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German rocket engineers in Britain—Their influence revisited

John Becklake

Observatory Science Centre, Treewood, Robin Hood Lane, Sutton Green, Guildford GU4 7QG, UK

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Abstract

The technical aspects of the arrival and work of the German rocket engineers or scientists (referred to as engineers from now on) who came to Britain after World War 2 have been covered in a previous work [J. Becklake, German engineers: their contribution to British rocket technology after World War II, AAS History Series 22 (1998) 157–172; in: P. Jung (Ed.), 27th History Symposium of the IAA, Graz, Austria, October, 1993]. This paper considers the origins and work of these Germans while in Germany, where they were employed in Britain, their interaction with British colleagues both at work and at play and finally looks at their overall influence on British rocket technology. The final destinations of the British Germans will be covered. Although many stayed for only a short time before moving on to, e.g. the USA or back to Germany, a number stayed in England for the rest of their lives and their descendants are still there.

1. Introduction

The British and the French governments and research establishments recognized the high quality of technical expertise in the German military machine and her industry very early on in World War 2, and their American and Russian allies came to the same conclusions soon after they entered the fray [1]. Little could be done to counter this apart from bombing potential targets like Peenemunde and the Leuna synthetic oil works until the later stages of the war, but from mid-1944 on America and Britain began to consider how to exploit this technology and knowledge when the war ended. It is also fairly obvious that Russia began thinking along these lines at the same time and France, which had been partly occupied since 1941 and some of whose factories were producing parts for the German war machine, also began looking to the future.

One of the prime prizes of this German technical lottery was seen to be the engineers who not only produced the legendary V2 ballistic missile but were also pursuing a myriad of guided missile projects both at Peenemunde and in industry. For an indication of the scale of German rocket activities, see [2].

The story of the exploitation and acquisition of these German rocketeers has been told many times mainly from an American perspective but also from the point of view of the British and French [3,4]. This in many ways is not an edifying story and details of the duplicity of the Allies in trying to gain more than their "fair share" and in effectively ignoring the moral scruples of hiring personnel whom it was known had strong Nazi leanings even if they were not actively involved in the worst aspects of German policy still make sour reading today.

In this paper I will concentrate on the rocket scientists and engineers who came to Britain at the end of the war. Table 1 lists the 39 German rocket engineers

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Table 1
German rocket specialists working in Britain, 14.1.48 [5]

Name	German source	British work site	Ultimate destination
Gunther Oestreich	Walterwerke	Barrow	Stayed in UK
Walter Hellmuth	Walterwerke	Barrow	USA, 1949
Kalckschmidt Erich	Walterwerke	Barrow	Germany, 1949
Lensch Helmut	Walterwerke	Barrow	Germany, 1949
Von Dohren Hermann	Walterwerke	Barrow	Germany?
Ullrich Heinz	Walterwerke	Barrow	Germany, 1949
Demant Botho	Peenemunde West	Waltham Abbey	Left 1948
Luft Norbert	Peenemunde West,	Waltham Abbey	Germany, 1950
Neunzig Franz		Waltham Abbey	Australia? 1950
Muller Gerard		Waltham Abbey	Germany, 1950
Ziebland Hans	Trauen,	Waltham Abbey	Stayed in UK
Schmidt Johannes	Walterwerke	Westcott	Died in UK 1947
Treutler Hermann	Walterwerke	Westcott	Stayed in UK
Diederischen Jurgen	Walterwerke	Westcott	Stayed in UK
Barske		Westcott	Stayed in UK
Fiedler Gustav	Walterwerke	Westcott	Stayed in UK
Frauenberger J	Walterwerke	Westcott	Stayed in UK?
Jessen Freidrich		Westcott	Stayed in UK
Kolterman Walter		Westcott	
Kretschmer Willi	HWK or Peenemunde	Westcott	Stayed in UK
Meier Karl		Westcott	
Muller Walter		Westcott	Stayed in UK
Reichert Hugo		Westcott	
Riedel Walter	Peenemunde	Westcott	Stayed in UK
Schonheit Wener		Westcott	
Walder Heinz	Walterwerke	Westcott	Stayed in UK
Zumpe	RLM	Westcott	Stayed in UK
Buch(k)s Karl		Farnborough	
Eichler Martin	Peenemunde	Farnborough	USA 1948
Elf(v)ers Wilhelm	Peenemunde	Farnborough	In UK after 1950
Entres Siegfried		Farnborough	Stayed in UK
Lange Oswald	Peenemunde	Farnborough	In UK after 1950
Linke Joseph	Peenemunde	Farnborough	Post Office 1948
Pieper G		Farnborough	In UK after 1950
Rockstuhl Fritz	Peenemunde?	Farnborough	
Roehr H W		Farnborough	In UK after 1950
Schirrmacher Karl	Telefunken	Farnborough	Stayed in UK
Schmidt	LFA Braunsweig	Farnborough	In UK after 1950
Ulrich Rudolf		Farnborough	Stayed in UK

