or intentions, and it was widely believed that Germany would deliver an all-out blow against London (or Paris if you were French). Sober analysis of aircraft types, payloads, endurance, etc would have shown this to be impossible – as

it soon proved – but this was *not* carried out. The total front-line strength of the GAF was similarly exaggerated, partly for reasons of Whitehall politics and partly because of mistaken assumptions about front-line establishment. Then, with the help of GAF ENIGMA – available for the first time in bulk during the Battle of Britain – and of the RAF ‘Y’s call-sign intelligence, outside assessors called in by Churchill re-examined AI’s figures and scaled them down. As a result the estimated total of operational aircraft in the GAF was reduced from 12,000 to 8,300 as at 1 January 1941 – some say the biggest victory ever scored over the GAF! This was close to the actual figure and proved a realistic basis for assessing GAF strength for the rest of the war.

As regards the conduct of the Battle of Britain, ULTRA had little impact, but indirectly it made an historic contribution. When the German armies resumed operations against France after the evacuation from Dunkirk the only source of intelligence on their advance was the GAF ENIGMA which showed the French to be incapable of resistance and underlined the futility of throwing further RAF squadrons into the battle as requested by the French. The Chiefs of Staff resisted the French requests and preserved their squadrons to fight in the Battle of Britain.

Turning now to transfers between theatres of operations, these were invariably revealed by ULTRA. Examples are the mass movement of aircraft of all types from Russia to the western Mediterranean to counter the Allied advance into Tunisia in late 1941, and the mass recall of fighters from Russia to Germany in 1943 and 1944 for the defence of the *Reich*. These withdrawals, together with ULTRA’s revelation of the great toll taken of the GAF by the superior Russian Air Force, greatly weakened German resistance to the Soviet armies. Before the GAF embarked on its ‘Baby Blitz’ against London in January 1944 ULTRA revealed that some 500 aircraft had been moved to France for the purpose. CAS took stock of their poor efficiency and state of training before deciding against any strengthening of the UK’s fighter defences, half of which had been removed to train for OVERLORD. But this type of intelligence was not *always* to hand: when the GAF first moved to the Mediterranean at the end of 1941 to support the defeated Axis forces, intelligence that the move was afoot was available in Whitehall, but, owing to a

communication muddle, was not passed on and the navy suffered severe losses as a result.

This leads me to mention that during 1941-43 the RAF took an enormous toll of merchant shipping bringing supplies from Italy and Greece to ports in North Africa. The consequent shortages (especially of oil) handicapped Rommel throughout his campaign and finally contributed decisively to his defeat. In the case of almost every ship sunk details of its route, timing, escort and cargo had been sent in advance direct from Bletchley Park to the Mediterranean. I was one of those who sent them.

Good intelligence was just as important in the land campaigns. For example on 25 March 1943 British divisional commanders ruled out a planned frontal assault on enemy positions covering a certain feature of the Mareth Line in Tunisia, because of the strength of the enemy's defensive positions, and AOC Western Desert (Harry Broadhurst) immediately proposed a preliminary strike against enemy gun positions, defence posts and landline communications. This strike, involving all the tactical aircraft in the theatre in an operation hitherto without parallel, took place next day. Its immense effectiveness, which was indispensable to the armoured breakthrough, depended on the thorough and precise target intelligence given to the pilots, which came mainly from PR and RAF 'Y' and was compiled and distributed without warning only a few hours before take off.

Another important achievement of AI was to provide warning of the development of new types of enemy aircraft. In this ULTRA was less important than non-secret sources since the Germans used ENIGMA only at the operational stage. AI failed to anticipate the startling Fw 190 when it first appeared in 1941, but when in 1943 Germany started to introduce radically new types such as the advanced piston-engined Ta 154, He 219 and Do 335, AI gave prior warning. Its revelation of the advent of the first German jet-propelled aircraft made aviation history. After impressively piecing together fragments of information from PR, POW and other non-ULTRA sources AI reported in July 1943 the first definite signs that the Germans were pushing ahead fast with jet and rocket propulsion. It correctly predicted, quoting General Galland, that the GAF would have at least one operational jet in 1944. This shocked the Cabinet and led Churchill to order a big speed-up of work on the Whittle jet which

had been ambling along with low priority since the end of the Blitz in May 1941. The outcome was that the Gloster Meteor became operational in July 1944, the same month as the Me 262. The profound impact made by AI's report also triggered off the first serious Allied attempts to tackle the aerodynamic problems of supersonic flight.

During the last year of the war, intelligence also revealed that Germany had embarked on other technological innovations mostly bearing on the air war. These included a longer range Hs 293 (the winged guided rocket missile) for attacking cities (the BV 246); a winged version of the V2 rocket and a two-stage rocket capable of reaching the United States; two jet-propelled bombers with the same capability (Ju 287 and Ju 338 [*sic*]); four types of surface-to-air guided missile and an air-to-air guided missile. With these and their formidable new U-boats the Germans hoped to turn the tide of war, which was why Hitler issued his notorious 'no retreat' order to all fronts. Except for the jets these proved to be of little importance to the war, having been delayed by developmental defects and Allied strategic bombing. Jet fighters and fighter-bombers, however, did become operational during the last ten months of the war but while they threatened Allied PR flights they made little impact elsewhere. ULTRA kept Allied commanders informed of their deployment and intentions.

I must now touch briefly on the Battle of the Atlantic. Intelligence about German U-boat strengths and dispositions, provided by Bletchley Park and assessed by the Admiralty, can legitimately be called air intelligence in as far as Coastal Command played a major – if not the biggest – part in overcoming the U-boat menace. This intelligence underlay all the Command's patrols (except during 1942 when the intelligence failed) as, for example, in 1941 when Coastal twice drove the U-boats away from waters profitable for them. In the spring of 1943, after severe losses of merchant ships, air support of convoys by Liberators and by escort carriers, guided by ULTRA, closed the Greenland Gap and helped drive the U-boats from the North Atlantic. When ULTRA then showed that there was no longer a threat in the North Atlantic, Coastal Command was able to reinforce its Biscay patrols, which between June and August, guided by ULTRA and PR, destroyed twenty-one U-boats including four of the

supply boats on which the Germans' intended distant waters campaign depended. Anti-submarine aircraft stood on the runways of south-west England with engines ticking over waiting for the latest intelligence. Coastal's work was completed by a run of successes against the northern transit routes and by an ULTRA-guided, and very successful, campaign by US escort carriers against supply and combat U-boats in the mid-Atlantic which achieved comparable results.

Thereafter the Germans planned to resume the offensive with new super-U-boats of formidable characteristics in the autumn of 1944. These would have been largely immune to Allied anti-submarine measures, not least because they would have carried a virtually unbreakable ENIGMA. That the ocean-going types never went to sea sprang partly from internal causes, but mostly from Bomber Command's activities. Since 1941 Bomber Command, guided by ULTRA, had laid mines in German coastal shipping channels. This resulted in a high rate of sinkings which swelled the damage to the German economy. Continued in 1944 and 1945 this minelaying so interrupted the trials and training of the new U-boats that only one ocean-going boat ever put to sea, and that on the last day of the war. Moreover Bomber Command's disruption of Germany's internal communications severely delayed the construction programme of the new U-boats, as was also shown by ULTRA and PR.

Air intelligence contributed to other notable naval successes. GAF ENIGMA reconnaissance reports from the ice-edge north of Iceland gave the first warning of *Bismarck's* sortie in 1941. Similar intelligence that GAF torpedo aircraft had abandoned north Norway for the Mediterranean led, indirectly, to the sinking of the *Scharnhorst* in the Barents Sea in 1943. Intelligence from PR, ULTRA and Norwegian agents helped bring about Coastal Command's many successes against ships carrying iron ore and troops off the coast of Norway. I was concerned with these operations and saluted Coastal Command then. I do so again.

Finally, a few points relating to the bomber offensive, in which at the beginning of 1944 the USAAF mounted a carefully planned and intensive campaign against German fighter aircraft in order to gain air superiority over Germany by daylight. This campaign has been described as 'one of the most decisive of the war in the air' and crucial to its success, as the USAAF has testified, was intelligence provided

by the British. The USAAF acknowledged the help given by ULTRA in providing the basic facts about GAF strengths and dispositions and in particular facts about installations such as air parks and training stations where fighters could be attacked on the ground. ULTRA played a big part too in providing data for the accurate weather forecasting which determined the timing of the campaign. For the conduct of the fighting the Americans acknowledged their dependence on the instant intelligence of enemy fighter reactions provided by the 'Kingsdown Hook-Up'. This network was a breakthrough in operational intelligence-reporting whereby the British organisations intercepting GAF R/T and W/T transmissions between aircraft and their ground controls co-ordinated their intelligence with Bletchley Park's background intelligence and passed it direct to the USAAF controllers. It provided information on enemy fighter tactics, time and place of take-off, fighter approach routes, altitudes, rendezvous details and D/F bearings.

The daylight air superiority thus won opened the way for the USAAF's heroic campaign against German oil production. They accepted the British intelligence estimate that Germany was now critically dependent on some two dozen synthetic oil plants and refineries, and by summer 1944 ULTRA showed that the damage inflicted by the American bombers was arousing the greatest concern among the German leadership and seriously impairing their conduct of the war. This was borne out by PR reports of the damage being done and of Germany's frenzied attempts to repair it. By the autumn, the USAAF, with marginal help from Bomber Command, had reduced supplies to 30% of normal and battlefield operations and training were becoming seriously handicapped as many intelligence sources revealed.

In October 1944, however, when a critical cut-off in supplies was within sight, the German situation began to improve as the USAAF attack fell off for weather and other reasons. CAS was greatly impressed by this intelligence and urged Bomber Command to join in powerfully. This Bomber Command did in December 1944, too late to prevent Hitler accumulating enough oil for his Ardennes offensive, but in time to reduce German oil supplies to a trickle by the end of February 1945. This had immediate effects on all the fighting fronts, not least the Russian, and on German industry.



The Ardennes offensive, which I've just mentioned, prolonged the war and allowed the Russians to reach Berlin first. We can now see that British army intelligence was complacent and unimaginative in failing to assess correctly the many available clues which foreshadowed its start. It is to the credit of AI that they correctly interpreted the preliminary *Luftwaffe* build-up, which they called 'the largest redistribution of the GAF since the invasion of Russia in 1941', as a warning to expect a massive German initiative. As weeks passed, with weather postponing the German attack, AI was gradually seduced into agreeing with the Army, so much so that when the attack came it was a disastrous surprise. The German offensive was to have been preceded by a massive air strike but this was postponed by weather: when it came, on 1 January, it too achieved complete surprise and 120 Allied aircraft were destroyed on the ground. This was not intelligence's greatest moment.

## 9. *Synopsis of Afternoon Discussions*

The afternoon discussions ranged widely. Three of the groups had the benefit of German contributions and therefore tended to concentrate on the relative strengths and weaknesses of Allied and *Luftwaffe* air intelligence; elsewhere there was much emphasis on the lessons to be drawn from both wartime and more recent experience.

**Dr Boog** opened the discussion in his group by adding to the remarks he had made in the morning. 'Our Air Intelligence was very good in the tactical and operational (not strategic) sphere, ie as far as co-operation with the Army was concerned. This is what the *Luftwaffe* was mainly trained for, and it was in the Spanish Civil War that this role was brought towards perfection, especially as far as close air support was concerned. Previously this had been considered too difficult, but General Von Richthofen developed and exercised it very well with his Condor Legion. Being a continental power in a very unfavourable geo-strategic position, Germany, in case of war and to minimise the air threat, had to wage combined offensive operations of the *Luftwaffe* and Army into enemy territory, and these were therefore developed in the last years before the Second World War, while pertinent tactical air intelligence was completed as far as possible. It should, however, be mentioned that air-land co-operation reached perfection only in the Balkans Campaign and in Russia in 1941, after some necessary further experience had been gained in Poland, and particularly in France, in 1940.

This preoccupation with air-ground co-operation does not mean that the *Luftwaffe* was devoid of any thinking about strategic air war, but being a continental air power with at first only central European and not yet inter-continental objectives, the *Luftwaffe* thought primarily in terms of land operations. In official *Luftwaffe* terminology the term 'strategic' did not exist until well into the Second World War. What would have been a strategic air operation was called 'operational air war', but this term also included tactical support and indirect support operations. All these three roles of an air force were

called 'operational', as derived from land operations. This concept was rather confusing and caused much unclear thinking. It was not before 1943/44 that the term 'strategic' air war in offence and defence was introduced into *Luftwaffe* terminology, because by then the Allied bomber offensive had demonstrated what strategic air war was.'

Asked then what was the strategic role of the Air Force, Dr Boog reiterated that, although it was called operational, there was in fact strategic thinking in the *Luftwaffe*, which considered the destruction of the vital centres of the enemy, and particularly the communications linking them to the front (which indicated again that the concept was derived from land operations), as the main 'strategic' role, as it was in most other air forces too. Again it was worthwhile to consider the status of strategic operations in comparison with the other roles. The first task of the German Air Force was to gain air superiority, as in most other air forces. The second task was co-operation with the other two services, which meant mainly with the Army, because the navy was considered less important in the scenario of German military staffs. The third priority was reserved for long-distance operational bombing, which we call strategic air war today. In the First World War strategic operations like the Zeppelin and Gotha attacks on London had brought no immediate results on the land fronts, and it was these that were so important for Germany, not what might happen in England in the unforeseeable future. So it was assumed that strategic air war would not bring any relief to the land fronts within a short time, and would only tie up many resources without tangible result. This showed that the *Luftwaffe* was geared to continental standards and not as a strategic terror bombing force as Hitler would have liked it to be – although, for practical and opportunistic reasons, he had pleaded for restriction of bombing activities to the zones of land operations before the war. Hitler never lost sight of the eventual necessity to construct a strong strategic bomber force but this was to come after he had established his continental empire comprising most of Europe including Russia. Up to then attacks on strategic targets in Russia were forbidden until mobile land operations had come to an end and the line Archangelsk-Gorky-Astrakhan had been reached, which it never was.

