
Opening Extract from...

The Debs of Bletchley Park and Other Stories

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Breaking Enigma

Jane Hughes told all her friends she was lucky to get out of St Moritz with her virginity intact. It was the late summer of 1938. Jane was still only seventeen. She'd spent an idyllic year at Sadler's Wells, training to be a ballet dancer, sharing the studios with a new, up-and-coming young dancer called Margot Fonteyn. But just as Jane's career seemed to be taking off, Ninette de Valois, the head of the school, hit her on the back during class.

'That back's too long and you're too tall. I'm afraid we can't use you.'

Jane, who'd given up everything to be a ballet dancer, was distraught. So, to help her get over it, her parents sent her and a friend to spend six months learning German with a highly respectable doctor in the dull Zurich suburb of Rüschlikon. Not long after arriving there, Jane saw a poster of skiers on the snow-covered Alps at St Moritz at the city's railway station.

'So I immediately rang up my parents and said: "We're

off to St Moritz." What was the point of being down in Rüschlikon when we could be up there?'

They replaced the respectable doctor from Rüschlikon with a new, more interesting doctor in St Moritz who was very happy to take in young lady lodgers and teach them German. It turned out to be a far more educational experience than Jane's parents had planned.

'I didn't really understand what was happening, of course, but he kept snuggling closer and closer to me on the sofa and I just thought he was feeling rather cold or something. Not a bit of it. Apparently, he was a well-known womaniser. Anyway, we still went on learning German. Probably learned it better up there than we did down in Rüschlikon . . . Then came the dreaded season.'

Jane's mother called her back to London, insisting it was now time for her to 'come out'. After leaving school, young women of a certain class, known as debutantes, would spend the summer months in a whirl of cocktail and champagne 'coming-out' parties, dances and social events like Ascot and Wimbledon at which they would be introduced to young men who were deemed to be suitable husbands. The 'season', as it was known, would begin with all of the 'Debs' being presented to the Queen at court. Jane regarded it as a complete waste of both her parents' money and her precious time. Given the limits of a tan acquired on the ski slopes, she was also deeply embarrassed at being forced to wear a strapless gown.

'My face was very, very dark brown because I'd been in the sun for so long but my shoulders were absolutely white, so it was the most ludicrous sight and I cried and

cried when I was put into this ridiculous outfit and told I'd got to go off to my first dance.'

Jane wasn't alone in hating the whole thing and it seemed to her that, while some of the girls clearly enjoyed the partying, the people who got the most fun out of it all were the mothers, competing with each other to host the best parties and secure the most promising husbands for their daughters.

'Most of the girls were rather resentful at being made to waste some of their lifeblood on it. There were lots of very vapid boys who were called "Debs' Delights", who tried to lure everybody under the staircases. They didn't get too far because you had to be chaperoned everywhere you went, so you had your mother or somebody else sitting around. There was always somebody on watch.'

Then out of the blue, a letter arrived from Elizabeth Blandy, one of Jane's closest friends from Miss Ironside's, the high-class Kensington school for young ladies which, while providing them both with a good education, had taken a rather sniffy view of the usefulness to a girl's future of exams or university.

'Elizabeth's father was in wine and bananas in Madeira, rather a wealthy man. She was at this curious little school with me in South Kensington so I'd known her all my life.'

It was February 1940, just a few weeks after Dilly Knox had made the first breaks into the Enigma codes. Elizabeth had been recruited to work in the newly created Hut 6 where those first successes against Enigma suddenly meant there was a great deal of work to do. But recruitment for Bletchley was still very slow, hamstrung by the fact that so

few people knew they were breaking the German codes, by the armed forces having the pick of all the brightest young men, and by the continuing belief that only a certain type of person could be trusted to keep the secret. Elizabeth had been recommended by friends of her father and now, like all the young women in Hut 6, she was asked if she knew anyone else who might be available and able to keep a secret. Naturally, she turned to Jane.

'Elizabeth wrote and said: "Well, Jane. I'm at Bletchley and it's perfectly frightful. We're so overworked, so desperately busy. You must come and join us." She invited me to come to lunch.'

Despite the unpromising tone of the letter, Jane accepted the invitation and, after lunch in the mansion, was taken into Hut 6 and interviewed by Stuart Milner-Barry, who'd only arrived a couple of weeks earlier himself. Jane was still only eighteen. She was impressed to find Mr Milner-Barry working there because she knew he was rather a famous chess player, but wasn't quite so impressed by his confidence around women.

