

How Bill Tutte won the War



The January meeting of the History group heard an excellent presentation by Richard Fletcher, secretary of the Bill Tutte Memorial Fund, on the work of Bill Tutte, codebreaker, who worked at Bletchley Park, and whose work on cracking the fiendishly difficult Lorenz code has been described as one of the greatest intellectual feats of World War II and to have shortened the war by two years

Bill Tutte was born in Newmarket in May 1917 and attended Cheveley village school, Cambridge and County High School, and then Trinity College Cambridge where he read Natural Sciences, specialising in Chemistry. Whilst at Cambridge he developed a taste for solving mathematical puzzles and was recruited to join the Government Code and Cypher School at Bletchley Park. He joined the team led by the celebrated cryptanalyst Colonel John Tiltman, who were grappling with a vastly complex code later known as Lorenz, which was considered unbreakable and used for the highest level of strategic messages by the German High command. The better known, and simpler, Enigma code was used for operational tactical messages.

Without ever seeing a Lorenz machine Tutte deduced, using only one decoded message and his own intellect, that the machine had 12 rotors, each having 41 teeth, giving an almost limitless number of combinations.



By contrast the Enigma Machine had 4 or 5 rotors, each with 23 contacts

A GPO engineer, Tommy Flowers, later built the world's first programmable electronic computer to run the algorithms that Tutte provided to decode Lorenz messages.

The consequences of Tutte's breakthrough were profound. The ability of the Allies to be able to read the highest level strategic messages, even from Hitler himself, radically altered the course and duration of the war. In particular it was possible to feed accurate intelligence to our (then) Soviet allies which contributed greatly to the campaign on the Eastern Front, and diverted vast amounts of German resources, so enabling the success of the D-Day invasion.

Post War Tutte's achievements were not recognised. After the onset of the Cold War the Soviets used captured Lorenz code machines and it was never admitted by the British that the code had been broken. It was not until 50 years later that Tutte's story came out, and still much of his work remains secret.

After the war Bill Tutte returned to Trinity College, and then emigrated to Canada, where he enjoyed a distinguished academic career at Toronto and Waterloo universities. He died in 2002.

Newmarket Town Council has now commemorated Bill Tutte with a stunning memorial in the town centre in association with the Bill Tutte Memorial Fund, and has endowed a school scholarship to support local young people to study and excel in mathematics and computer science at university.

The full text of Richard Fletcher's talk can be found here:

<http://billtuttememorial.org.uk/wp-content/uploads/2014/05/How-Bill-Tutte-Won-the-War.pdf>

For full details of the Bill Tutte Memorial Fund, much more on Bills Tutte's life, and how to contribute visit

<http://billtuttememorial.org.uk>