**ACM Sir Patrick Hine** asked if there were ever designs for four-engined bombers. 'Yes', replied **Dr Boog**, 'in the early 1930s, when

the ideas of Douhet became known, it was proposed to establish a 'Risk' Air Force of about 200 large bombers as a deterrent to potential enemies during the phase of re-armament. But the Army wanted bombers to support them, and fighters to clean the skies above. So the scheme for big bombers – called Ural-bombers because of their planned reach – was dropped in 1936 and priority given to the fast two-engined medium bomber believed to be sufficient for all support and independent roles and able to reach the capitals of the then potential enemies: Paris, Warsaw and Prague. This step did not mean that the idea of the strategic bomber was dropped but only that this type of bomber was not necessary at the moment. However, shortly afterwards the development of the four-engined He 177 bomber was begun as a low-priority project which was accelerated and delayed as the general political and strategic situation fluctuated.'

**Mr G B Watson** asked about the capability of the Condor for development as a bomber. **Dr Boog** said it was a makeshift commercial plane, unstable, a very bad bomber, easily shot down by fighters. There were no four-engined bombers – the He 177 never became really operational. The Ju 390 was intended to support the U-boats in the Atlantic, with the Me 264, but only two planes, he thought, existed. Dr Boog added that Messerschmitt and Hitler met frequently in the early 1930s, just the two of them, and discussed among other things the 'Antipodes' plane as they called it, an aircraft that would reach New Zealand. Hitler never lost sight of such ideas, and in 1942 it was revived. The *Luftwaffe* General Staff knew nothing about it and were informed indirectly that Hitler and Messerschmitt had already discussed it! By order from above they investigated the possibility of long-range flights and refuelling in the air, but they were convinced from the beginning that it was all nonsense.

**Mr Douglas Harper** expressed surprise at hearing that on all Air Intelligence no action was taken until it had gone to Hitler. **Dr Boog** said this would be overstating the case, but certainly Hitler was the final link between the intelligence services. There were twelve major intelligence agencies, run by the Services, by the party, and by some Ministries – and no central clearing office. That did not mean, however, that Hitler received all the minor details of information – he did not bother about those. At first the leading people did not think very much of intelligence; then they were disappointed by the failures

and did not believe it at all. He thought Goering and Hitler knew that the figures given after the re-organisation in 1942 were quite correct, but they had to suppress this insight so as not to discourage their staffs and the German people.

**Wg Cdr Jefford** referred to the Allied ability to read the German codes, the increasing sophistication of Allied photographic reconnaissance and capacity of the Y-Service to interpret signals. How sophisticated were the German equivalents; could the Germans read Allied codes, he asked. 'No', replied **Dr Boog**. 'I spoke with General Friedrich, who was in charge of the deciphering office of the *Luftwaffe*, directly subordinated to Goering, and he told me a couple of years ago we were very bad at deciphering English-language intercepts, British or American, but we were very good on the Russian side, because there were many former Czarist officers in German intelligence, and they were very helpful'. **Jefford** observed that photo-reconnaissance must also have been difficult from 1942 onwards because of the security of our air defence. 'Yes, this was the reason why *Luftwaffe* intelligence was so much deceived by Ostro', said **Boog**. 'Ostro was the only agent considered to be reliable, and he was not. Air reconnaissance practically ceased over Britain from 1941 until the appearance of the Arado 234 jet in 1944. In between there was next to nothing. A similar situation existed during the Battle of Normandy: the breakthrough of Patton's 3rd Army was only noticed by the first Arado 234 reconnaissance flight when it was too late.'

**Dr Boog** was also asked about deception and said there were plenty of examples. All German agents in Britain who were not executed were turned around so they still fed news into the German intelligence grid and the Germans believed their observations were true. It was very easy for England, because in an island one could control everything. 'We were deceived, for instance, about Fortitude South, and the invasion. Garbo and other people fed false information. Hitler and his staff feared that the invasion would take place around Calais, because it was near the V2 launching bases and the Ruhr basin, and all the information from England increased this fear. Divisions were therefore held back by the 15th Army in that area instead of being sent to help 7th Army in Normandy'.

'As for Air Intelligence', **Boog** went on, 'agent Ostro, working from Lisbon, deceived the *Luftwaffe* about British strength; after the

war he was the correspondent of *Der Spiegel* in Barcelona! What is still not clear is how he got his information. He systematically gave false figures, and he was the only one whom German Air Intelligence believed. There were also two fictitious spies, Josephine and Hector; they regularly reported from England via Sweden, and the German Trade Attaché, Dr Kramer, who died recently, milked these sources – invented by himself – and made wonderful reports. Kramer received much money to pay his fictitious sources, and since he was on good terms with SS-Intelligence Chief Schellenberg, it is believed that his intelligence activities in Sweden served to transfer enough money to a neutral country so that SS-Chief Himmler and others could make a living there after Germany lost the war. We still do not know where he got his information; either he concocted it from the newspapers in Sweden or he used his good connections with a secretary in the Swedish Foreign Ministry. Probably the Air Attachés got their information from British intelligence circles, and maybe they fed false information into the Embassies.’

In another group **Air Cdre Probert** introduced **Professor Osthoff**, stating that he had come across from Germany totally at his own expense, an indication of the importance he attached to attending our seminar.

**Professor Osthoff** said he wished to relate a few things which were not in the archives. ‘I was born in Berlin in 1911 and became in the same city a soldier in the German Air Force. In 1943 I was transported to the General Staff –*Führungstab der Luftwaffe* – to work in intelligence, since I was a lawyer and knew some English. I had to collect all the information and prepare for the General Staff the daily reports of the situation on all the fronts. I had at my disposal 100 girls who were working in three shifts. My task was to analyse the statements arriving from the front and to provide them to the Chief of the Air General Staff, General Jeschonneck – the most capable officer in the GAF. I remember particularly hearing that a new type of aircraft had flown very fast from England with the aid of new navigation equipment and dropped its small bomb load very accurately. We wondered what was happening. This new weapon – perhaps a new miracle – proved to be the Mosquito. I reached the conclusion that this was ACM Harris’s new weapon to complete his master bombing plans. My view was that if this proved successful our air defence

would be broken and we would lose the war in the air. I prepared the facts and figures for Jeschonneck who duly told the *Führer* it was impossible to maintain our air defence. This was the most impressive incident during the whole of my two years in the *Luftwaffe* High Command. Jeschonneck later committed suicide.

Now, I must add a personal remark. I never expected anything as wonderful as this RAF Historical Society study day here at Bracknell. Remembering the many contacts with your country in both peace and war I sincerely hope you will accept a small but also 'historical' souvenir of air intelligence in the war against Germany – one of the silk maps carried by RAF aircrew in operations over Germany to help them find their way if they were shot down. One of your pilots gave it to me with the words: "For us the war is finished; this is for you to remember me." I have it here!

**Air Cdre Probert**, having thanked **Professor Osthoff** very warmly for his gift, wondered about the connection between Jeschonneck's suicide and the attack on Peenemunde, both of which occurred in August 1943, and **AVM Hedgeland** said that the first Oboe Mosquito flights must have been in November 1942. The first attack using Oboe was in December but the biggest Oboe attack was on Essen in early March 1943. The events the Professor had described must have been related to the trials in which the Mosquito was involved. **Professor Osthoff** considered that the key question was whether the air forces could win the war without occupying territory. This was the strong feeling of Harris, who said the war could be finished by destroying cities. Asked by **Air Cdre Probert** whether he thought at the time it might be possible to end the war by bombing **Professor Osthoff** replied: 'No, certainly not.'

**AVM Betts** referred to the time of the Normandy invasion, when there were great efforts to deceive the Germans by stationing a fictitious army (the 1st US Army Group) in SE England which, it was suggested, would carry out the main invasion in the Calais area. Much had been written about this, but he had not seen anything of a similar air deception. 'From your time in air intelligence did you have any idea of air force dispositions in southern England suggesting that the main invasion would come in the Calais area?' 'No', replied **Professor Osthoff**, 'We were completely in the dark regarding the time and area in which the attack would start.' **Dr John Ray**

mentioned the traditional German fear of starting a war on two fronts at the same time and asked about the reaction of the *Luftwaffe* staff when they learnt they had to attack Russia having not yet knocked Britain out of the war. **Professor Osthoff** had no doubts: 'This attack was completely wrong. I did not hesitate to say, on that very day, "Now we have definitely lost the war."' Asked by **Air Cdre Probert** how difficult was it to say the kind of things which he knew would not be accepted, **Professor Osthoff** answered: 'It was dangerous as a soldier in any case. In the *Luftwaffe* HQ there were always people who had confidence in each other, you could speak your opinion very openly – but not to the generals above. I had the greatest respect for Jeschonneck – he was an old-fashioned Prussian officer.' **AVM Robinson** mentioned the misreading by the Ministry of Economic Warfare of the potential of Germany's industrial capacity. 'We were told that the Germans misread our aircraft production figures but it was not until towards the end of the war that we were beginning to get accurate intelligence about their industrial capacity – they were continually surprising us when their production rates did not go down as we were predicting.' **Professor Osthoff** said that coal production and aircraft production were critical points – very important. He then asked to make a short statement.

'The course of the Second World War was determined by the air forces in two decisive phases. First came the daring offensive operations of the German Air Force; then the power potential changed in favour of the Allied Air Forces who attacked from then on. The saying that 'war is the father of all things' very aptly characterised the rapid technical evolution of the air forces within the span of four years. The concepts for the tactical and strategic use of the air forces developed parallel to the advances of technology, especially in electronics. As pressure by the Allied Air Forces increased on critical sectors of the front line, it became increasingly urgent for us to answer the questions about the guiding principles and targets of the supreme command of the Allied air forces, a subject which was related to their most carefully guarded decision-making processes. Successful reconnaissance was therefore the first and foremost precondition of effective defence, and the protection of major cities against destructive air raids had to be reorganised. A small group of experts within the German Supreme Command faced the task of trying to predict



expected attacks, and we tried to find a combination of facts and suppositions characterising the main Allied objectives in winning the war against Germany.

The most important elements of these, aside from evidence of military records, were the character descriptions of the most senior British officers, from which we gained something like an X-ray photograph of the thinking and command structure of the hard-hitting RAF. This related particularly to the personalities of Portal, of Tedder, whose strategic convictions centred on the most narrow co-operation between air and ground forces, of Harris, the chief of the 'Master Bombing Plan', who carried out air raids with at least 1,000 heavy bombers on main targets by day and night, and of AVM Francis F Inglis, who as ACAS(Int) had extensive knowledge of German war potential. The conclusion was clear: ever increasing air attacks would continue until all major German cities were destroyed – even in the face of opposition within the enemy's own camp. It was not possible, however, to transfer this acquired knowledge of the RAF's objectives into the necessary anti-aircraft defensive action.'

In a third group was **Herr Zetzsche**, who explained that he had been in intelligence from 1943 to 1945. German intelligence had been weak from the very beginning and the Generals themselves did not know what was available to them. So although technical intelligence was more or less in order there was none at the strategic level, and the older generation of generals especially were incapable of understanding modern war, even in the period 1943 to 1945. He added that the whole structure of the Hitler-dominated *Reich* was built on corruption and based on an optimistic belief that the end of the road was near and the Allies could be quickly divided. **ACM Sir Michael Armitage**, mentioning that the German counter-intelligence people managed to break into the ciphers of the Royal Navy in the early stages of the war and caused Britain a number of painful losses, asked **Herr Zetzsche** to comment. **Herr Zetzsche** replied that all the intelligence services were watertight, separate units; the Navy was not allowed to communicate with the Air Force, and the Air Force did not want to pass on secrets to the Army. Later in the war when younger people arrived and said, 'you must face this fact and let the youngsters sit together in order to make progress', nothing was done. Nobody told him of the difficulties; he learnt about them only after the war.