known to be working in the defence field in Britain on 14th January 1948 and who can be identified with a particular establishment [5]. This list includes the Barrow Six who, although they came from Walterwerke and several had rocket experience, were not employed on rocket technology in Britain. Also listed are details, where known, of where they worked in Germany, where they went to in Britain and whether they stayed to make their career here. In the list of January 1948 five names also appear: Hans Hasse—guided projectiles, Katz—guided missiles, Prost—guided missiles, Paul Rothe—guided missiles and, Karl Wilhelm—guided missiles who cannot be traced to any British Establishment and their activities are unknown.

2. British rocket engineers from Germany

2.1. Their background in Germany

At the end of the war Germany (and Berlin) was divided into four zones of occupation—American, Russian, British and French—and it might be assumed that

the personnel and hardware acquired by the occupying powers would come from their zone of occupation. This was not always the case as shown by the American, French and Russian activities. The British also did some poaching.

The British established a number of short-term rocket-related projects in their zone after the war and gathered German experts to work on these projects. These establishments were in general the staging posts for the German rocketeers who finally came to Britain. The main establishments were:

2.1.1. Unterluss Works Centre

At the Rheinmetall Borsig test range where a number—about 150 at its peak [6]—of employees who had worked at Mauser and Rheinmetall Borsig produced reports (partly from memory) on their wartime activities. The main emphasis was on armaments but about 20 of them worked on rocket-related reports. The MOD closed Unterluss in the summer of 1948 but none of these scientists made their way to Britain on a long-term basis. Probably the most interesting output from this establishment was a report [7] listing the German organizations and personalities engaged in research and armaments during the Second World War. This report, although containing some errors and omissions, is valuable in ascertaining how important a particular scientist or engineer was viewed to be by his peers in Germany.

2.1.2. Operation Backfire [8,9]

Initially, an Allied project to assemble and launch V2's from Cuxhaven into the North Sea at the end of the war, it ended up being an almost purely British project. For this some 130 Germans who had experience of launching the V2 against, mainly, London and Antwerp plus another 85 or so Germans engineers and scientists most of whom had worked in some capacity at Peenemunde were gathered. A large proportion of the engineers were "on loan" from the US military internment camp at Garmisch Partenkirchen. It was from this group that we hoped to acquire most of our German experts, but it appears that we were beaten to the gun by the USA who had more to offer and often by the French who were far quicker in making firm offers to the Germans.

The end of the launching program (October 1945) was followed by a desultory development phase where the remaining Germans (about 50 now—the rest having gone back to the US camp) found work but with little aim or any firm offer of contracts in Britain. At the end of this project—1st May 1946—all the German engineers were released and only a few were taken to Trauen (see next section). Then, as Drs. Lange and Schirrmacher put it in a note to MOS in May 1946 [10]:

"After the dissolution of the Mosec activity (Ministry of Supply Establishment, Cuxhaven) and release of all scientists and technicians on 1st May 1946, negotiations were taken up with the French Government. The French Government requested that the strongest possible team of former Peenemunde V2 engineers should be reconstituted. Satisfactory experiences of a similar (sic) contract were available, the case of the Peenemunde supersonic wind tunnel group, which latter (sic) organized contracts with the French.

