

# Mathematical Machines at ČSAV

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## **Abstract**

Mathematical machines, also called information processing machines, or nowadays simply computers, had their place in the Czechoslovak Academy of Sciences since its foundation in 1952. Antonín Svoboda, the Czechoslovak computer pioneer, started developing the field already in the late 1940s. Albeit SAPO, the first Czechoslovak computer, could have been described as a success on several levels, its chief designer and his team were expelled from ČSAV soon after SAPO had been put into operation.

## **1. Introduction**

In 1938, Antonín Svoboda (1907-1980) and Vladimír Vand left Czechoslovakia on the eve of World War II, with the plans for an aircraft detecting device in their luggage and in their heads. In the USA, Svoboda worked on the design of computers. Zdeněk Trnka and Antonín Svoboda went for a scientific trip to England and the USA in 1947. Upon their return, Trnka started working towards setting up a new course at technical university. Svoboda taught a course (on mathematical machines) in this programme. In 1950, Eduard Čech (1893-1960) agreed to take Antonín Svoboda under the roof of ČAVU. This structure was repeated in ČSAV, founded in 1952.

## **2. Department and laboratory for mathematical machines**

From the very beginning, the department for mathematical machines formed a self-contained unit. In December 1952, the first conference of the department for mathematical machines was held in Liblice and was the first in the line of the annual *Symposia on the information processing machines*. The design of SAPO was presented to the participants and was also published in the first volume of the proceedings. The Laboratory for mathematical machines became an independent body of the Czechoslovak Academy of Sciences on April 3rd, 1953.

SAPO is repeatedly mentioned in various reports on the research and development performed in the 1st section of ČSAV. Mathematical or information processing machines are even mentioned, when the importance of mathematics education and expertise is advocated. Probably at the same time, an anonymous author comments on the turn from pure to applied mathematics and also emphasises the importance of numerical methods.

## **3. Institute for mathematical machines**

On February 11, 1955, the Laboratory was transformed into an Institute for mathematical machines, and the travelling continued, although the journeys had to be consulted with the presidium of the Academy of Sciences, which sometimes resulted in cutting down the number

of people going abroad. However, no matter how ardently and frequently the topic of mathematical machines was mentioned, the design dating from 1951 finally took shape in an operating machine, the famous SAPO six years later, in September 1957.

As the archival sources show, problems with the construction of SAPO were most probably taken as an excuse to get rid of Antonín Svoboda. It was probably the television programme on SAPO in March 1957, featuring Antonín Svoboda as its chief designer, that provided the presidium with a clear evidence with which to scold Svoboda. In parallel development with this, the presidium of the Academy of Sciences was also trying to secure more Soviet influence on the computing in Czechoslovakia.

## 4. Conclusion

The role of mathematical machines in Czechoslovakia of 1950s can be juxtaposed to the role of computers elsewhere in Europe. It seems that nowhere the computers were introduced without some special rhetorics. Often, the issue of being backward in comparison to some other country was brought up as an incentive for investing more into computers. In the case of Czechoslovakia, like in the case of other Comecon countries, computers were also taken as an important technology to demonstrate success and advancement.

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## References

- [1] Masarykův ústav - Archiv Akademie Věd. Fond: I. (matematicko-fyzikální) sekce ČSAV. 1952. 1961. Details on the references are given in footnotes.
- [2] Masarykův ústav - Archiv Akademie Věd. Fond: V. (technická) sekce ČSAV. 1952. 1961. Details on the references are given in footnotes. footnotes.
- [3] Masarykův ústav - Archiv Akademie Věd. Fond: Zápisy zasedání presidia ČSAV 1952-1958. Details on the references are given in footnotes.
- [4] *Stroje na zpracování informací*. Proceedings of the conferences of the Department, laboratory, Institute, and Research Institute for Mathematical Machines. **1-22**, 1953-1982. Details in footnotes.
- [5] Oral history interview No. 35 with Antonín Svoboda, conducted by Robina Mapstone in November 1979. Charles Babbage Institute (available online).
- [6] Gerovitch, Slava, *From Newspeak to Cyberspeak. A History of Soviet Cybernetics*. MIT Press, Cambridge, Mass., and London, England 2002.