**The following pages contain a selection of photographs taken during the symposium.**











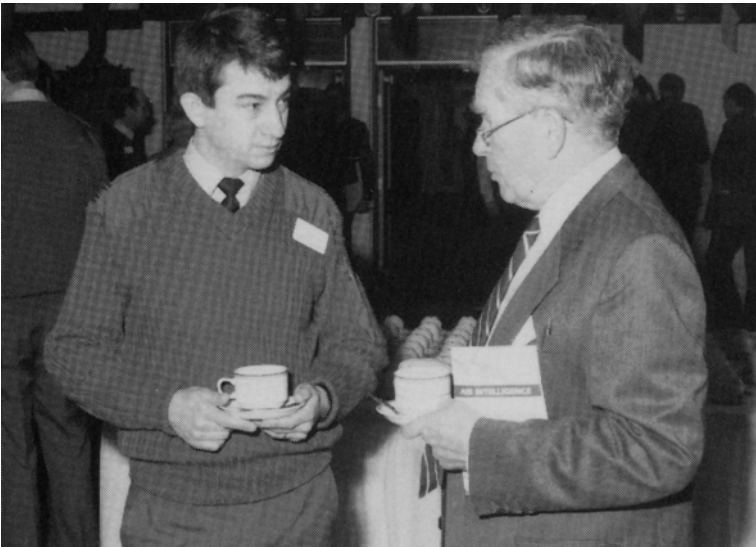




















Asked how many people were involved in the German intelligence set-up, **Herr Zetzsche** said that they started with ten people in 1939, increased up to 500 in 1942, and ended up with over 1,500 and ten aircraft in operation. So the whole structure built up from being far too small and became very big, and the results were completely negative. **Major Hugh Skillen**, who had worked in the intelligence from 1939-1946 and subsequently researched the subject, said that before the war the Germans were employing something like 40,000 people on radio intercepts and had about twelve main stations in different parts of Germany taking these intercepts. They were also intercepting all the telephone conversations and filled the concentration camps with the opponents of the regime by tapping telephones. Every *Gestapo* headquarters had a centre in which there were tape recorders (not wire recorders) with plastic tape; these switched on automatically when certain numbers were dialled and the machine would go off when the conversation stopped. Later, during the war, a station was opened in Berne, Switzerland, which broke British communications with the embassy. Ultimately the Germans were listening to the diplomatic traffic of just about everybody.

On a different theme, **Sqn Ldr Simon Dobb** referred to **Herr Zetzsche's** experience as a young pilot who, before joining intelligence, had flown missions against the UK. We had heard earlier, **Dobb** said, that owing to poor intelligence the *Luftwaffe* had switched targets from fighter airfields to London and that this might have been a major turning point in the Battle of Britain. What did **Herr Zetzsche** feel, as a young pilot, undertaking these missions against Great Britain; did he feel that suddenly the wrong decision had been made? **Herr Zetzsche** replied that he and his fellow junior officers felt that the whole thing was wrong, for they had learnt at military school the importance of concentrating their forces. 'We could not understand why one day we had to attack an airfield, the next day we had to attack a port and the very next day a city. The whole thing made no sense to us, particularly as we thought that the targets in the country, and especially in the city, were not worthwhile because they were not definite military targets. We felt that due to the command structure of the air force with its basis of heel-clicking it was not possible to represent these views. Our ideas went from the Captain to the Major and that was more or less that. Even the Lieutenant Colonel and the



Colonel were rooted in the First World War and did not really understand the technical side of the air force.

**Peter Love** asked how important to the Germans were the pre-war probing missions made by airships. **Herr Zetzsche** did not think that the *Graf Zeppelin* or the *Hindenburg* had flown over London but they did cover certain parts of the English coast and the airship was fully equipped with all the equipment for radio detection. The airship flew along the coast and, according to later information, was detected but the RAF remained silent. So no one in Germany knew of the radar defences the British were putting in place. Others also referred to these airship operations. **AVM Betts** remembered seeing the *Graf Zeppelin* flying over the Lizard in 1937; it was off course and by chance had had to fly over Plymouth. **Maurice Rixom** said that the L130 was used in 1938/39 to cruise up and down the Channel to photograph the radio location masts that the RAF was erecting along the coast, and **Air Cdre Probert** commented that before the war started the Germans had built up a very good photographic archive of key military objectives – inland as well as on the coast – that might be of use in an invasion. According to **Air Cdre Pitchfork**: ‘The results of German PR over the UK were of such high quality that for many years we – particularly at JARIC – were able to make significant use of them while we were preparing our own database. As far as I am aware those photographs, which we stored for many years, are now at the University of Keele where they can be viewed. They formed a very significant basis of our immediate post-war photographic cover of this country.’

**Hugh Skillen** said he had presented to Bletchley Park about 12 volumes of maps made by the Germans for the invasion of England, Operation Sea Lion. These maps were very detailed; they gave the measurements of roads, eg the width of roads in Scotland, and indicated if the side of the road was hard standing and would take a tank. In every volume there was a selection of photographs; those of London were taken coming up the Thames just as the bomber would see it and all the factories were pinpointed and marked on the photographs. In Scotland, the Forth Bridge, the Tay Bridge and the hydroelectric schemes were all photographed very clearly by wonderful cameras.

**Lt Col Lacey-Johnson** was less complimentary about other

aspects of German PR. 'I have never been able to understand just why, when they were the home of the finest lenses and cameras in the business, their photographic reconnaissance was so poor. With all their technology, and it was far more advanced than ours, they never really had a decent PR intelligence set-up at all and I think that one of the contributing factors to our success in Normandy was the fact that they had been put so much on the defensive by Bomber Command that their attention to suitable strike- attack- and, in particular, photo-reconnaissance aircraft was practically negligible. Had they had good photographic reconnaissance at the end of 1943 and the beginning of 1944 many of the deception measures which we were devising would not have worked.'

**AM Sir Frederick Sowrey** asked **Herr Zetzsche** why there were no reconnaissance sorties flown over southern England in the period before the invasion; while the RAF and USAAF had air superiority, the Germans had at that stage developed extremely agile, fast, high flying aircraft which could have made reconnaissance sorties that would have helped the *Wehrmacht* identify the likely invasion beaches. **Herr Zetzsche** said that the so-called reconnaissance units were equipped with old aircraft of old technical standard. The new planes were kept behind because Hitler ordered them to be refitted as bombers and therefore the new types, especially the Me 262, were not available for reconnaissance. Moreover the invention of the American First Army Group distorted the whole balance. **AM Sowrey** asked **Professor Osthoff** a similar question. Surely, he suggested, German intelligence must have been very keen to know where the concentration of effort for the invasion was going to be; '.... despite all our efforts to mask where it would take place, you would have had a much better idea if you had been able to carry out aerial reconnaissance over southern England whether the attack was likely to come in the Pas de Calais or somewhere else. Yes, we had air superiority over southern England but not to the extent that we could completely bar high-flying well-flown reconnaissance aircraft.' **Professor Osthoff** thought there was little high level reconnaissance of this kind because the Allied air superiority made it impossible.

**Mr Bishop**, however, recalled his own experience. 'As the invasion fleet assembled off the Isle of Wight I happened to be sitting in a destroyer, and very high-flying enemy aircraft did come over at

very regular intervals. I presumed this was for PR, for there was no bombing. They obviously saw this immense assembly of ships, landing craft and so on, so I have always believed the Germans knew the invasion fleet was coming and had photographs.’ **Air Cdre Probert** added: ‘Hinsley’s history indicates that there was a limited amount of PR by the Germans; some authorities say they did not come at all but I’m not sure that is true. But the results they gathered did not add up to enough to give any indication of where the attack was going to come. They knew the invasion was going to happen but could not know whether it would be in Normandy or in the Pas de Calais, or whether one might be merely a deception operation before a bigger one arrived somewhere else.’ **Professor Osthoff** stressed two points. ‘First, Tedder refused to carry out an invasion without Allied air superiority. Second, the Russians were pressing the Allies each day to launch the invasion as soon as possible. These were totally opposing ideas. But Tedder refused to go early – he was the real commander of the invasion – not Eisenhower! We knew the attack would come, but we did not know the crucial point, and we couldn’t find out by aerial reconnaissance.’ **Mr Rosser** referred to the claim – maybe by Chester Wilmot – that for about three months before D-Day a force of pressurised high-flying Spitfires was devoted entirely to seeing that any reconnaissance aircraft that got across the coast did not get back. The claim was made, whether rightly or wrongly, that during this period none did. **Air Cdre Probert** said this might well have been Chester Wilmot, writing soon after the war and relying to a fair extent on hearsay. ‘On the whole, however, I would accept what Hinsley says, writing much later, that some did get back and delivered reports, but they were not enough to go on.’

**Herr Zetzsche** referred to the fact that the real point of landing was unknown to the German military. There was a certain amount of knowledge coming via the French resistance, which knew all about the invasion and when D-Day was coming and also even knew the point of landing. But this knowledge was confined to people engaged in the surveillance of the resistance and was not passed on to the military. The Generals on the spot were also afraid to tell Hitler sitting in Southern Bavaria what they did know, and the key people prior to the invasion were on leave. **Zetzsche** went on to stress the effectiveness of the Allied efforts to convince the Germans that the invasion would

take place in the Pas de Calais. These were perfect in timing, perfect in quality, even convincing in the strange concept of the Americans invading Southern Norway. **Sir Michael Armitage** recalled Field Marshal Bramall saying that he had landed on D+4 in Normandy and that by D+6 he still thought he was part of a diversionary force. 'So if he was convinced it is not surprising that the Germans were.' **Peter Rudd** said that he had been a pilot on an intruder squadron based at Manston on D-Day and when they went up to the airfield that morning they knew nothing although they had been flying around the area since April. As far as they were concerned there was nothing obvious that anything was going to happen. 'But when we did our night flying tests on 5 June we had never seen so many ships in all our lives and it was the first time that we had any indication that this was the day'.

### **BRITISH AIR INTELLIGENCE**

Several speakers drew on their personal experience of wartime intelligence. **Hugh Skillen** was in MI8 early on and his first recollection was listening to R V Jones during an intelligence course talking about the German and Italian Armies and Air Forces. RV had him sitting on the edge of his seat when he talked about the Oslo letter with all the details of German secret weapons that were handed to our naval man in Oslo at the outbreak of the war in 1939 and which nobody believed. RV had great trouble getting people to understand about the acoustic mines, magnetic mines, flying bombs and so on. After that **Skillen** commanded various field sections and was then switched to the Americans who were going to land in North Africa, and subsequently at the battle of Kasserine he met for the first time the RAF Y-Service in the person of Flt Lt Tom Turner. He said he was getting the frequencies of German and Italian tanks and if they had a line to each other and if **Skillen** got any air force frequencies then they could exchange information. After the battles in North Africa he returned home to train people for D-Day, mainly Canadian officers for their Y-Service. He was at Bletchley Park from D-Day until VE-Day, and one of the things he remembered most clearly was dealing with the German jet aircraft, which aroused tremendous interest, and jet fuel (J1). They could tell when a train load of jet fuel was leaving a certain station and arriving at another, maybe 12 to 16 hours later, and they could go and bomb that train. This was a wonderful way of

disrupting the delivery of the German J1 fuel. The German railways used ENIGMA; they had their own key and it was being broken every day at Bletchley Park.

Asked by **Mr Ernie Sockett** about the Polish contribution to the ULTRA story **Skillen** replied that the Poles worked on the ENIGMA machine from 1931 to 1939. They were given all the secrets of that machine by Major Bertrand of French Intelligence, who every month took the advanced keys, two months ahead, of the ENIGMA machine to Poland because neither Britain nor his own government was inclined to deal with it and said that if they had that machine they could not even decrypt one single message. So the Poles made twenty-seven replicas of the military version (except that they replaced the QWERTY keyboard by the alphabet) and by tying up six or seven together they produced a machine which could break the ENIGMA messages. This was the secret that they gave to the British and French one week before the war began. They sent two models via Rumania as they knew they were going to be overrun in Poland and could not take them all with them. 'So we started from scratch one week before the war; it was a miracle that we could even decode messages during the Battle of Britain.'

Describing his recollections of Bletchley Park, the home of ULTRA, **Skillen** pointed out how compartmentalised it was. He was in Hut 3 with Edward Thomas, but they never met as they worked on shifts. They never discussed their work at all and the Wrens who worked on the 'bombes' had great difficulty in fending off questions from their parents. They would ask what a university graduate was doing there and when she replied 'working on a switchboard' would say what a waste that was of the money that had been spent on her. One said that she scraped barnacles off submarines! When he himself, earlier in the war, had worked in the Y-Service, he used to wonder what was going on at Bletchley Park. 'None of us knew that they were breaking ENIGMA in 1943; we never asked. When I myself got to Bletchley Park on D-Day the number of personnel had risen to 12,000 and it went on increasing throughout that year. There were thousands of messages a day coming in and it was a question of priorities; the women did a marvellous job in sorting these, filing them and giving priorities like call signs. It was not easy to produce messages as you only had a message from a call sign to a call sign, but they were sorted

and went to the right people. Everything was recorded by hand. There was a little tunnel made between Hut 3 and Hut 6, which were adjacent, and they used a broom handle to push the messages in a box from one hut to the other. In Hut 3 they had pneumatic tubes, similar to those used in shops, and these were very fast in passing messages from one girl to another. The girls tended to use the Typex to break the messages. The Typex machine had been bought by the RAF in 1938 (it cost about £125); it was based on the German ENIGMA but had several safeguards that the Germans never overcame. It was used by our armed forces and our Foreign Office throughout the war and was absolutely secure.'

**Hugh Skillen** added that if we had shared all the information we had then the secret would have got out, whereas the secret was actually kept for 30 years after the war. 'There are still things today that people will not talk about. There was one highly placed individual who refused to have a general anaesthetic in case she said the wrong thing. It was very secret and very compartmentalised.' **Herr Zetzsche** said the secret was kept until 1974 until a book by Group Captain Winterbothom appeared. No one in Germany, no one in Russia and, he thought, even in NATO knew a thing about ENIGMA and they had not even heard the name Bletchley. He wondered who gave permission to reveal the information. **Skillen** replied that Winterbothom did it of his own accord, but since he had no reference to any records and did it all from memory there were inaccuracies in his book.