A journey of our representatives to the French Zone to discuss this matter was only undertaken after repeated statements of the leading British members of Mosec that no further work for the Cuxhaven group or parts thereof on behalf of the British were planned. In Paris, all questions were settled in three days and contracts for 50 scientists and technicians were prepared."

On the 10th May 1946, 10 days after the dispersal, the MOS said they had 15 contracts for various members of the Mosec team but in most cases it was too late. Of the 15, at least six—Bringer, Kirschstein, Haberman, Hoehne, Stroebel and Weiss—joined the French, one—Ruhle—joined the Russians, two—Rosenthal and Reinhardt—could not immediately be found, two—Schirrmacher and Lange—signed contracts with the French but changed their minds and came to Britain, two—Zugel and Pilz—refused the offer and only two, Riedel and Schmidt, came to Britain readily.

2.1.3. Ministry of Supply Establishment, Trauen

This was the old Sanger Rakatentechnisches Forschunginstitut (Rocket Research Institute) on Luneberg Heath where they joined a group already at work on small-scale experimentation and writing reports under the control of the British Ministry of Supply (A Dr. Masterman was in charge). In all, there were 82 engineers and technicians working at Trauen and in retrospect a good supply of useful reports emanated from MOS Trauen and it was the last stopping off place for most of the Germans who were eventually to come to Britain. Of those listed as authors of reports from Trauen, only Bringer, who2 joined the French, Horsten, Zohrer, Kleinwachter, Gengelbach and probably Zimmerman did not end up on British soil.

2.1.4. CPVA near Kiel

This was where some of the Walterwerke team continued their work on underwater propulsion, guided missiles and radar. About 40 engineers and technicians worked on the site which closed around June 1946.

It is probable that some of the Walterwerke engineers who were not at Trauen came directly to Britain from here.

Apart from the British rocket engineers who came either via Trauen or direct from Walterwerke, there are one or two who arrived more by luck than plan. One example is that of Hermann Zumpe [11], who approached a British FIAT (Field Intelligence Agency Technical) team in Berlin late in 1946 because of a "desire to work in the British Zone of Germany and avoid deportation to Russia." The story he told FIAT was a bizarre one. Before 1939 Zumpe had worked on petrol engine research for BMW, Spandau, but he claimed that, during the war, a research office for his personal use was set up at Berlin-Gatow with the assistance of the RLM (German Air Ministry) where he worked on liquid fuel rocket motor projects for them. At the end of the war he was "arrested" and worked for the Russians on a 60 ton motor and completing a set of Wasserfall drawings in Russian possession. In August 1946, he was moved to GEMA Kopernik looking at improvements to the Wasserfall engine and he feared this work and those employed on it would soon be moved to Russia. Zumpe ended up at Westcott.

2.2. *Where they worked in Britain*

The German rocket engineers who came to Britain, apart from the Walterwerke team who arrived at Barrow early in 1946 to work on submarine propulsion, went to three British Establishments [1]. These were: Royal Aircraft Establishment, Farnborough. Guided Projectile Establishment, Westcott and Chemical Research and Development Department, Waltham Abbey.

The rocket interests at Farnborough in the immediate post war years lay in guided missiles particularly defensive surface (or ship) to air and air-to-air versions. The idea of a long-range ballistic missile called Menace, similar to the V2, was tossed around in the late 1940s but was soon discarded. To Farnborough came German engineers who were involved in missile systems like guidance and control, fuzing, etc. rather than in rocket engine technology. Several like Schirrmacher came from industry but others like Elvers and Lange came from guidance and control sections at Peenemunde and it is possible that most of Farnborough's Germans came from Peenemunde although details are sketchy. We know that at least two of them—Entres and Eichler—are referred to as an aerodynamicist and an aeronautical engineer in the 1947 literature which makes one wonder why they ended up on guided missile rather than pure aeronautical work.

Initially, Westcott was a rocket development establishment in its own right but soon, in 1947, became the Rocket Propulsion Department of Farnborough. It remained, however, the main government site in Britain where rocket engine technology was developed. To Westcott came 17 Germans, at least eight of them from Walterwerke, led by a Johannes Schmidt who was unfortunately killed in an accident on 14th November 1947 when a German 109-510 RATO unit exploded on a test stand.

