BRIEF HISTORY OF POLISH ENIGMA MACHINE

Before the war, the military version of the German Enigma was derived from a commercial type, which proved difficult to sell to the public. “The Glow-Lamp” Ciphering and Deciphering Machine – Enigma, was exhibited in 1923 during The International Congress of Postal Union’ in Berlin. The Enigma machine became a major influence on the outcome of the II World War.

The Americans bought the commercial version of the machine for $144, and the British (Dilly Knox) in Vienna in 1925, who brought it back to England and deposited it in the annals of the Old Admiralty Building Room 40. There it remained collecting dust on the assumption that the code was “unbreakable”.

The Poles had no money, but were alert and enterprising, especially the Custom Officers at Warsaw airport, who in 1928 spotted a “special consignment” and alerted the Intelligence Security Service. Fortunately the weekend was approaching. Taking advantage of this, the chief constructing engineer Ludomir Danilewicz of the AVA radio manufacturing company in Warsaw, dismantled the Enigma machine into component parts, photographed the parts individually and together with other engineers made a precision drawings for future use. By Monday, the Enigma machine was repacked and delivered to the right recipient at the German Embassy. As expected, the Enigma machine which was fabricated became a prototype for a Polish version of the machine called Lacida. Initially it was designated for high ranking staff and was to be developed later for general use by the military during the war. According to various post war reports, Lacida was not totally reliable.

To avoid confusion – for the technicalities of is operation were very complicated, it is sufficient to say that the commercial version of Dr Scherbius’ model went through various iterations of improvements, which were eventually incorporated into a military version of the Enigma machine. An important and crucial point which many people overlooked at that time was that copying an identical machine was time consuming but not impossible. The most difficult part of the reverse engineering process was the unravelling of the internal mechanical and electrical connections and settings. The British and French failed to do it. In Britain, the Government Code and Ciphering School, which on the outbreak of war, moved to Bletchley Park, employed mainly clever people from academia, scholars of classics, men of military prowess. The person closest to any scientific background was Hugh Alexander, a brilliant chess master. (Of course this changed in 1940 when mathematicians like AlanTuring, Peter Twinn, Mavis Batey and others joined the old team at Bletchley Park.)

In Poland, the Ciphering Bureau of the Polish Intelligence Service, were engaged as early as 1929/30, employing a team of mathematicians. They were given the task to rely on their own theoretical knowledge and inventiveness to be able to construct a mathematical model. The team were deliberately not shown an Enigma machine. It took the team four months to resolve the problem translating the theoretical solution and applying that knowledge. To construct a ciphering machine took longer and had its problems. The machine was clumsy, convoluted and cumbersome to use – but readable.

In 1932, the French chief of the Ciphering Bureau, Gustave Bertrand, offered the British and the Poles some ‘co-operation’ by supplying them with limited

documentation (instructions) on the German Enigma, which were bought from an agent named 'Asche' (Hans Thilo Schmidt). These two documents, although not essential, in conjunction with the analytical work already done by the Poles, as well as the plentiful supply of intercepted messages by the Polish radio-intelligence service since 1928 – brought the whole solution of breaking the Enigma code, that much closer. From 1932 to 1939, it was Poland's best kept secret that the mathematical solution of the Enigma cypher was put together by Marian Rejewski and the Poles could take encrypted German telegraphic communications enabling them to read the content.

With the war approaching, the Germans improved the Enigma machine still further by adding additional rotors, which stopped the Poles seriously in their tracks. The Poles then had no choice but to share their "Top Secret" with their partners the British and the French. Both were invited to Pyry, near Warsaw (equivalent to Bletchley Park) and were truly dumbfounded when they saw what the Poles had achieved. The Poles not only managed in reading the Engima machine, but made copies of the machine itself. In all, fifteen copies were made. Then, to speed up the deciphering process, the Poles had built a much faster machine called the "Bomba" which was a series of Enigma machines joined together. There was more, the Poles produced essential perforated sheets designed by Henryk Zygalski which enabled physical decryption of the messages.

The Polish version of the German Enigma machine was slightly different in looks and more manageable to operate. A typical example of a Polish replica of the Enigma machine is the one on display at the Pilsudski Institute of Research in Hammersmith. One of each of these machines was delivered to the British and the French, together with documents and instructions by diplomatic bags in August 1939. As to what happened to them later is rather interesting. No one knows exactly what had happened to the Enigma machine given to the British. It is presumed that it was used as a model, enthusiastically examined and compared with the German Naval Enigma machine which the British were fortunate to capture from the German submarine U-33 in the Atlantic in 1940.

As for the Enigma machine which the French possessed there is traceability and an interesting story:-

After the invasion of Poland in September 1939, Lt Col Gwido Langer, Chief of the Polish Cyphering Bureau, together with other cryptographers, had to flee the country. They crossed the Rumanian border and from there reached France in October 1939. Their intention was to join the French *Bureau de Chiffre* at Bruno station, near Paris. Langer managed to take with him only two machines, the other 10 had to be buried in the ground near Wlodzimierz on 13 September 1939, with the rest of the heavy equipment. At Bruno, the Poles now had three machines: one was dismantled to make technical drawings for the manufacture of the French model, the other was engaged in interception work, while the third was used for research by the Polish crypto-analysts, chiefly Marian Rejewski.

When Hitler invaded the south of France in the summer of 1943, the Poles had to flee again, this time hiding their equipment in a disused house in the south of France. It was not until 1946 that Rejewski with two of his colleagues went back to France to pick up their possessions and brought back one Enigma machine to London. After the war and for some time, it had its home in the Polish Radio Research Station in

Stanmore Middlesex, then it was taken care of by Col. Tadeusz Lisicki who worked in Stanmore and wrote several articles about the Enigma in the Polish émigré press. (One assumes that because one time Chief of II Bureau (Polish secret service), Col. Stefan Mayer's papers, and documents were donated to Pilsudski Institute of Research in Hammersmith, that Col Lisicki decided to also donate the Enigma machine to them) Temporarily the Enigma machine was deposited at the Polish Institute and Sikorski Museum in Kensington where it was held for a while then returned to its owner's museum at the Pilsudski Institute of Research in Hammersmith where it now resides and a continual stream of enthralled and fascinated students, researchers and other visitors come to view it.

The genuine Enigma machine on display represents freedom and is real historical proof of the Poles foresightedness, ingenuity and contribution in enabling the shortening of the second world war.

(Based on information researched by Eugenia Maresch in 2002)

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