Several questions were asked about whether the GAF ever found out or suspected that the ENIGMA had been broken. **Dr Boog**, **Sebastian Cox** and **Hugh Skillen** said they suspected that something was wrong but were so convinced of its invulnerability that they simply did not look at it as a source. Instead they looked for human intelligence sources to explain such leaks as could not otherwise be accounted for. For example, said **Boog**, there were spies among foreign workers in key areas. **Dr Richard Aldrich** referred to the problems faced by Allied commanders in assuring that ULTRA was protected. As a case in point a recent book on McArthur's use of ULTRA mentioned people who had to fly spotter planes over convoys in order to convince the Japanese they had been spotted, and thus ensure that there seemed to be no magic interceptions.

It is appropriate to include here **Mr Skeggs**'s remarks about what is going on today at Bletchley Park. 'Bletchley Park is now open to the public every other weekend; it is being developed as a museum centre, and some of us are engaged in rebuilding Colossus. We are getting on quite well with it, considering that very few circuit diagrams have survived. We have photographs, however. My background was with the Post Office and since Colossus was built using Post Office telephone parts, anyone with my kind of ideas knows what we are doing and how the equipment was used. By this time next year Colossus should be working properly; we already have most of the aerials working. A year or so ago I volunteered to wire up some of the panels; when my background was discussed I was asked if I would like to build the part of the machine which converts ciphers to plain text – it's all done electro-mechanically. I was told there were no photographs so went ahead and designed it as I thought it would have been, but visitors who actually worked on these machines have provided us with a lot of information. Then, six months ago, a photograph appeared – despite everyone having said none had ever been taken – and I was proud to find that I had got it about 80% right. I am now modifying it to make it 100%'.

The work of those intercepting lower level enemy communications was more briefly discussed. **Mr Douglas Roberts**, who introduced himself as an ex-LAC, was in a small unit which was part of the Y-Service and had the job of getting bearings on the radio transmissions from German aircraft. 'I am now researching the Y-Service', he said, 'and would be interested to hear from anyone who could put me on to other contacts. Although our equipment was very basic I found from documents in the PRO that, between D-Day and VE Day alone, we were credited with assisting the destruction of 333 enemy aircraft. That's not bad, but with modern technology I expect we should do much better than that today.' **Gp Capt Hugh Verity** recalled when he was Intruder Controller in 1942 at HQ Fighter Command and trying to get long-range fighters over the German bomber bases to catch them as they were returning from bombing the UK. He had someone in the Y-Service phoning him all the time telling him which German units were taking off, what their targets were likely to be and so on. 'I don't know where he was getting it all from, but he was certainly getting it and it was very helpful.' **Mr Peter**

**Rudd**, on the other hand, knew nothing of the Y-Service. His squadron (No 605) was on stand-by as an intruder squadron during the OVERLORD operations and the call would come through to go to Beauvais or somewhere else. They never knew where the information had come from telling where the Germans were operating from that night; they used to think it was possibly agents sitting on the airfields sending messages back home.

**Dr Hugh Thomas** mentioned that besides the Y-Service there was also the organisation that employed skilled German speakers who came up on the same frequencies as the German controllers were using and could even imitate their voices to give false instructions to the *Luftwaffe* pilots, misdirecting them and generally causing confusion. **AM Sir John Curtiss** added that 100 Group of Bomber Command used to carry German-speaking controllers to redirect their night fighters, as well as jamming their frequencies. **Mr Sidney Goldberg** referred to the work of 214 Squadron, which flew sorties over Europe with Fortresses carrying a number of German speakers who not only listened in to the German chat, but earlier in the war had also flown operations over Germany and broadcast on German night fighter frequencies to confuse them. **Mr Chappell** said he had been a navigator on 214 Squadron, flying Fortresses; they carried JOSTLE, a jamming device, and one German speaking operator. He was never told, so never realised, how effective these operations had been. He just went round with the main force, dog-legging over the target area admittedly. A twin squadron in Liberators did a 10-mile race-track continuously over a certain area.

**Dr Diane Putney** mentioned that she had had an opportunity in the summer to talk with Sir Arthur Bonsor who had been enthusiastic about airborne interception work, provided that it was used selectively. Operators provided a hit or miss report as the operators did not fully appreciate the full nature or value of what they were doing. Although tape recorders had been used in 1944, it needed the human brain to provide the selectivity and discrimination required and to cope with the changes of frequency. **Sidney Goldberg** considered that airborne interception was a very valuable source of raw data though, with such a mass of information, it had been very difficult to sort out the wheat from the chaff. **Mr Ray Aveyard** followed this up with the experiences of his brother in the Far East, where he carried



out similar interception duties. He had been taught to read Japanese Morse, which was no great advantage, because the Japanese sent their messages in clear, on the basis that English speakers would not understand Japanese.

Another important source of intelligence was the investigation of captured enemy equipment, and two officers who had worked in this field offered some recollections. **Wg Cdr Shillitoe** said he had an engineering background and was lucky enough to speak German, French and Italian, and after working as an LAC driver with balloons he was considered for a commission in 1941. 'I was then sent to a school in Stanmore where AI2g a department of Air Ministry, was installed. I was immediately struck by their excellent museum of bits of German aeroplanes – everything from wires to guns and engine parts. One of the first things you learnt was the smell, because you had to go out afterwards and examine a hole in the middle of a ploughed field and say, 'That's a Ju 88', and then you had to find out whether it was a Ju 88 of such and such a type, built in so and so. There were some excellent lecturers, including an ex-editor of *Flight*, a Chief Engineer from Rolls-Royce, Russian by birth,<sup>1</sup> some regular signals

<sup>1</sup> The two people in question were HF Rex King of *Flight* and Michael Golovine of Rolls-Royce, both squadron leaders in AI2g. Rex King specialised in armament; he returned to *Flight* after the war and was assistant editor for a number of years.

Michael Golovine was a remarkable character with a natural aptitude for intelligence work. His father had been one of the Czar's generals and he spoke at least three languages. Pre-war, his roving commission in Europe for Rolls-Royce first involved motor cars and later engine installation. He combined these with a great deal of valuable work for the Air Ministry, including driving into the top security German test base at Rechlin to look for the then elusive Ju 88 – which he found and duly reported on.

Probably his greatest wartime achievement was analysing the real nature of the V1, despite opposition from Lord Cherwell who didn't believe in the weapon. Using engineering know-how and a wide range of contacts, he produced an accurate specification of the V1, its power plant, and its flight characteristics, a synopsis of which was supplied across the air defence network well before the first flying bombs arrived on the night of 13 June 1944.

One of the key questions was whether the V1 was radio-guided or was it flown on a compass? Golovine's solution was to get an agent put into France to work on the ski-launching sites. The only thing asked of the agent was to get a nail or a screw from an inside wall. The agent duly obliged and returned with a copper nail. This showed that the flying bomb used compass guidance and automatic pilot, the setting of the former requiring a non-magnetic environment. – *Derek Wood*

officers and some regular armaments officers to talk about cannon, bombs, engines, airframes etc. Then we were sent out to be so-called out-station officers; in my case it was to Cambridge. We would receive a telephone call in the middle of the night, telling us to go to map reference so and so and investigate an incident. We reported by phone the type of aircraft, where it was, the squadron it belonged to; as you heard this morning if the crew had any brothel tickets on them you knew exactly where they came from. Any documents, of course, we sent in to Headquarters. If the aircraft was sufficiently intact we got a Queen Mary to take it to Farnborough where it was properly examined, but we made reports as well as we could on what we found. So that was the sort of training we were given in England.

‘Then word got round about an operation due to take place somewhere overseas and I was nominated for it. I reported to Norfolk House, which was the headquarters for the various overseas operations, and they told me I was going to North Africa. So off I went, just me on my own, to join the intelligence staff, without equipment, without transport. To record the first enemy aeroplane I looked at I had to go on foot; the second I got to on a bicycle; then I was allotted an Arab taxi driver but since he only had two wheel drive he was no good on sand. Eventually the American Air Force joined in and things improved, for they had brought jeeps, command cars and rank, and since I was supposed to teach them I got promoted. So we went on from there, via Tunis, Sicily, Italy, southern France, Italy again, and Austria, keeping as close as we could to the army and reporting on the enemy aircraft we found on captured airfields. I thus had occasion to examine hundreds of aeroplanes; in Tunis the Germans left behind about 800 which had run out of petrol, and in Sicily there were almost as many abandoned on various airfields. We found one or two interesting ones, including some of the new ones we had been told about, including He 177s and a German jet. We also inspected Italian aircraft factories. In addition, we occasionally did a bit of interrogation, although we had interrogation officers with us from AI1k – one of whom knew German but no Italian and got himself captured.’

In answer to a question, **Shillitoe** mentioned what might sound a minor detail but was in fact of great value. ‘For every aircraft we examined we had to take as many little labels off it as possible; at the

beginning of the war these labels gave fully and clearly the name of the maker, the name of the factory and the production number. Later on the Germans caught on to this and stopped putting on 'Messerschmitt' or whatever; instead they put 'xyz' but we still knew what it was – and they still went on with the numbers. So some of our information went to those who were watching the production of certain factories to see whether it was going down or had stopped. The Germans were very meticulous in labelling everything.'

**Sqn Ldr Nutting** also served with Air Ministry AI2g and stressed their concern with all aspects of enemy aircraft, including aerodynamics, armament, crew facilities, radars. 'Often we could recover entire aircraft which had force-landed. These served two purposes; one was to send them to RAE Farnborough, the other to get them flying again for No 1426 Flight which we had helped to set up. This operated practically all the operational German aircraft in British markings. The flight would tour operational stations and its very skilled pilots would go through the operational manoeuvres with our chaps flying against them. We backed this up with two pantechicons which drove round the bomber and fighter stations, providing displays of the kit, with two of our own officers giving briefings and getting feedback. We assimilated everything from every source available. We also produced recognition pictures for all three Services, and detailed cut-away drawings so that you could, for example, pick out the vulnerable points. For a time I had command of a Field Unit, because if you wanted to get at this equipment you had to go after it. Looting was our worst enemy. This was understandable but it was a bloody nuisance when you were trying to get hold of the last piece of a jigsaw – or perhaps the first piece – which said, 'Hey! there's something funny here. We ought to know more. Send this thing back by special courier.' So we needed to try to get there first, before the looters.

'I remember one incident in the Western Desert in 1942: an enemy fighter was pinpointed very accurately where it had come down and made a good belly landing. We set off in a jeep with a compass and found it. It was the latest Me 109F and we decided we had to get it out. The MU provided a Queen Mary trailer, which wasn't designed for desert work. By putting mats under its wheels I think it took the crew and some helpers about 10 days to drive about 30 miles across the sand; then they somehow managed to load the aircraft and it took

them rather longer to get back to the coast road. They took the first opportunity to stop at a NAAFI to get a cup of tea and while they were in there they heard gunfire. They all rushed out to see what was going on, and there was some private with an automatic weapon raking this flyable 109 from end to end, taking his revenge on it. It was ruined!’

In one group there was substantial discussion of some of the failures of British Intelligence and the dangers of ‘mind-set’. **Wg Cdr David Skinner** posed a general question to those who worked in intelligence; how, in practice, did one gain the knowledge to trust intelligence and then to convince people that it was good intelligence and that they should act on it; in other words, how could one get intelligence information into timely and practical use? As a case in point he had recently been on a battlefield tour of Arnhem, where it was said that there had been good intelligence beforehand, but it had not been acted upon.

**Mr Bob Jackson** stated that the key to the failure at Arnhem was that the troops dropped too far from the bridges – some five to eight miles away – the failure to act on good intelligence was put about later as an excuse, but in relation to the drop it did not hold water and indeed had become a bit of a myth. **Mr Robert de Bruin** highlighted what he thought was a failure to follow up intelligence, in that there were two ‘Benito’ radio stations near Arnhem which were known to British Intelligence and which were in contact with the *Luftwaffe* by radio and telephone; they were still in operation in March/April 1945. They were also in an elevated position some 25 metres above sea level and therefore had the considerable advantage in flat country of a fantastic view over the battlefield. It was a great shame that those two radar stations were not knocked out and this was an intelligence failure.

**Sidney Goldberg**, one of the last remaining operators of the RAF Y-Service, said that Edward Thomas’s paper had identified one of the most outstanding failures of Allied intelligence possibly throughout the whole war; namely in relation to the Ardennes offensive and Operation *Bodenplatte* – the attack on the Allied airfields on 1 January 1945. ‘There was one specific incident in the early hours of 16 December. A few hours before the launch of the Ardennes offensive the Germans put out a message on the frequency to which we were listening notifying certain movements by Ju 52s and Ju 88s.

A few hours later this information was cancelled and the Germans changed the cipher, but, as with previous messages, this did not ring any alarm bells. We did not know that the German fighter pilots were short on instrument training, and that the purpose of the Ju 88s was not to fight or to bomb, but to navigate other aircraft formations to their targets (as again happened on the morning of 1 January). Thus we had Ju 88s leading formations of Messerschmitts and Focke Wulfs to their targets – because that was the only way they could get there – and they got lost on the way back. That said, the Germans made their own share of mistakes. In order to maintain the secrecy of Operation *Bodenplatte* they failed to pass the information about their aircraft to their *Flak* regiments on the frequency we were intercepting; either this information was not given or was not given so that it could be understood. There was a change in the timing and the change in the timing certainly was not passed on. As a result the Germans reputedly shot down 200 of their own aircraft returning to their bases’.

