West Dartmoor U3A

Meeting Report for: April 2021	Prepared by: Derek Palmer
Speaker: Mike Wabe	Subject: Enigma-tic- Bletchley Park, the Enigma Machine, codes and cyphers

Our talk via zoom on 22nd April was given by Mike Wabe, from his home in Norfolk, and 40+ members had the pleasure of watching this online.

It was a truly excellent talk, and it was clear that our speaker has studied all aspects of the "Enigma" story in detail and with great enthusiasm.

We all know something about the secret operations at Bletchley Park, near Milton Keynes in Buckinghamshire, in decoding German wireless messages during World War 2 and about Alan Turing and his colleagues there. But Mike's talk was a tour-de-force in telling us, in an interesting and entertaining way, by using both pictures and diagrams, the important story of the work carried out there.

We learned the history of the use of codes and cyphers from ancient times - including in the Kama Sutra - about the architectural diversity of Bletchley Park House and about the British Government's installation there of numerous special buildings and huts, secret even from each other.

There were eventually nine thousand people needed for all the tasks and jobs associated with the receiving and decoding of the German messages and we learned of the skills and personalities of the many very clever mathematicians, crossword-puzzle experts and electronic engineers involved in the decoding.

The work at Bletchley Park was "top secret ultra" and the nearby residents were querulous and indeed suspicious of the travelling of many young women every day, from their accommodations in Milton Keynes, to Bletchley Park, known locally to be the headquarters of older military and other men.

Our speaker explained that the German coding of messages was accomplished by a portable machine that contained a set of rotatable disks each of which had the twenty-six letters of the alphabet around its circumference. The pressing of any letter on the machine's keyboard caused the disks to turn in succession and finally indicate, as the output of the machine, a letter that was different from the starting letter.

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An early three-disk version of the coding machine had been invented by a German engineer soon after the First World War and was given the name "Enigma" and was manufactured in Germany for encrypting banking and business messages.

Before WW2, the German Government took over the Enigma Company and very considerably increased the encrypting power of the machine by incorporating additional alphabetical disks and electrical connections. The result was that, instead of the 26x26x26 different ways by which an input letter could produce an output letter in a three-disk machine, the final version of the German Enigma machine had more than a hundred trillion ways for producing the output letter.

To add to the code-breakers frustration, the initial rotational positions of all the disks could then be changed and those positions were set by the German message senders in accordance with day-by-day instructions in secret coding books. These settings were indeed changed every day.

Although the decoding staff at Bletchley Park had Enigma machines from Poland and from a captured German submarine, they did not have the coding books that gave each day's instructions for setting the initial rotational settings of the coding disks in the machine.

It is therefore amazing that Alan Turing and his colleagues were able to de-code the German war messages. It took clever guessing of initial words in the German military messages; extensive multiple trying of them manually using pencil and paper; and later by using the specially developed large electronic equipment units - the ancestors of our present-day computers.

It is considered that the decoding work at Bletchley Park shortened WW2 by at least two years.

The Park and the buildings and huts in their reconditioned states are now open as an important historical site for visitors, and our speaker and several of the U3A members attending the talk advised that a visit there is a highly recommended day out.

Thanks to Mike, for this informative, valuable and excellently presented talk to the members of West Dartmoor.