'I don't think he'd ever given an interview in his life, certainly not to a young girl. Desperately shy. He couldn't think of a single thing to say and I couldn't think of anything to say to him because I wasn't supposed to say anything.'

After five minutes of silence interspersed with Mr Milner-Barry's efforts to work out whether Jane was suitable, he told her he was taking her to see 'the boss', Commander Edward Travis, the deputy head of Bletchley Park, who had just as much difficulty talking to her, albeit for slightly different reasons.

'He started trying to tell me about what was happening there, but of course they couldn't say anything. But he did say that there was an important job to be done and that everybody ought to do it if they were able to because it was so vital.'

By now, Jane had decided that, despite Elizabeth's gloomy letter and the uninformative interviews with the Bletchley bosses, there was clearly an interesting job to be done and she had no doubt that she was the right sort of person to do it. She signed the Official Secrets Act and agreed to report for work the following Monday.

'I went off home and told my parents: "I've joined the Foreign Office." They were rather amazed and said: "Well, where are you going?" I said Buckinghamshire, which they didn't find very convincing. Anyway, I packed up my bags and turned up on Monday morning at the gate, had a bit of trouble with the sentries, and eventually got in.'

She was told that the Germans were using a complex machine called Enigma to encode their messages. The settings for the machine, which were also known as the keys, changed every day and Hut 6 was trying to break the German army and air force versions. There were a number of wireless stations around the UK intercepting the German messages. The operators at these stations wrote down the messages on pre-printed forms. These were then rushed by motorcycle courier to Bletchley, to Hut 6.

There were only thirty people working in Hut 6 when Jane arrived. Most of the rooms were almost entirely manned by young male mathematics graduates recruited from Cambridge and a few other universities deemed to

be producing good mathematicians. Only the room where Jane was to work was completely staffed by women.

The hut itself was made up of four main sections, the first being the Registration Room: here messages were sorted into types, the key elements like the wireless frequency it was sent on were noted down and attempts made to work out which units were part of the various radio networks that were being intercepted. They were looking for any information that might help crack the code.

The Intercept Control Room talked to the intercept stations to make sure they were taking the messages that would be the best ones to break and that each German network was being intercepted by the station which could hear it most clearly. It was absolutely vital that the intercept operators got every letter right.

The main codebreaking took place in the Machine Room, so-called because the young mathematicians working there had a real Enigma machine which they could use to test out their theories of what the day's settings for each code might be.

The Germans were using a number of different types of Enigma code, with each part of the *Wehrmacht*, the German armed forces, using their own system. The different Enigma codes were identified in Hut 6 by colours because they used different-coloured crayons to record their progress against each Enigma system on paper charts pinned to the wall.

Once the codebreakers in the Machine Room had broken the daily settings for one type of Enigma, they moved on to another. They didn't decode the messages. That was done

by the young women in the Decoding Room where Jane and Elizabeth worked.

The Decoding Room didn't have any real Enigma machines. They had British cipher machines, called Typex, which had been converted to work in the same way as an Enigma machine. When the mathematicians had broken the day's keys for one of the Enigma codes, they passed them on to Jane or one of the other girls in the Decoding Room. They then set up their machines using those keys and typed up all the messages encoded using that particular system.

But while Jane and the others were happy to work extremely hard to try to help win the war, they suffered from very poor working conditions which weren't helped by the smoky atmosphere in the hut. It seemed almost obligatory for the young mathematicians to smoke a pipe while they were working out their puzzles, and the ventilation was very poor. Jane wasn't used to these types of conditions at all.

'It was very bad accommodation. Very cold in the winter and very hot in the summer. No insulation of any kind except for blackout curtains. We had horrid little trestle tables, which were very wobbly, and collapsible chairs, which were also very wobbly, very hard. There was very poor lighting; single light bulbs hanging down from the ceiling. So we were really in semi-darkness, which I expect is what the authorities wanted, better security.'

The converted Typex machines fed out decoded messages in lines of text on strips of paper tape, like the tape used for old-fashioned telegrams. The girls had to check that it was in German and then glue the paper tape

with the decoded message onto the back of the original message.

When Diana Russell-Clarke first arrived at Bletchley she was still in the Naval Section and had started out in the library working on Italian messages, but because Hut 6 was desperate for women who spoke German to work in the Decoding Room, she was transferred over to there. Diana had been taught by a German governess so she could tell if the settings worked out by the mathematicians were working and the messages were coming out in German.