**Mr Philip Baggeley** then introduced the term ‘mind-set’ to describe intelligence that is received but is not used because of preconceived ideas, and **Diane Putney** picked up the theme in terms of how good the intelligence is, how it has been collected, processed and then disseminated, and why a commander does not act upon it. She pointed out that if one aspect of this three-step process fails then the whole thing is called an intelligence failure. Sometimes the intelligence community gets a little sore, a little angry, because they know they have collected something and feel they have failed. She quoted the Pearl Harbour disaster as a classic case: people still argued about it, asking why – if the Americans were able to read the ‘Magic’ codes – they did not know about the imminent attack. The reason was that ‘Magic’ was a diplomatic code; ‘Magic’ communications were not operational, and therefore said nothing about the Japanese naval ships. When Admiral Leighton’s book came out it caused a big stir; as Nimitz’s intelligence officer he claimed that if the Pearl Harbour commanders had been aware of the same information as those in Washington they would have had greater appreciation of the threat. The Washington ‘mind-set’, however, was at a high level and more concerned about the threat from Japan itself.

**MRAF Sir Michael Beetham** continued this theme by underlining what **Dr Boog** had said about what Hitler wanted or did not want to

hear. **Sir Michael** thought that the same sort of thing happened on the Allied side with Sir Arthur Harris, who was often accused of not listening to all the advisers about targets to attack. Harris's problem was that there were all sorts of people from the Ministry of Economic Warfare coming along and telling him to attack this or that target and destroy this or that particular industry, for example, the ball-bearing factories. A second example was the Dams Raid, which was a great psychological blow, but the economic experts completely overestimated the effect of the flooding on the Ruhr industries. When the economic experts did have it right later on in the war, Harris wouldn't believe it because of 'mind-set'. **Sir Michael** thought that Harris had every good reason not to believe; he brushed aside all the experts who had been saying that if one attacked a particular industry that industry would stop. He had his own way of doing things and later in the war, when Bomber Command had the capability, because of this sort of 'mind-set' the oil targets did not receive the effort required.

In another group **ACM Sir Christopher Foxley-Norris** offered a personal recollection from February 1945, when he was flying a Mosquito over the North Sea and had been briefed by intelligence that the Germans had introduced jet fighters into Denmark. Suddenly to his horror he was notified by his observer, who happened to be awake at the time, that nearby was a German jet and some remarkable evasion took place. On landing back at base he was told that these were PR aircraft and unarmed. That was a failure of intelligence to brief fully. **Sir Christopher** went on to a more serious point, recalling, from his time at Bracknell as a student 50 years previously, a splendid document called CD 1020 which, among other things, urged the importance of decent target and economic intelligence. It concluded that every officer who was going to attain senior rank should serve at least one tour in intelligence. This did not happen and he had often wondered why.

## **POST-WAR REFLECTIONS**

In several groups there was considerable discussion of the post-war intelligence scene, with many comparisons being drawn. **Dr Aldrich** said how interesting he – as an historian – had found **Dr Boog's** talk, for it resonated very much with other periods and had timeless

lessons. Hitler, as an awkward customer for intelligence, reminded him of Lyndon Johnson, who refused to read CIA reports about the Vietnam War, so they had to put in little bits about the sex lives of prominent policy-makers in Washington to make him do so. **Aldrich** went on to ask some of the serving officers: 'Do you find analyses of the Second World War have lessons for you, or have events now moved on so far, particularly technologically, that this is merely of historical interest?' **Sqn Ldr Wood** responded; he had just spent two and a half years working in the Joint HQ at Wilton, in the Air Operations branch, where they had to work very closely with J2(Int), but although they sat shoulder to shoulder, exactly the same thing was happening: 'We are not looking at other people's intelligence and applying it into our own environment.' **Lt Col Baverstock** thought the link between intelligence and operations ought to be explored; this was discussed by **Diane Putney** when she was describing the Kingsdown Hook-Up, and a number of recent failures were due to not warning off the other agencies involved. **Aldrich** stressed the complexity of the problem, with the sheer volume of information a major aspect; somehow there had to be a balance between getting information distributed quickly, subjecting it to sustained analysis and having debates about what it all meant. 'The kind of structure needed in peace is rather different from that needed in war; in peace there is an infinite amount of time available for prolonged analysis, but in wartime the emphasis is all upon real time. A lot of countries, not least Britain during the Falklands, have problems managing that shift'.

**ACM Sir Patrick Hine** reflected on his last ten years in the RAF, when he became increasingly concerned about the divide between strategic intelligence and the tactical units. Information would go back into GCHQ, a strategic look would take up to twelve months, and then it came out in a form that was of little use to the NATO stations. For example there was a Signals Unit in Berlin with all sorts of stuff of direct relevance, and after a great fight staff were put into it to sift the take and pull out the bits relevant to front-line units. But that created a great deal of stress between GCHQ, London, and the Commanders-in-Chief in Germany. The argument was always that the sources were terribly sensitive and would be compromised. He thought that was greatly exaggerated and that there was some excellent intelligence which never got into the front-line.

Asked whether he took a tried and trusted air intelligence network with him to the Gulf for analysis and presentation **Sir Patrick Hine** replied that he relied very heavily on the Americans. 'There was a large joint intelligence cell in the Joint HQ at High Wycombe, which was distilling the intelligence we were gathering for ourselves, using all the UK systems, and those made available from the USA. So I felt I had a pretty good picture of what was going on.' **Gp Capt Jock Heron** asked if he had ever been given a briefing by Intelligence that made him take a rapid decision or whether it was largely informatory. 'I think it was the latter', said **Hine**. 'Operational control of the Coalition rested in theatre and I was talking to General de la Billière and Air Marshal Bill Wratten twice a day at least, once the fighting started, and also to Schwarzkopf at least once and to Chuck Horner when I needed to. I do not recall a situation which worried me to the extent of picking up the telephone. The thing that worried us most, I think, was whether or not we were writing down the combat-effectiveness of the Iraqi Army in Kuwait. It was very difficult from the overhead imagery and the intelligence to be sure, and eventually it was decided that it should be a judgement made by Schwarzkopf and his team in theatre. We may not have destroyed 50% of tanks and guns, but in terms of communications, lines of supply, loss of morale – we knew people were deserting – overall their effectiveness level was 50% or below and that was confirmed by the ground campaign being wrapped up in 100 hours. I personally feel there was not a good structure in theatre amongst the intelligence staffs. It was fine from the black hole out to the air units, but not between Riyadh and the front-line Army combat units'.

**Maj Ingo Braun** switched the discussion to the point mentioned by **Dr Boog**, who had said that intelligence reports in Germany were manipulated to please the leadership, and asked, now that our whole military strategy today relies very heavily on intelligence because we have reduced the readiness in Europe, how great was the risk that an intelligence report would either be manipulated or not even read? **Dr Aldrich** replied that, 'The role of a Chief of Intelligence is to be the bearer of unwelcome news, and perhaps democracies and coalitions have greater difficulty in accommodating that after all their consensus-building, particularly in America. All of a sudden along comes the Intelligence Chief with information that really puts a bomb under their



policy. At that point, there is an enormous disincentive to be receptive to intelligence. I think we often over-estimate how much room for manoeuvre senior policy-makers have and the extent to which they are able to accommodate unwelcome news at short notice.'

**Gp Capt Heron** followed this up. 'Surely the 1982 circumstances in the Falklands were just that. The indicators were that the Argentines were intent on making mischief and the Foreign Office played it down to the point where Lord Carrington finally felt he had to resign. This was a case of politicians representing intelligence information in a way that suited them.' **Sir Patrick Hine**, who was ACAS(Pol) at the time, thought there were some reports that got people thinking a bit more carefully. But there had been previous occasions when it looked as if the Argentines might take some sort of military action against the Falklands, and when, after the despatch of a submarine or two to the South Atlantic, the problem had gone away. 'I think in 1982 the Argentines misread our intentions with regard to the Falkland Islands in the longer term. There was a misreading of all the evidence and you can argue in retrospect that we should have taken the chance and pushed a submarine or two down there. We got it wrong, and you will often get things wrong. I always felt in the Cold War that if the Warsaw Pact had decided to have a go at NATO at fairly short notice there would have been little indicators which told you that they were up to something, but political intentions would be disguised. By the time you knew they were going to war, you would have used up a lot of warning time. That's the problem. I don't think the Joint Intelligence Committee here and all the various intelligence agencies would fudge the evidence. The difficulty would be analysing it or deciding what it meant and getting Ministers to take timely decisions.'

**Dr Aldrich** considered that, with the Falklands particularly, a number of different decisions collectively sent to the Argentinians what seemed to be a consistent signal. All these things together appeared to say that there had been a change of policy in London, but they did not actually represent a concerted decision at the centre. As **Hine** added: 'They probably said to themselves that there has been this change of view so let us have a go; it will be all over fairly quickly, and once we are in they will have a massive problem to kick us out. I think under any other Prime Minister but Margaret Thatcher there would have been shouting and raving and stamping of feet in the

United Nations and the problem would have gone away. It would have been a fait accompli.'

In another group **Lt Col Wynn Davidson, USAF** also raised the question of how to ensure that information available from intelligence could actually reach those who needed it, a complaint made by General Schwarzkopf in his book on his experiences in the Gulf War. **Air Marshal Sir John Curtiss** commented on this from his experience as AOC 18 Group and Air Commander of all the RAF resources for the Falklands campaign. 'An interesting thing about the intelligence side was that there was none. Nobody had supposed that we were ever going to fight the Argentinians, and no intelligence effort whatsoever had been placed on the Argentine. We knew practically nothing about its Order of Battle or its capabilities and it was very much like fighting in the dark. We obtained information as we went along from various sources but it was never very good. The other point I would make is about understanding the need for intelligence, and what I would call good reconnaissance. We were trying to fight a war from a Headquarters 8,000 miles away and the only up-to-date intelligence we could get, apart from some satellite reconnaissance, was from the people on the spot. That meant the Royal Navy, and we were going to have to rely on them for whatever they could provide. But the importance of intelligence and reconnaissance was something they did not understand.'

**ACM Sir Michael Knight** observed that one of the things the minor skirmish in the South Atlantic proved was that whatever you prepare for in war, the one that actually happens is the one that you have not prepared for. 'For the Falklands the only reconnaissance that we had available came from making a tanker into a maritime patrol and reconnaissance aircraft, and doing things with Vulcans and Canberras that they had not been designed to do. In all my years running squadrons, stations and groups and being in NATO and Brussels I used to have this recurring nightmare: the Soviets had actually invaded and despite all our best efforts we had lost the war. Then when we did the post-war debrief up in Heaven or the other place, we would come to the conclusion that, yes, we had had every bit of information we wanted but it had not been disseminated and it had not got down to the guys who needed it.'

**Sqn Ldr Vince Smith** asked how, if the dissemination of

intelligence is so critical, the organisation can be changed to make sure that this information is actually circulated in a better way. 'Are we not still a little bit hierarchical? We seem to act like this; it's how we're all brought up to think. We ought to think a little more laterally. It's easier to say than do, but I think the technology will actually get us there. There have been vast strides in the last 10 years.' **Sir John Curtiss** followed this up, saying that we used to know how to do it. 'I fought in the last war in Bomber Command and the system for getting this sort of information to the squadrons for the nightly briefings was immediate. There was no doubt about it, and even if there was new information at the very last minute, the intelligence officer could rush in, right at the end of the briefing, to add an addendum. This was of course towards the end of the war and we were getting pretty good at it by then. I don't ever remember it being badly out of line. We were certainly getting very quick intelligence right down to the squadrons in 1944, so it can be done. I think will has a lot to do with it, and understanding. Later in my Air Force career, though, I found that intelligence was often treated as something separate. Those who were posted into it went away and did it. For everyone else it was 'need-to-know' so they didn't really get to know about it'.

**Sqn Ldr Graham Bond** reinforced this. 'When we've been in a period of peace for so long the intelligence community gets very wrapped up in protection of sources. They don't need to disseminate it to the lower operational levels and all of a sudden when you are thrust into a war the system just cannot cope with it. They have been wrapped-up for so long in not shuffling stuff down to people who need it that it gets log-jammed at their levels. Effectively we are not getting what we want.' **Sir Michael Knight** commented: 'Much depends on how long you have between finding yourself about to go to war and getting into the actual fighting. In the Gulf we had time, and by the time the shooting started we had an immense amount of information. But whether all of it got down to the right levels I'm not sure. One of the things that came out of the US Congressional Report on air activity in the Gulf was that they had amazing resources for strategic intelligence. The gaps were in the tactical intelligence, and they are working on that now.'