At Waltham Abbey which in 1947 became an independent establishment—the Explosives Research and Development Establishment—five German experts were in post by late 1947 and these made up a high proportion—20%—of the technical staff. All came via Trauen but two chemists, Demant and Luft, originated from Peenemunde West where they had worked on catalytic decomposition of hydrogen peroxide. The work at Waltham Abbey was primarily concerned with liquid propellants.

Most of the Germans arrived in Britain between November 1946 and early 1948. They arrived normally on a six, but sometimes a 12, month contract which could be, and normally was, extended for another six months or a year. But the big decision time came in early 1949 when the British Civil Service made it clear that the temporary resident (or as sometimes put enemy or friendly alien) status of these scientists would have to be changed and the Establishments were told that all German scientists would be included in their authorized complement. This might seem to be a difficult decision to make—who to keep and who to get rid of—and it might have meant the replacement of British staff. But such was the shortage of scientists, engineers and technicians in Britain in the late 1940s with the competing claims of refurbishing the infrastructure of a country that had been heavily bombed for many years and the embryo atomic bomb project, that they would take about anything they could get.

In the event, most of the German rocketeers stayed in Britain and made their lives here. The vast majority at Westcott and about two-thirds of those at Farnborough stayed but only one of the Waltham Abbey group remained to make his career in Britain. We also know that five of the six Barrow scientists/engineers left in 1949. The reasons for these differences are in many cases clear. The Admiralty had no perceived need of the Barrow group and the only one who stayed—Oestereich—obtained a job in British industry. Similarly at Waltham Abbey, it is clear from the records [12] that the only scientist they were interested in keeping was Hans Zeibland. Many of the others

were, as noted in [12], just good technicians but Botho Demant, who by all accounts was an extremely talented chemist, was being "awkward". Demant in fact only stayed at Waltham Abbey for about a year and when he was due to be sent back to Germany at the end of 1948 he stayed "in the UK temporarily under his own arrangements and under a private arrangement with the Home Office"! For the staff at Farnborough and Westcott, I suspect that shortage of available staff meant that many of the "competent but not special" Germans were simply offered contracts rather than let go.

Apart from some reported early friction at Barrow where the Germans were perceived to have been housed in conditions better than the local townsfolk enjoyed, the German rocket experts appear to have fitted in quite easily to the British Defence Civil Service regime and to have been quickly "accepted" by local residents. Most of the people I have spoken to who worked with the Germans have fond memories of these "enemy aliens". At Farnborough, for example, many of them soon became leading lights in the local social scene particularly in the musical world. At Westcott several Germans became members of the British Interplanetary Society and at Waltham Abbey Hans Ziebland quickly applied to join the Institute of Mechanical Engineers. At Westcott, the Germans were initially housed in wartime Nissan huts and effectively segregated from the local residents but by late 1947 families began to arrive from Germany and the shift to normal housing began. The Germans at Westcott appear to have been allowed more freedom in their work—"They are given a free hand to work on their special projects but not permitted access to all information on current developments" [13]—than at Farnborough. Also they were soon integrated into British initiated projects. At Farnborough the Germans seem to have been held at arms length for several years as evidenced by the fact that their names on technical reports do not appear until many years after those at Westcott. This was possibly because Westcott, being a new establishment, did not have so many ingrained traditions and hierarchies as Farnborough which enabled the British staff to exercise a more flexible approach to their German engineers. Farnborough on the other hand was the epitome of the British Civil Service, a very conservative establishment with a long memory—in many ways the Germans should have felt very at home. The Germans were treated well here and certainly had better accommodation, in either the Staff Mess or in two large houses near the site, than at Westcott. But even in 1993 one of Farnborough's ex-employees was able to write about one of the German engineers "he was recalled to me as an unreformed Nazi who, as only could happen at the RAE, had to share an office with a Jew". He goes on to say regarding the possible Nazi background of some Farnborough Germans that "most of the Germans at Farnborough were very highly respected—even deeply loved—some were Nazi sympathizers to the end, a few outspokenly so but none, as far as is known, were party to any war crimes" [14].

