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Discovery of the missing sequence-controlled relay calculator Zuse M9

Herbert Bruderer

Abstract
In 2010 Germany and Switzerland celebrated the 100th birthday of the great computer pioneer Konrad Zuse, inventor of world's first program-controlled binary relay calculator using floating-point arithmetic (Zuse Z3, 1941). In this connection we discovered a sequence-controlled relay calculator, a calculating punch called M9, which has been missing for almost fifty years. This historical machine had been forgotten and was completely unknown even to historians of computing. However, it is mentioned in Zuse's memoir, but without a name. Several eyewitnesses are still alive. To our knowledge, only one device has survived. It is now conserved at the Museum für Kommunikation in Berne, Switzerland. Zuse KG had built some 20 to 30 M9s for Remington Rand, Zurich. The M9 was Zuse's first relay calculator manufactured in series. Only two original machines of the first ten Zuse models still exist, the Z4 (Deutsches Museum, Munich) and M9 (=Z9, Museum für Kommunikation, Berne). Without renting Z4 to the Swiss Federal Institute of Technology (Zurich) for five years and the serial production of M9, Zuse KG would soon have disappeared from market-place.

Keywords: Zuse, M9, Remington Rand, calculating punch

1. Introduction

Until 2010 even computer scientists knew nothing about the Zuse calculating punch M9 (=Z9). Only by chance we learnt about the existence of this machine due to investigations carried out in connection with the Zuse centenary. Josef Steinmann (1930–2012) from Nottwil LU, a former member of Remington Rand's technical staff called the author after the publication of an article on 22 June 2010 in a leading Swiss daily newspaper ("Tages-Anzeiger", Zurich). And accidentally we were told by Beatrice Tobler, curator of the Museum für Kommunikation (MfK) in Berne, that such a machine had recently been transferred to her museum. Thanks to Hansjürg Stadelmann from Winterthur ZH the M9 had not been destroyed. It had been used since 1961 for office calculations (electricity, gas, water) by the public services of Winterthur. From 1964 to 2010 it was stocked at the Technorama (Swiss Science Center), Winterthur. Yet, they did not recognize its historical significance, they even lost the relay bay and they wanted to get rid of it. As far as we know one single M9 has survived. For political and legal reasons and to avoid patent problems the Z9 was baptized M9 (after Mithra, a mysterious subsidiary of Remington Rand, Zurich).

2. Unique photographs discovered in the Swiss mountain valley Toggenburg in June 2011

Fortunately Max Forrer from Oberhelfenschwil SG has collected unique photographs, drawings and flow diagrams of the M9. He was responsible for a M9 which was in service at a large spinning and weaving mill at Dietfurt/Bütschwil SG from 1956 to 1968. The author saw the pictures on 21 June 2011 for the first time. We are also grateful to Fred Winteler from Zurich for other valuable documents (handing over on 6 June 2011). Moreover, we have found a diploma thesis on a similar relay calculator written by Ernst Inauen from Einsiedeln SZ.

First we systematically tried to find other eyewitnesses who were still living. Then we were looking for additional M9s utilized in Switzerland and abroad. We consulted all potential industrial and government enterprises and many leading museums. It is a pity that we did not detect further copies of the machine. Hans Neukom, an electrical engineer and historian, and the author visited MfK on 1 February 2011 in order to examine technical documents dating 1953 to 1954 about the M9. Finally,

we organized a video interview with three former customer engineers. It took place at the depository of the MfK in Schwarzenburg BE on 19 May 2011.

Fig. 1 Calculating punch M9 at Dietfurt with Max Forrer, © by Max Forrer, Oberhelfenschwil

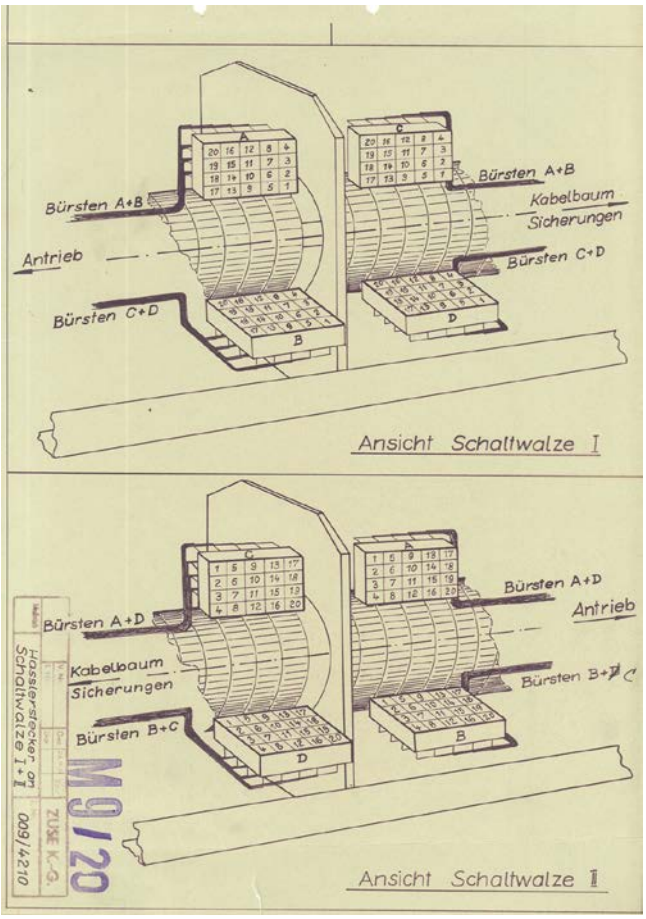

Fig. 2 Controller cylinder of the calculating punch M9, © by Museum für Kommunikation, Berne