'But a lot of it was not particularly clear because of course it gets rather jumbled up coming over the air, but one knew quite a lot of what it was. Of course, a lot of the stuff was very routine, orders to people in the Luftwaffe and things, but occasionally you got this great excitement.'

The messages, still in German, were put into a cardboard box and pushed through a makeshift wooden tunnel with a broom handle into Hut 3 next door where they were turned into intelligence reports and sent to London.

Given the difficulties finding enough good young mathematicians, and the success in recruiting more women for the Decoding Room, Mr Milner-Barry decided to staff the Registration Room with women as well. The young male mathematicians could then all be put in the Machine Room to concentrate on the actual codebreaking. He went back to Cambridge, to the women's colleges of Girton and Newnham, where his sister had been vice-principal, to recruit a number of young female graduates.

Joy Higgins was twenty-one and studying English Literature at Cambridge. Her father was the headmaster

of a school in Newport Pagnell, about eight miles north of Bletchley Park, so an invitation to work there was attractive. She'd already visited the mansion before the war, when the estate was put up for sale. The contents of the house were being auctioned off and her mother wanted to buy some of the high-quality porcelain and glassware.

'Now the Park was surrounded by a high perimeter fence, with a military guard at the entrance gates. I was to report to a small hut outside these gates, and it was here that I was interviewed by Frank Birch, a recalled First World War expert, and Harold Fletcher, who had been a distinguished Cambridge mathematician. Unorthodox as ever, the former was wearing a pea-green shirt and a Breton beret.'

Mr Fletcher, who was dressed more conservatively, was in charge of all the Hut 6 sections that were now to be staffed by women. Joy thought him charming. He and Mr Birch asked her a lot of odd questions and gave her a piece of Italian text to translate which she stumbled through somehow. When they asked her if she expected to get a First, she crossed her fingers and said she hoped so.

'They couldn't tell me what the work involved because of its secret nature, but they thought I was a suitable candidate, and soon afterwards a letter arrived at home inviting me to work at Bletchley Park as a technical assistant, once I came down from Cambridge.'

On the Monday after Joy finished her degree, she arrived at Bletchley, signed the Official Secrets Act, was given a pass and told she'd be paid £195 a year plus ten shillings (50p) a week war bonus. She was then taken into

the Registration Room, which was already full of young female graduates, mostly from Cambridge, but some from Oxford and Aberdeen.

'It was a good place to start as it began to give a general picture of what happened in Hut 6, and an overall idea of the work of Bletchley Park as a whole. People did go to immense lengths to explain things to us, always within the strict bounds of security. The questions of my interview made sense now. Certainly they needed the trained minds and the discipline of the graduate; but they also needed an attention to detail, a sense of order – and much enthusiasm.'

Each of the women working in the Registration Room was allocated to one specific Enigma system. The lists of messages they compiled were known as B-Lists, so the new female intake swiftly became known as the 'Blisters'. The German messages were sent using Morse code in groups of five letters but at the beginning of the message the operator sent a number of things like time of origin and the settings. This was called 'the preamble' and was the part of the message they had to concentrate on.

Pamela Draughn, another 21-year-old, had been studying French and German at Royal Holloway College when she was recruited to be a Blister.

'All the time I was at college I was always discouraged from going into the forces. I wasn't frightfully keen to but I just wanted to be doing something useful and Old French and Middle-High German, I used to think, was the most useless thing I could be doing.'

So she applied to the Foreign Office for a job, thinking

she would be travelling the world, and after successfully passing the interviews was told to report to London from where she and another young female recruit were driven to Bletchley Park. They were met by Mr Fletcher, who told them what they would be doing and, as part of a long lecture on the need for complete secrecy, informed them that they were now banned from leaving the country for the duration of the war. They couldn't risk anyone being captured by the Germans and giving the secret away. It was not quite what Pam wanted to hear, but she bit her lip and got on with it. Fletcher sent her to join Joy in the Registration Room.

'You had a sheet which was called a B-List on which you analysed each message which came in which was believed to be in your code. You put down the number of letters, the origin and the frequency. Occasionally there was a third group of letters used.'

One of the most important things Pam had to note down was the number of groups in each message.

'If you saw exactly the same-length message sent out at the same time you could think that it might be a re-encodement from one code into another and that would help enormously because if you'd broken one code you could break the other code.'

During the early spring of 1940, Hut 6 stopped being able to break Enigma. The main code they'd been working on was a Luftwaffe system which allowed the German Air Force to talk to the two other services. The codebreakers called this the Red and used red crayons to chart their