**Dr Richard Hallion**, Chief of Office of Air Force History, USAF, joined in the discussion. 'Sqn Ldr Bond highlights a problem which is

likely to arise whenever a peacetime situation is merging into a wartime one. It not only affects the intelligence community but the operational community too, and not just air forces but armies and navies as well. In the Gulf War we had a tremendous range of assets that we could use for gathering information, both strategic and tactical. The information came in at such a rate that people had great difficulty keeping up with it. Another thing that was particular to the Gulf was that it was very much a 24-hour war. The pace of the air campaign was such that the intelligence analysts fairly quickly fell behind the needs of the operators in terms of getting the information to them. Critical delays were caused by the massaging and over-analysis of data. Information would be acquired but before it could reach the American forces it would go back to the United States where it would be looked at, analysed, thought over again and then sent back out to theatre. Sometimes you had a gap of as much as a week or more. So by early February there were some very serious disconnects in the way that people were looking at issues such as bomb damage assessment and the effect of this on the air campaign. One of the great assets that we had in Washington was a Col John Warden, who devised a simple operation called 'Checkmate' which served as a means of cutting through this. By doing a rapid analysis it aimed to provide quick heads-up information where it was needed. This was another example of the importance of something you see over and over again, whenever you look closely enough for it – namely the value of certain personal relationships. Here it was between Col Warden, in Washington, and Col Dave Deptula who was the strategic air campaign planner working from the 'Black Hole' in Riyadh. Through that connection a lot of the problems caused by this over-analysis were short-circuited. Deptula recounts an anecdote which touches on what we have been talking about. At one point he was seeking some information to put together a strike and the intelligence officer refused to give it to him and basically told him to go away. Deptula asked him: 'What are you saving it for – the next war?' And before we leave the Gulf War let's not forget the other side of the coin. First, this war was the greatest example ever of the use of air power. And what did the air forces do by way of offensive counterintelligence? They went straight in and blinded and deafened the other side. They took out all the means by which he could get any sense of what was going on. It

wasn't easy, but it was a hell of a lot easier for us to win once that had been done'.

'On the subject of the sheer amount of information which we now have to deal with', added **Sir Michael Knight**, 'some of us were recently privileged to hear Sir Patrick Hine giving the Slessor Lecture at Preston on 'Air Power in the Next Millennium'. He was talking in the context of modern technology, space, etc – not solely intelligence. It was calculated that between just his own Headquarters at High Wycombe and the Gulf area during the campaign, the number of words that went up into space and back down to the ground equalled the total Encyclopedia Britannica – *every 24 hours*. **Dr Hallion** agreed: 'I don't think the problem for us in the future will be about the technology of collecting information as about how to process it. Within two months of the ending of the Gulf War my organisation had had to process over two million pages of documentation generated in the course of the war itself.'

In two other groups the present-day situation was described. **Cdr David Baudains** said one of the themes that had emerged from today's discussions and from Professor Jones's paper had been the compartmentalisation, which he called the Country House Syndrome, where different parts of the intelligence services were grouped separately and never actually spoke to each other, and **Herr Zetsche** had given very much the same sort of flavour from his experiences. He asked **Sir Michael Armitage** if, from his experience as CD(I), things had improved. **Armitage** replied that they had. 'The British system, as most people are probably aware, is a committee system. The Joint Intelligence Committee meets once a week as a matter of routine and on that committee, which is chaired by a senior man from the Foreign Office, you have the head of MI5, the head of MI6, the head of GCHQ and the head of Defence Intelligence, and after the staff work has been done they thrash out an agreed British position on intelligence. It works very well. If there is a crisis, the committee will meet more often than once a week and if there is some particular problem then a special meeting will be called. A book is produced once a week, known as the Red Book in Whitehall, which goes to very senior ministers and others to whom it may be useful. The comparison I would draw with the American system where you have NSA, the Defence Intelligence Agency and so on, all operating separately and

sometimes in rivalry, producing their own individual assessments which are not always in proper mesh with each other. One of the interesting things to observe is the way that the various American agencies use us as a sounding board in London to see if we agree with the CIA or the NSA or DIA or whoever. In theory the American system is supposed to be centralised under the Head of Intelligence, who is also the head of the CIA, but it does not always work too well'.

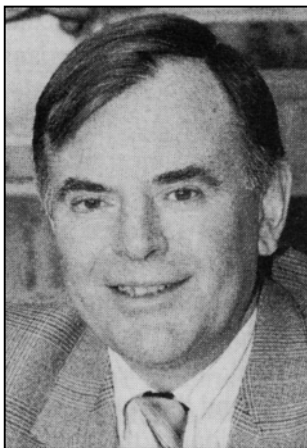
**Air Cdre Pitchfork** also commented: 'My last appointment before retiring recently was in DIS in a post that was generated specifically by the COS, accepting recommendations made after the Gulf War. One of these was that the availability of intelligence – of which there was a copious amount during that war – did not get to the commanders at the right time or in quantity. This post was established to create an interface between the operational and intelligence staffs, so I would endorse earlier statements about the importance of proper management of intelligence. There is a danger of intelligence people generating intelligence for its own sake, and it is crucial to remember who your customer is. So the management of intelligence is fundamental to the operational commander; this is the lesson we have learnt and re-learnt more often than any other operational lesson in the recent past. What struck me particularly, as an operator rather than as an intelligence chap, was that the first recommendation that came out of the lessons from the Gulf War was that we did not implement those learnt in the Falklands.' **Air Cdre Probert** remarked that had Professor R V Jones been here he might have made a comment on his return into the world of defence intelligence for a relatively short time in the early 1950s in order to bring his expertise to bear on certain of the Cold War problems. He later commented that they seemed to have gone back a long way since the Second World War, by the end of which we had built up a properly integrated intelligence system. It seemed that by the 1950s they had forgotten it all – which was one of the reasons why he was not prepared to stay and resume his defence career. **AVM Nigel Baldwin** offered reassurance from the standpoint of a serving officer. 'Today, at 0900 each morning, a few of us gather in Whitehall Main Building and for 20 minutes are surveying the world. All the resources of the intelligence world are brought to that meeting. We talk directly, live, to the various operational headquarters. We work very hard to bring together for the Chiefs of

Staff a constant look at what is going on in the world. So do not feel too depressed; we have learnt something from the past – not least that we are all in this business together and need to keep our eyes open all the time. It does not mean we are always going to be successful in choosing the next trouble spot but we are working hard on it on a daily basis.’

### **EDITOR’S NOTE**

Unfortunately the quality of the tape recordings of these discussions was not as good as we had hoped; some contributors did not come across at all and others were far from easy to follow. Thanks go to Air Commodore Henry Probert, assisted by Group Captains Ian Madelin, Tony Stevens and Denis Croucher, Mr Peter Love and Mr Peter Mason, who, between them, did much hard work in the attempt to transcribe the tapes accurately and to compile the above synopsis.

## 10. Strategic Air Intelligence Post-War



*Mr Robert Jackson*

Chairman:

*The first of our final two presentations will be given by Mr Robert Jackson, who is a full-time lecturer, mainly on aerospace and defence topics. He is also defence correspondent for a number of newspapers; as a defence analyst during the later years of the Cold War he specialised in the Soviet Air Force and in Missile Forces. He is the author of over 50 books on aviation and military subjects, including the operational histories of aircraft such as the Canberra, Hunter, Spitfire and Mustang, and of reference books such as the Guinness Book of Air Warfare. He was a civilian pilot for 15 years and has held a commission in the RAFVR. He will address us on strategic air intelligence post-war.*

Nobody, I think, would dispute the claim that air reconnaissance, both tactical and strategic, was a key factor in securing eventual Allied victory in all theatres in the Second World War. Neither is there any doubt that the survival of the strategic reconnaissance aircraft, required to make deep penetrations into a hostile environment, depends on critical factors such as altitude, speed, and invisibility.

In 1945, the principal RAF strategic reconnaissance aircraft was the Mosquito, while in the Pacific the Americans made good use of the F-13A, the reconnaissance version of the Superfortress, later to be redesignated RB-29. Five years later that situation was virtually unchanged.

What had changed, in dramatic fashion, was the nature of the air



defences that had to be penetrated by types such as these. The inadequacy of the piston-engined reconnaissance aircraft was underlined when, at the end of 1950, the MiG-15 made its appearance over North Korea and began to inflict unacceptable losses on the RB-29s which, up to that point, had been providing the United Nations with vital photographic intelligence of communist deployments south of the Manchurian border.

Not only in Korea was there an urgency to find an effective means of gathering strategic air intelligence. In August 1949 the Russians had detonated their first nuclear device, which the Americans code-named Joe One, near Semipalatinsk, and the *Dalnaya Aviatsiya*, the Soviet long-range bomber force, was slowly building up a nuclear-capable element based on the Tupolev Tu-4, a copy of the B-29. These aircraft might conceivably be used to carry out a nuclear attack on the continental United States by flying over the North Pole, even though the Tu-4's range dictated that it would be a one-way mission. In fact, the first operational Russian nuclear weapons would not be delivered to the Strategic Air Force until 1953, but the Western intelligence agencies were unaware of this delay, and the surveillance of bomber bases which were then under construction on the edge of the Arctic in northern Russia therefore became a leading priority, as did the identification and assessment of the air defence radars that were being erected in a chain extending across the Soviet Arctic from Murmansk across the Barents Sea to Severnaya Zemlya.

The Americans already knew a great deal about the Russian air defence radars that were operational in the late 1940s, because they were American in origin, supplied to the Soviet Union during the war. The main early warning radar was the SCR-270, which could detect a target flying at up to 40,000 feet at a range of 200 miles; it was backed up by the SCR-584, an anti-aircraft radar capable of tracking targets automatically up to 85 degrees above the horizon and at a slant range of 40 miles. Usually, because the SCR-584 cavity magnetron had a very short life, the equipment was only switched on after the early warning radar had picked up an intruder.

Despite their deficiencies, these radars made it impossible for existing American strategic reconnaissance aircraft, the RB-29 and its derivative, the RB-50, to penetrate Soviet air space undetected. What was required was an aircraft capable of penetrating at an altitude of

more than 40,000 feet, effectively taking it outside the SCR-270's detection capability (*sic*). It could then, in theory, carry out its mission unmolested, for the anti-aircraft radars would not be activated.

At the end of 1949, only one such aircraft existed in operational form. This was the Convair B-36D, the massive bomber that gave the United States Strategic Air Command a truly global capability. Thirty-one examples of a reconnaissance version, the RB-36D, were built, the first being delivered to the 28th and 5th Strategic Reconnaissance Wings in 1950.

In a lightened condition, the RB-36 had a ceiling of more than 42,000 feet. Its range was 8,000 miles and, powered by eight (*sic*) piston engines and four podded turbojets, it had a maximum over-the-target speed of 435 miles per hour. Its big weapons bay was converted into a pressurised compartment containing fourteen cameras, surveillance equipment and six specialist crew members.

Overflights of the Soviet Arctic by these aircraft began in the summer of 1951, some of these missions being flown from RAF Sculthorpe in Norfolk. The incursions, mostly at night, resulted, in November 1951, in the Soviet Aviation Ministry issuing an urgent specification for an all-weather fighter fitted with a long-range search radar, the *Izumrud* (Emerald) airborne interception radar carried by the existing Soviet night fighter – a version of the MiG-15 – being inadequate. But it was not until 1956 that such an aircraft, the Yakovlev Yak-25 *Flashlight*, entered service with the IA-PVO, the Soviet Air Defence Command.

A point of interest is that a specially modified Yak-25, the Yak-RV, fitted with a high aspect ratio wing spanning more than 60 feet, established two payload-to-altitude records in 1959, and some were subsequently used in the high-altitude reconnaissance role. It had an operational ceiling of around 60,000 feet and was given the NATO reporting name of *Mandrake*.

Although it filled a gap, the RB-36 was in reality an interim reconnaissance aircraft. The key to the effective gathering of strategic air intelligence was the high-altitude pure jet aircraft, the possibilities of which were demonstrated when, in March 1949, test pilot John Cunningham flew a de Havilland Vampire fitted with an uprated Ghost turbojet engine and four-foot wing extensions to a record altitude of 59,446 feet. May that year saw the first flight of the English

Electric Canberra light bomber, which, with a maximum speed of 470 knots and a ceiling approaching 50,000 feet, was a practical candidate for the high-altitude reconnaissance role.

The Americans saw the Canberra as an ideal replacement for the piston-engined B-26 Invader, and in March 1951 the Glenn Martin Company entered into an agreement with English Electric to build the Canberra under licence as the B-57. Two months later, a delegation of English Electric designers and engineers visited the USAF Air Reconnaissance Division at Wright-Patterson Air Force Base to confer with a team headed by Richard S Leghorn, who had commanded the Eighth Air Force's 67th Reconnaissance Group in Europe during World War II, on the possibility of reconfiguring the Canberra as a single-seater with very long high-lift wings and new Rolls-Royce Avon 109 engines. It was thought that such an aircraft might reach 63,000 feet before it penetrated hostile territory and, becoming lighter as its fuel was used up, might eventually reach 67,000 feet. Deployed around the periphery of the Soviet Union and the People's Republic of China, numbers of these aircraft would be capable of photographing up to 85 per cent of the targets selected in both countries.

This programme led directly to the Martin RB-57D stratospheric reconnaissance aircraft, the first examples of which were delivered to the USAF in March 1956. Meanwhile, the growing vulnerability of the RB-36 led to a rather bizarre scheme which deserves mention if only to underline the urgent need to maintain momentum in the strategic reconnaissance field.

