

Exhibition “Codes & Colors - Turing & Zuse” Computer Museum NAM-IP 27 October 2017 - 30 June 2018

When a computer museum has a permanent exhibition titled “*To the roots of the digital world : machines that count*” it needs to pay attention to the people that helped create this digital world.

We remember Herman Hollerith – one of the few of his remaining authentic machines that were used during the US census between 1888 and 1890 is on exhibit here – as one of the fathers of the digital revolution because his company was part of the consortium that in 1924 was named IBM and we all know the empire that grew out of the mechanisation of administrative tasks (statistics, inventories, accounting, merchandising...).

This empire had several competitors : in 1886 William Burroughs invented the printing calculator ; Frederick Rosing Bull competed with Hollerith punch card machines from 1920's onwards... And finally leading us to the heroes of our temporary exhibition.

Konrad Zuse is less well known. A German who in 1938 invented the very first electromechanical calculator with stored program, the Z1, build in his parents house. Continuing his work during the war in Berlin, his Z2 was destroyed during the bombardments of that city. Although he worked during the nazi area, he was allowed to form his company at the end of the second world war, producing programmable calculators like the Z3, his first electronic computer. He sold his inventions (including the first plotter for architectural plans) to Siemens in 1964. His *Plankalkül* is also one of the first higher level computer languages (preceding Fortran or Cobol).

K. Zuse passed away in 1995. A gifted illustrator and caricaturist, he used oil painting almost exclusively, producing some 1000 paintings, mostly inspired by a world becoming more and more mechanised, as depicted in films such as *Metropolis* by Fritz Lang.

Alan Turing is well know to the general public due to the film *The Imitation Game*, that told in a rather romantic way the part he played in deciphering the German Enigma code. But he was foremost a theoretician: a top-notch mathematician and logician. In 1936, only 24 years old, he made a major contribution on the “decidability” problem in mathematics (*Entscheidungs problem*). His further work led him to conceive a theoretical logical device: an endless linear machine that could perform all kind of operations – generally known as the *Turing machine*. Even purely hypothetical, it was paramount in the development of early computers.

In 1941-1942 he was hired by the *Intelligence Service* of the British armed forces for helping to decipher the messages encrypted by the *Enigma* machines and sent by the nazi commanders to their troops (both land and sea, for instance the *U-boat* that destroyed so many of the allied convoys). The *Bombe*, resulting from his work, completed this task successfully, thereby shortening the war by possibly 2 years and saving millions of lives. The *Bombe*, a mechanical device, is not considered a real computer, but Turing also contributed at Bletchley Park (75 km north of London, where two museums are commemorating his work) to *Colossus*, an electronic device that resembles more a computer and was very successful in deciphering the even more

sophisticated *Lorenz* codes.

Turing also was the first to write about artificial intelligence (1950). Sadly the life of this genius, also a remarkable marathon runner, ended when he died under mysterious circumstances in 1954, only 44 years old.

Undoubtedly, these two men really are pathfinders of the digital culture that today is steadily growing and encompassing our planet.

The temporary exhibit at NAM-IP computer museum is based on an exhibit created at the occasion of the 100 anniversary of Turing's birth by Pierre Mounier-Kuhn, professor at the University Pierre et Marie Curie in Paris and historian of computing (see the book he co-authored with E.Lazard: "*Histoire Illustrée de l'Informatique*").

Our aim was to make a link between Turing and another "inventor" of the computer, Konrad Zuse. We highlight his artistic genius by showing for the first time in Belgium, copies of his paintings, presented to the NAM-IP by the Kurt Pauli Foundation (Bonn), whose driving force is also the creator of the Konrad Zuse museum in Hoyerswerda (south of Dresden) that opened in January 2017.

Practical information

Exhibition: from 31 October 2017 until 30 June 2018

- Until 31 March 2018 : from Monday until Friday : 10 am - 5 pm
- From 1 april 2018 : from Tuesday until Saturday : 10 am - 5 pm and
First Sunday of the month : 2 pm - 5 pm

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