2.3. *Influence on British Rocket Technology*

As reported before [1] a former Head of Space Department at Farnborough said of the German rocket engineers there that "It did not matter whether the Germans were there or not, none of them were anything special". This comment is generally true also of the Germans who came to Westcott and Waltham Abbey with the notable exceptions of Walter Riedel from Peenemunde, highly thought of by von Braun, Johannes Schmidt from Walterwerke who headed the development of the 109-509 Komet powerplant, Hans Ziebland from Trauen and, possibly, Botho Demant from Peenemunde West who as noted earlier did not stay long. At least a third of the German rocketeers could charitably be called experimental engineers, as they were described in the Press, but would more honestly be characterized as engineering assistants or simply as technical draughtsman. Even those we considered as top rank scientists or engineers were often from the second rank in Germany. For example, Jurgen Diederischen who came to work at Westcott was an assistant to Hermann von Dorhen at Walterwerke, Keil and von Dohren was released from his Barrow work in 1949 although he did go to the Admiralty Materials Laboratory at Holton Heath before, presumably, returning to Germany later.

The most important benefit that these Germans brought to British rocketry was the experience of working in a field of technology that had lain barren in Britain. The knowledge and expertise of the Walterwerke engineers with their experience of working with high test peroxide saved us at least 18 months R&D. Likewise the early work of the various Germans at Trauen and later at British establishments in writing up reports of their past work helped us a few rungs up the ladder. There were many individual pieces of work by the German engineers in Britain that were notable, e.g. Barske's work on pumps at Westcott, Ziebland on heat transfer at Waltham Abbey and Schirrmacher on Black Knight and ELDO at Farnborough. But as an overall comment on the influence that the German rocket engineers who came to Britain

had on rocket technology, it would be difficult not to echo the sentiments of the former head of Farnborough's Space Department and say that it was nothing special.

3. Conclusions

Apart from the invaluable experience in various rocket and guided missile systems that the German engineers brought with them, which saved some 18 months R&D, they had little long-term influence on British rocket technology. The one exception was the extensive use by the British of hydrogen peroxide as an oxidizer in various rockets such as the Black Knight test vehicle and the Black Arrow satellite launch vehicle. Many of the British German rocket engineers came from the firm of Walterwerke in Kiel which used this oxidizer, and the Gamma powerplants for Black Knight and Black Arrow derived from work at Westcott by the German team on the earlier Beta rocket motor [15]. This incorporated work by e.g. Barske on pumps and Kretschmer on the combustion chamber. The Alpha rocket was a Farnborough project but it too used hydrogen peroxide. Possibly of more immediate influence in the early post war years was the study of captured German rockets and missiles although unlike some other nations we did not set out to make carbon copies of them.

This lack of influence might have been due to the quality of the German engineers who came here, the use of them as individuals or in small groups rather than as a team, the unstated desire of the British to do things our way or, more probably, the lack of British rocket ambition beyond defensive missiles. The Germans who came were generally well liked and respected, most stayed to make their lives here but there were not many exceptional talents among them.

On a wider issue, maybe we should consider how important in the long run the German rocket engineers were to the larger and more durable Russian, American and French rocket programmes. Conventional wisdom and tradition has it that we all should be proud of the German engineers we got and that without them our (Russia, America and France and British) programmes would not have progressed so quickly. However, although we recognize the tremendous lead Germany had over the Allies at the end of the War in rocket technology, the Allies (or rather the Americans and British) had a similar lead in nuclear bomb technology. Germany put great effort into rockets, American and Britain into nuclear physics. So although most would consider that German technology as a whole was superior to the Allies in 1945 it was not always the case. Also the German rocket programme, as with all major technology programmes, had a few exceptional engineers, many good ones and others of average ability. It is generally agreed that America skimmed the cream of Germany's wartime rocket engineers and the rest were left with a few good but mostly only competent engineers. They had experience, a valuable asset, but this could have been utilized in the same way as the Russians—gain what you can from them and then send them home. It makes me wonder what would have happened if Britain, France and even America had adopted Russia's attitude. Indigenous engineers would have taken over when the experience of the Germans had been expended and I would postulate that it might have made no difference in the long run. This is not to denigrate the contribution of the post war German rocket engineers wherever they went but they were not gods and after all Russia flew into space first.

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