In May 1953, contracts were awarded to Convair and Republic Aviation for the modification of ten B-36Ds into carriers for the RF-84F Thunderflash tactical reconnaissance aircraft. The idea was that the Thunderflash would be carried to the vicinity of hostile airspace recessed into the B-36's weapons bay on a trapeze, then released to make a high-speed dash to and from the target, after which it would hopefully be recovered by the parent aircraft. Joint trials were undertaken by the 91st Strategic Reconnaissance Squadron (Fighter) and the 99th Strategic Reconnaissance Wing at Fairchild Air Force Base. Training went on for several months in 1954-55 until, following a series of accidents, the scheme was abandoned, much to the relief, no doubt, of the aircrews involved.

By this time, the main USAF strategic reconnaissance task had

been assumed by the Boeing RB-47E Stratojet, of which 240 were delivered. The RB-47E was equipped with seven cameras for day and night photography and the units that operated it, the 26th, 55th, 90th and 91st Strategic Reconnaissance Wings, made a number of high speed night penetrations of up to 300 miles into Soviet territory during 1954-55, but the B-47 suffered from a relatively low ceiling of 40,000 feet and operations of this type ceased with the deployment of the Yak-25.

The principal intelligence concern, in the early 1950s, was to monitor the growing Soviet nuclear capability. By the end of 1952 the Russians had carried out three nuclear tests, all in Eastern Kazakhstan, the latest – Joe 3, in October 1951 – producing a yield of around 50 kilotons. Added to this threat were intelligence reports that the Tupolev Design Bureau was developing a long-range strategic jet bomber to replace the ageing Tu-4. It was true; in October 1952 Tupolev produced the Tu-88, the prototype of the aircraft that was to enter service two years later as the Tu-16 *Badger*.

There was a third factor, about which very little intelligence had filtered out of the Soviet Union. Since 1947, the Russians had been testing missiles from a facility set up at Kapustin Yar, north of the Caspian Sea (4835N, 4618E, for those who like exactitude!). These were based on the German V2, the first Soviet serial production version of which was the SS-la *Scunner*. This was followed, in 1950, by a longer-range variant, the SS-2 Sibling. Neither of these weapons was deployed operationally, and at the end of 1952 there were indications that the emphasis was shifting towards the development of surface-to-air missiles and very long range strategic rockets.

It therefore became a matter of priority to establish exactly what was happening at Kapustin Yar, and what I am about to quote comes from an American source.

‘On May 4, 1953, a specially modified Mk 2 Canberra, fitted with extra-powerful Bristol Olympus jet engines, attained a record altitude of 63,668 feet. Subsequently, in mid-1953, under the code-name Project Robin, a modified Mk 2 Canberra, possibly the same one that had just set the record, flew at its maximum altitude from a base in West Germany, photographed the missile launch site at Kapustin Yar in the Soviet Union, and

landed at a base in Iran. The Soviets – possibly forewarned by Kim Philby, the life-long Soviet spy then in charge of British Intelligence’s anti-Soviet operations – very nearly succeeded in shooting down the Canberra, which took several hits.’

As a point of interest, the record-breaking Canberra B2 was serialised WD952, and there is no official record of its having carried out any such mission (hardly surprisingly, one might conclude!)

This leads me nicely into the RAF’s strategic intelligence gathering activities during the early years of the Cold War. The two squadrons principally involved were Nos 540 and 541, both of which were based at RAF Benson in Oxfordshire until 541 left to join the Second Tactical Air Force in mid-1951. At that time, the squadron was equipped with the Gloster Meteor PR10, which had a ceiling of 47,000 feet and an endurance of three and a half hours. These aircraft made a number of high-level photographic sorties into Soviet-controlled airspace, as indeed did modified de Havilland Venoms which were also used by the squadron for a short period. These aircraft, incidentally, could reach 55,000 feet, far in excess of the operational ceiling of aircraft like the MiG-15.

The RAF’s strategic reconnaissance capability improved dramatically with the deployment, at the end of 1952, of the long-awaited Canberra PR3, fitted with either four or six F52 and one F49 cameras for the day role and two F89 cameras, together with associated photoflash equipment, for night missions. The Canberra PR3 was operated by Nos 58, 82 and 540 Squadrons, all based at RAF Wyton near Huntingdon from 1953. The last two squadrons disbanded in 1956, leaving No 58 Squadron – now equipped with the Canberra PR7 – as the sole PR Canberra squadron in the United Kingdom.

By this time, the RAF had acquired a long-range strategic asset with the deployment of the Vickers Valiant B(PR)1, which equipped No 543 Squadron at Wyton from late 1955. This squadron’s activities, and those of 58 Squadron, were closely linked to the development of the V-Force, tasks including the photo-mapping of approach routes that would be followed by the V-bombers en route to their targets and the constant updating of charts. In 1960, No 58 Squadron began to receive the high altitude Canberra PR9, with which, operating from Norwegian airfields, it was able to range as far afield as Jan Mayen

Island, 500 miles north-north-east of Iceland.

The upgrading of the Soviet air defence system in the early 1950s, with the deployment of new radars such as a GCI system code-named *Token*, led to a pressing need for increased electronic surveillance, and in July 1951 No 192 Squadron, whose wartime role had been radio countermeasures, reformed at RAF Watton in Norfolk for the purpose of gathering electronic intelligence. Its initial equipment was the Avro Lincoln, to which some Boeing Washingtons (B-29s) and Canberras were added later. The Lincolns and Washingtons were later replaced by de Havilland Comet Mk 2R aircraft.

The squadron operated throughout the NATO area, the Canberras typically operating over the Baltic, monitoring Soviet transmissions on a fourteen-channel tape recorder mounted in the bomb bay. The usual technique was for the Canberra to transit to the operational area at high level in radio silence, obtaining radar fixes en route with the aid of a BLUE SHADOW SLAR. On approaching the operational area this would be switched off and navigation carried out by GREEN SATIN Doppler. On entering the Baltic the aircraft would descend towards Swedish airspace, as though to land in Sweden, descending to 500 feet behind the island of Gotland, where it was masked from Soviet radar. It would then fly north on its mission before turning east and then south, in international airspace. The whole object was to capture and identify signals emanating from new equipment, and pinpoint the stations transmitting them, before the Russians were alerted to the presence of the aircraft. The Canberra would then climb back to high altitude to make its exit from the Baltic. In August 1958 No 192 Squadron was renumbered No 51 Squadron, which today uses the Nimrod in the electronic surveillance role.

By 1954, the deployment of *Token* and other advanced Soviet radar systems had made it virtually impossible for intelligence-gathering aircraft to enter Soviet airspace undetected. To resolve this problem the Americans had already initiated a highly classified programme called Black Night, which was to result in an aircraft that would revolutionise strategic reconnaissance: the Lockheed U-2.

Time does not permit me to deal with the U-2's operations over the Soviet Union in the hands of the CIA and the USAF, except to say that they began in 1956 with overflights of the Moscow and Leningrad regions and ended on 1 May 1960, some twenty missions later, with

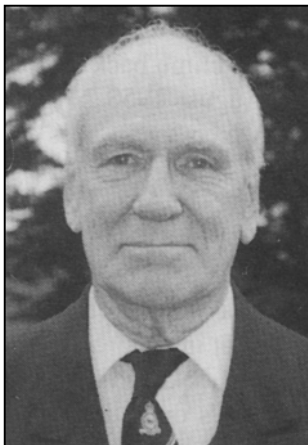
the destruction of Gary Powers's aircraft by an SA-2 *Guideline* missile near Sverdlovsk. The story is well known, as, I think, is the fact that a small nucleus of RAF pilots also trained to fly this remarkable aircraft.

The threat from surface-to-air missiles put an end to U-2 overflights of the Soviet Union, and from the mid-1960s that mission was undertaken by the SR-71A strategic reconnaissance system and, progressively, by reconnaissance satellites.

Those of you who know what this afternoon is all about will have noticed that I have so far not mentioned one aircraft that was much used in the gathering of strategic intelligence in the 1950s. That aircraft was the North American RB-45C Tornado, a version of the B-45 four-jet tactical bomber. From the beginning of 1951, attached to the 91st Strategic Reconnaissance Squadron, it saw extensive service with the USAF in Korea.

But the RB-45 flew operationally in RAF colours too, and the telling of that tale I shall leave to someone far better qualified than myself.

## 11. RB-45 Operations



*Squadron Leader John Crampton*

Chairman:

*That was splendid stuff – you have told us more than most of us hoped or expected to hear. Our final speaker is Squadron Leader John Crampton, who flew Whitleys and Halifaxes with Bomber Command from 1943 to 1945. He next flew Meteors and Vampires in Fighter Command, served as PA to Air Chief Marshal Sir James Robb at Fontainebleau and then took command of 97 Squadron. In 1952 he took over 101 Squadron, the first Canberra squadron, but twice during the 1950s with Bomber Command he commanded the RB-45C Special Duties Flight. He left the RAF in 1957 and afterwards worked mainly with the Hawker Aircraft Company and British Aerospace. He is going to talk on RB-45C operations.*

In July 1951 I was the happy boss of No 97 (Lincoln) Squadron when the CinC Bomber Command sent for me and said that I was to assume command of a Special Duty Flight, in conditions of utmost secrecy. The flight would be equipped with the North American RB-45C four-jet strategic reconnaissance aircraft, and the crews concerned would proceed almost immediately to the United States to begin training on the aircraft.

The flight was to comprise three aircraft, each with a crew of two pilots and a navigator. The other eight aircrew, as much in the dark as I was about our immediate future, joined me at RAF Sculthorpe to be flown to the USA for a 60-day detachment. Accordingly, we left Sculthorpe aboard a C-97 Stratofreighter on 3 August 1951, bound for Barksdale AFB, Louisiana. There we spent ten days with a B-45



squadron, getting to grips with the aeroplane before moving on to Langley AFB, Virginia, for introduction to the more advanced RB-45C version. On 2 September we flew up to Lockbourne AFB near Columbus, Ohio, home of the 91st Strategic Reconnaissance Wing operating the only three squadrons flying the RB-45C. 323 Squadron was in residence, the other two were in England (Sculthorpe) and Japan. We received a short but excellent conversion course.

In our second month of flying training at Lockbourne, one of my pilots made a very heavy landing one night. The aircraft was written off but the crew were unhurt. The dramatic result of this was that Lockbourne's Base Commander, myself and the pilot concerned were flown to Omaha, HQ of Strategic Air Command, there to be interviewed by General LeMay who did not like people who broke his aircraft and left us in no doubt of the fact. His anger was directed mainly at the wretched pilot who departed from the USA shortly afterwards. I learned subsequently that he had not so much been posted to me as posted away from his unit, where he had a reputation as a pranger. He was replaced by an RAF pilot already seconded to a USAF B-45 unit. We completed our conversion and returned to Sculthorpe where we became an additional flight with the resident RB-45C squadron. We still had no idea what was planned for us. There was much speculation, mostly centred on comparative trials of the Boeing flying-boom in-flight refuelling method against the probe and drogue favoured by the RAF. It was a tense time for us and our hosts because nine RAF aircrew flying with an elite USAF squadron raised eyebrows, which we were unable to lower. The situation eased when Colonel 'Flak' Mixson USAF arrived as our Liaison Officer and fielded many of the difficult questions.

Early in 1952 I was summoned to High Wycombe with my navigator Rex Sanders. This was the moment of truth and I confess to some apprehension when the charts were unrolled to show three separate tracks from Sculthorpe to the Baltic States, the Moscow area, and Central Southern Russia. The deal was for the three routes to be flown simultaneously, departing Sculthorpe in rapid succession to rendezvous with the tankers to the north of Denmark. After a maximum top-up we were to climb at maximum continuous power at a Mach No of about 0.68 to the highest altitude the temperature of the



*RAF Special Duty Flight, Sculthorpe, December 1952 Greenslade, Cremer, Wightman, Sanders, Crampton, Furze, Lindsey, Currel, Anstee.*



*The RAF Special Duty Flight, Sculthorpe, December 1952. The RAF aircrew, USAF groundcrew, the three operational aircraft and one spare.*

night would allow. Our 'targets' were ICBM sites and similar strategically important areas. We were to take 35mm photos of the aircraft's radar display when the targets were located and identified. Timing was to be critical because our intelligence agencies would be listening for Soviet reaction to our deep penetration of their airspace, and had certain diversionary exercises for keeping them clear of our routes. We were of course to fly without navigation lights and maintain R/T silence although we would have an OMG (Oh My God) frequency for desperate emergency.

It was a relief finally to know what was expected of us, although I felt some concern at the thought of briefing my crews who, it must be remembered, were not volunteers. My fears were justified and one of the original pilots washed his hands of the whole affair and returned to his parent unit where I feared he might well entertain his chums to this extraordinary tale, to the prejudice of our security. He was replaced by yet another pilot already flying B-45s on an exchange posting in America.

Before the date of our live sorties had been fixed, I took my crew on a gentle probe of the defences by flying over the Soviet Zone of Eastern Germany for half an hour or so, whilst our intelligence people monitored Russian radio and radar activity. Nothing was noted and so we were all set for the big one. Four aircraft (three active and one spare) had been allocated to us and these had to be stripped of ALL USAF markings and repainted in RAF colours. Security shackles were further weakened because, to do this job in time, two of our aircraft were flown to nearby RAF West Raynham where a hangar was cleared and several gallons of paint stripper were put to good use by a number of very mystified airmen. In the event of one of our aeroplanes falling into Russian hands, the United States would point to the paint job and disclaim all knowledge. Similarly the RAF would state that it had no RB-45Cs on inventory. How well this improbable tale, told by a six foot six inch old-Harroviaan, would go down with the Russians was fortunately never put to the test. Our story would be that we were lost, a gross professional insult to my crew and myself, but an acceptable one if the dire need arose – and we should have false charts to back our claim.