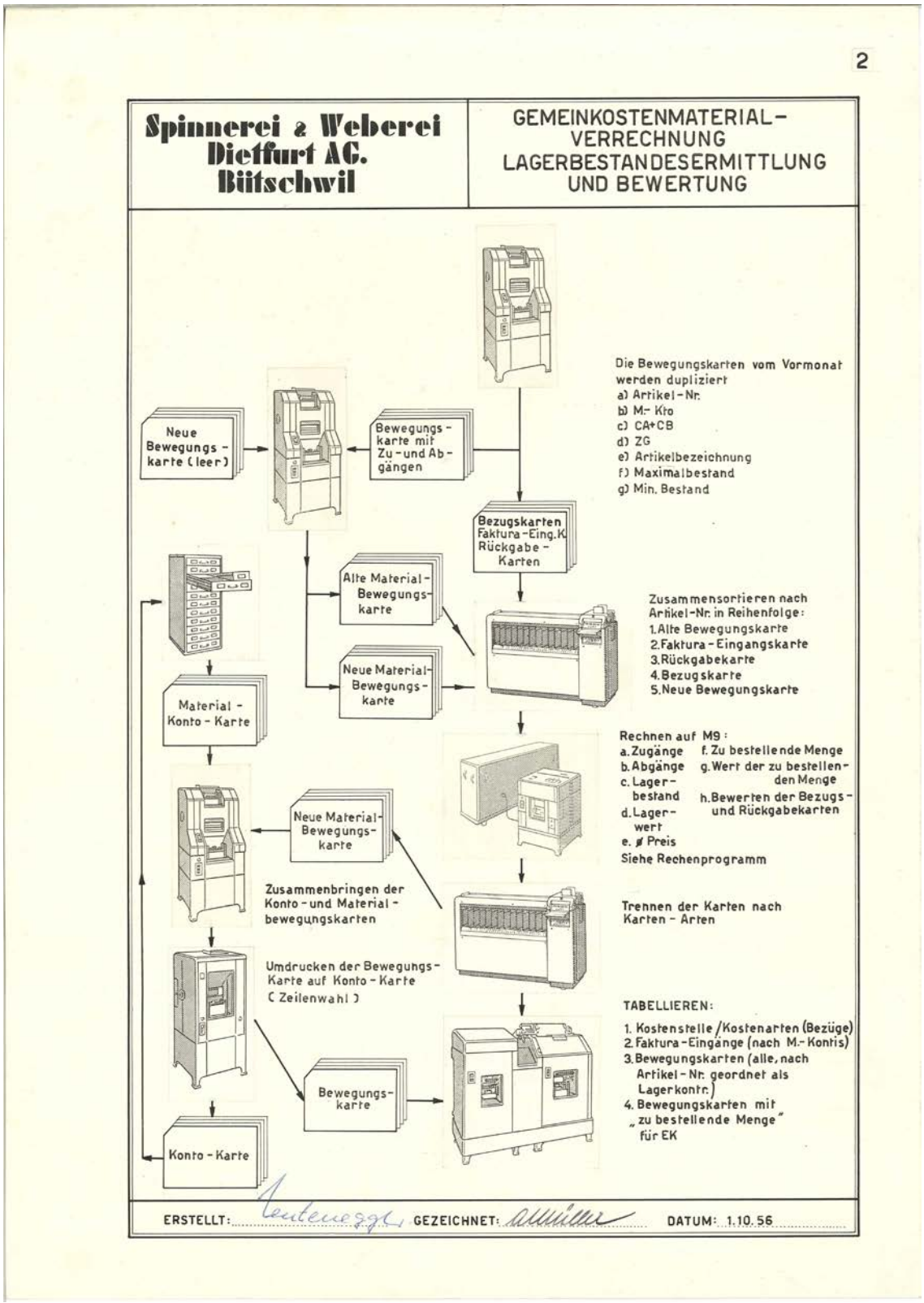

Fig. 3 Warehouse management with the calculating punch at the spinning and weaving mill, Dietfurt, © by Max Forrer, Oberhelfenschwil

3. Remington Rand stopped development of M10

The Swiss Federal Institute of Technology Zurich (ETH Zurich) where the legendary Zuse machine Z4 had been in operation from 1950 to 1955 had ordered two relay calculating punches M10 with electronic storage. This calculator was never delivered, only a prototype was designed in 1956/1957. Remington Rand (USA) had suddenly stopped its construction which was delayed due to heavy technical difficulties.

4. Conclusions

At the moment there are still several eyewitnesses of M9 living, most of them belonging to the maintenance staff.. So far we know only one M9 which has survived. It is conserved at the Museum für Kommunikation in Berne. The sequence-controlled calculating punch was applied above all to office calculations. The M9 was built in series by Zuse KG with delivery starting in 1953.

Acknowledgements

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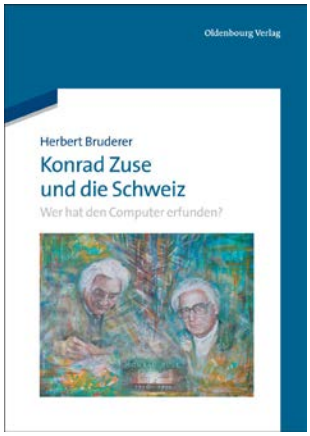

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Herbert Bruderer: Konrad Zuse und die Schweiz. Wer hat den Computer erfunden? Oldenbourg-Verlag, München 2012, XXVI, 224 pages

This book contains a worldwide survey of the first computers (USA, England, Germany, and Switzerland) and an international bibliography with more than 500 publications. It deals with the controversial question „Who invented the computer? “ Other significant topics are Alan Turing, John von Neumann and their respective machines.

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