And so in the late afternoon of a fine April day in 1952 the three 'RAF' RB-45Cs departed from Sculthorpe and headed towards the

Skagerrak. We picked up our tankers, took on every pound of fuel we could, broke away, doused all the lights and headed south-east into the black night. All was going well and Rex Sanders was getting good plots on his radar and feeding me with the courses to steer to the targets. We had the long haul, south-east across Russia. Sgt Lindsay, my co-pilot, gave us confidence-inspiring reports on the aircraft's systems and told us that we were flying on the right side of the fuel consumption curve.

My most abiding memory of the route is the apparent wilderness over which we were flying. There were no lights on the ground nor any sign of human habitation – quite unlike the rest of Europe. We continued our gentle climb at a Mach No. of about 0.68 to 36,000 feet and covered our briefed route taking the target photographs as planned. It was all so quiet as to be distinctly eerie. Finally we turned for home and in due course began the let down into Sculthorpe. We landed, without incident, after ten hours and twenty minutes in the air. The two other aircraft covered all their targets – and the operation had been a success.

A few days later we flew our aircraft, still in RAF markings, to Lockbourne AFB, Ohio, and the following day we travelled to Omaha where I again met General LeMay under much happier circumstances. He was gracious in his compliments. It was all very heart warming. We returned to England where to my surprise I did not resume command of 97 Squadron but was given 101 at Binbrook, recently re-armed with the RAF's first Canberras – a bit like landing the Spring Double! At Binbrook I quickly settled in to the Squadron Commander's chair and rather less comfortably into the pilot's seat of the Canberra which seemed very small after the RB-45C, not unlike a Ford Escort after a stretched Cadillac.

But after a few months, in October 1952, I was summoned back to Bomber Command, informed that the Special Duty Flight was to be re-formed and asked if I would take over command again? Yes. A few days later we were welcomed back by 'Flak' Mixson at Sculthorpe and got back into the old routine. There were a few crew changes. Rex Sanders stayed with me but Sgt Lindsay had been involved in an RAF B-29 crash and his place was taken by Flt Lt 'MacFurze', or more properly McAlistair Furze, one of my Flight Commanders on 101. This was an inspired choice on my part because Mac rapidly became

an expert on the aircraft and its systems and would have elbowed me out of the captain's seat given half a chance. We flew hard through November and, by the beginning of December, when we were trained to concert pitch, the show was suddenly cancelled and we were ordered back to our units. Among the rumours floating around was the belief that the political risk at that time was too great. If any one of us had gone down in Russia the balloon might have gone up.

My tour with 101 came to an end in July 1953 and I was posted to HQ 1 Group at Bawtry from where, after ten very indifferent months as an Operations Officer, I was again summoned to High Wycombe, told that the SDF was to be revived and again asked if I would take it on. I had begun to view the entire project as mine and would have been most upset if the job had been offered to anyone else. So, in March 1954, it was back to Sculthorpe, 'Flak' Mixson, the big stretched Cadillacs, American flying clothing *and* the American language plus the raised eyebrows. I was concerned that our cover might well have been blown because so many people knew that we were up to something, even if they were not sure what. The super-efficient flight line procedures under which the crew chiefs could call stores or any other department at Sculthorpe using walkie talkies, to discuss our aircraft problems and movements, in uncoded language was also a worry. The least competent Soviet spy or sympathiser in the locality with a small radio tuned to the Americans' frequency could have written a manual on events at Sculthorpe. Anyway, after a month's hard work during which the four assigned aircraft were repainted in RAF colours, I went to Bomber Command accompanied by the faithful Rex Sanders, to collect the flight plans which again showed three routes, north, central and a much longer southern route which would require in-flight refuelling outbound as well as inbound. This was the one I chose.

The Intelligence people briefed us carefully: There might be some SAM but no radar-equipped night fighters, although there was a ground control radar reporting system which would enable them to track us and position a fighter within visual range but this was not thought to be likely. The one comforting thought was that we should be too high and too fast for any anti-aircraft fire. No Flak! Good news! We were to remain silent unless attacked in which case the OMG frequency was to be used to give a sitrep to the chaps back at the

ranch.

Late in April 1954 everything was GO, including the spare aircraft (which we never used). Once again the three RAF RB-45Cs staggered into the air and headed for North Denmark where our faithful tankers topped us up. After a smart salute to the tanker's boom operator – all lights doused – came the long slow climb into the inky blackness east-south-east. We cleared some stratus at 30,000 feet, got a good view of the stars and were greatly encouraged by Rex's confidence-inspiring report that the ground mapping radar was working like a breeze. He gave me new courses from time to time and asked for straight and level flight as we ran on to our various target sites which he said he was having no problem photographing.

Occasionally I saw, reflected on the cloud cover, flashes from the ground similar to lightning or an active bombing range at night. It was causing us no harm – just puzzling, that's all. Having taken nearly all our photos we were heading south towards Kiev at 36,000 feet and Mach 0.7 when the electric storm or bombing range flashes seemed to be getting more frequent – and always directly beneath us, which was odd for a random phenomenon. Had it not been for the absolute certainty with which the briefing officers had dismissed the possibility of Flak I would have been a shade suspicious because it all closely resembled the German variety I had seen a lot of in an earlier life. No-one else was bothered; Rex, who couldn't see out anyway, was devilling away at his photography and Mac in the back was reporting all systems normal, leaving me to ponder on this curious departure from the script. My reverie was rudely interrupted by the sudden heart-stopping appearance of a veritable flare path of exploding golden anti-aircraft fire. There was no doubt about it; it was very well predicted Flak – dead ahead and at the same height as we were. My reaction was instinctive – throttles wide open and haul the aeroplane round on its starboard wing tip until the gyro compass pointed west. I began a gentle 100 foot per minute descent because that made us *seem* to go a bit faster although it didn't because we started juddering in the limiting Mach number buffet. So I eased the power off a bit but kept up the descent on the 'it seems faster' principle *and* since we had been predicted I thought it best to change height as well as speed and direction, thus giving the gunners down below three new problems. Poor old Rex piped up, 'Hey, what about my photos?' I replied

succinctly, explained that clearly we had been tracked very accurately, told him about the Flak burst and requested a course to steer to Fürstenfeldbruck, our refuelling rendezvous and declared alternative in an emergency.

We had about a thousand miles to go and I urged Mac to keep his eyes peeled for fighters which might pick us up outside the Flak pattern. Much later I learned that there were fighters about with orders to ram us on sight. Maximum speed was essential. I flew the aeroplane just on the right side of the buffet; it sort of trembled affectionately. I had time to reflect that the earlier flashes we had seen below us had been ground fire and that our stately progress as ordered by Rex had given even the dimmest battery commanders time to track us and fire. The early attempts had ALL misjudged our height – and, thank God, the Kiev defences had misjudged our speed; they had chucked everything up a few hundred yards ahead of us.

I thought for a moment of jettisoning our now empty 1,200 gallon wing tip tanks. Their absence might have added a few more knots to our speed but, once found, their maker's name and address would have revealed that they came from America, and there would have been the devil of a row. Anyway the thought of them bouncing down the High Street of Kiev West at two o'clock in the morning disturbing the ladies and frightening the children did not appeal. We were not flying over Russia to do that. Moreover, General LeMay would not have been best pleased at my scattering expensive bits of his aeroplane over Russia. So we kept the tanks on and finally, after what seemed an eternity, met up with our tankers but, for the first time, the refuelling boom refused to stay in our aeroplane. Fearing our refuelling system had been damaged over Kiev I thought it wiser to land at Fürstenfeldbruck and refuel in the conventional way. This we did and then flew home without further incident. It was good to see the other two aircraft back at Sculthorpe and to hear that their crews had had successful incident free flights.

And that is almost all there was to it. But the story would not be complete without a tribute to those who set up the whole exercise, in particular General LeMay, who was determined to get the best target information for his aircrews, and to the late Sir Winston Churchill who agreed to the RAF's participation. A tribute must be paid too to Mr Llewelyn who at the time was Bomber Command's Chief

Scientific Officer and played a practical ‘hands on’ role in improving the quality of our radar pictures, and even to giving them a stereoscopic effect.

**Footnote:** Squadron Leader Crampton did not include the names of the crews who undertook the two deep penetration flights in the main part of the lecture. He said of them ‘No flight commander has ever flown with better men.’ For the record they are listed here:-

**April 1952**

JC

Flt Lt, now Wg Cdr, Rex Sanders

Sergeant Lindsay

Flt Lt Gordon Cremer (Deceased)

FSgt, now Sqn Ldr, Bob Anstee

Sergeant Don Greenslade (Deceased)

Flt Lt Bill Blair

Flt Lt John Hill

FSgt Joe Acklam

**April 1954**

JC

Rex Sanders

Flt Lt McAlastair Furze

Gordon Cremer

Bob Anstee

Don Greenslade

Flt Lt Harry Currell

John Hill

Joe Acklam



## Chairman

*I had been told to expect that we would finish this fascinating day on a high note and John has not let us down! We are most grateful. I am not going to try to sum up this very worthwhile symposium but I would offer two comments. First to the members of the Historical Society and to the Staff College members who I hope will be inspired to join us, it has always been rather difficult to deal with intelligence at our meetings for the obvious reasons, but we hope that today's breakthrough will lead to other such sessions on intelligence in the future; there is much still to be told while avoiding the various pitfalls of security classification. Second, to the Staff College students – I speak as a former CDI – I hope today's presentations and discussions have helped to show you just how vital intelligence is when it comes to operations of war. You may think that an obvious statement, but a word or two of warning: – in peacetime, or in times when there is no obvious crisis looming, there is a tendency to treat intelligence as a rather sleepy backwater. Far too often, as a result, intelligence has become the home of the plodder, of the routine shuffler of paper – there are of course exceptions! Then when the umbilical cord hits the fan some of the people who have been posted to intelligence are found to be quite inadequate for the process of sorting the wheat from the chaff, of analysis, and of logical thought under pressure. I can tell you that during the Falklands conflict, when I was in the middle of the intelligence world, having just joined it, I had to sack more than one officer who simply could not cope with what was going on. A second danger is that because nothing much seems to be happening in the intelligence world in peacetime it becomes a convenient target for staff cuts. The result for example, again when the Falklands crisis broke, is that we had 1½ intelligence officers looking at the whole of Central and South America and most of their attention was directed to Guatemala which at that time was threatening Belize. Nobody was really looking at Argentina. When the crisis broke we had to move into the DIS an extra 85 intelligence officers in order to cope with the workload. I am not suggesting that in peacetime we should have that number but we must do better than just have 1½. So, in your future careers, do not allow intelligence to be treated as a subject that is unimportant or that does not concern you, because the absence of*

*intelligence might one day just jump up and hit you in the face. And do not regard intelligence as something we can happily cut back in order to save our other military assets. Particularly in peacetime, remember, intelligence can turn out to be your first line of defence.*

**Sir Frederick Sowrey**

*What a great day we have had: a cerebral morning, and vast intakes of adrenaline this afternoon. It only remains for me to thank everybody, starting with all the contributors. It would be invidious to name them all, but I would like to single out Dr Boog, Professor Osthoff and Herr Zetzsche for their contributions. Bracknell as always has done us proud; it was the perspicacity of AVM Sandy Hunter – followed by AVMs Bob Peters, Mike Donaldson and Martin Van der Veen – who saw the joint ability of the Society and the Staff College to come together in this way. This has put the Society on its mettle; we have not been here as of right, but for the contribution we have made, judged by successive Commandants, to the ability of their students to see that history does provide lessons from the past. For the future there is uncertainty and this may be the last event for us at Bracknell. Win, lose or draw, Bracknell has done the Society proud. I hope we have contributed in our way; together we have put on the bookshelves a number of hardback publications outlining the facts of 50 years ago and brought up to date by you young people who hopefully will not always be sitting at the back. One day you will be at the front; remember that history does have its lessons both for you and for your successors.*

## *Royal Air Force Historical Society*

The Royal Air Force has been in existence for over 75 years; the study of its history is deepening, and continues to be the subject of published works of consequence. Fresh attention is being given to the strategic assumptions under which military air power was first created and which largely determined policy and operations in both World Wars, the inter-war period, and in the era of Cold War tension. Material dealing with post-war history is now becoming available for study under the 30-Year Rule. These studies are important to academic historians and to the present and future members of the RAF.

The RAF Historical Society was formed in 1986 to provide a focus for interest in the history of the RAF. It does so by providing a setting for lectures and seminars in which those interested in the history of the RAF have the opportunity to meet those who participated in the evolution and implementation of policy. The Society believes that these events make an important contribution to the permanent record.

The Society normally holds three lectures or seminars a year in London, with occasional events in other parts of the country. Transcripts of lectures and seminars are published in the Proceedings of the RAF Historical Society, which is a publication provided free of charge to members. Individual membership is open to all with an interest in RAF history, whether or not they were in the Service. Although the Society has the approval of the Air Force Board, it is entirely self-financing.

Membership of the Society costs £15 per annum and further details may be obtained from the Membership Secretary, Dr Jack Dunham, Silverhill House, Coombe, Wotton-under-Edge, Gloucester, GL12 7ND (Tel: 0453-843362).