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## Rudolfine Sundial with Planetary hours and Gregorian Calendar : Erasmus Habermel's Unknown Device

### ANNOTATION

This article presents a portable horizontal sundial made by Rudolfine maker of mathematical and astronomical instruments Erasmus Habermel († 1606). This hitherto unpublished artefact from the collections of the National Heritage Institute is currently stored in the depository of the Rájec nad Svitavou castle. Detailed description of the sundial and its functions is provided together with comparison with other devices by the same maker. The article also presents new findings regarding the life of Erasmus Habermel, based on the manuscripts of the Prague City Archives.

### SUMMARY

The article deals with a horizontal sundial with inv. no. RA03492, coming from the original inventory of the Rájec nad Svitavou Castle, now in the administration of the National Heritage Institute. This device was made in the workshop of Erasmus Habermel (\* ? – † 1606), a maker of apparatuses at the court of Emperor Rudolf II in Prague in the years 1593–1606. The presented device consists of three copper parts: a circular base plate with a diameter of 260 mm with a calendar, an upper disk with common (equal) hours with a diameter of 175 mm and a lower disk with unequal planetary hours with a diameter of 159 mm. The upper part of the device was used to determine calendar and astronomical data, the lower part for astrological purposes. Along the perimeter of the base plate there is Gregorian reformed calendar, on which various details can be read after setting the date: church feasts, position of the Sun in the zodiac, length of night, length of day, time of sunrise and time of sunset. At the bottom of the base plate there is a zodiac chart and a table of planetary hours. A folding gnomon for a string style is attached to the disc with the common hours, in the middle of this disc there is a compass bed. On the second disc there is a system of intersecting radial lines, circles and curves, enabling the conversion of common equal hours to planetary unequal hours, as well as a signature. Habermel had an extensive production range: among the preserved instruments, in addition to sundials of various kinds, one can find measuring devices and drawing tools, astrolabes, astrological-medical tools, astronomical and calendrical compendia, etc., made of copper or brass, finished with fire gilding. The article also presents new findings from several archival records clarifying Habermel's family relationships. This is primarily the will of Zuzana Solisová, Erasmus Habermel's 2<sup>nd</sup> wife, daughter of the Augsburg locksmith Hans Glockner. She first married Nikolaus Solis in 1565 in Augsburg, after his death she moved to Prague and married Erasmus Habermel there. She had a share in the shop of her brother, the clockmaker of Hans Paul Glockner, who came to Prague in 1581. In her will, she mentions her place of residence – a house in today's Sněmovní Street in Malá Strana near the now defunct St. Martin's Church. After Habermel's death in 1606, she took care of Habermel's children from his previous marriage. Erasmus' brother Andreas Habermel, mentioned in the will, worked as a teacher of arithmetic in Leipzig.

**Figs. 1–5.** Erasmus Habermel, Prague, between 1593–1606: Horizontal sundial, collection of Rájec nad Svitavou Castle, inv. no. RA03492 (photo by O. Kocourek, @ Art Museum in Prague, Czech Republic).

**Fig. 1.** Upper part of the device with the calendar and dial of common hours. The string of the gnomon is not original.

**Fig. 2.** Detail of the calendar with the pointer, a slot for reading the length of the day and a part of the compass rose with the directions in Flemish.

**Fig. 3.** The lower part of the device with the disk of the planetary hours, the zodiac table and the table of “rulers”.

**Fig. 4.** Signature *Pragae fecit Erasm[us] habermel*. The first name is abbreviated similarly to the names of the months and signs of the zodiac in the calendar.

**Fig. 5.** Table of “rulers” of planetary hours. The “planet” symbols below the columns are in order: Sun, Venus, Mercury, Moon, Saturn, Jupiter, Mars.

**Fig. 6.** Family tree of Habermel spouses, Zuzana Solisová and Erasmus Habermel. The **background colour** indicates the area of origin or known residence of the person (Nuremberg, Augsburg, Prague; **light green** – other places). Compiled by J. Fomín and M. Müller, 2022.

**Fig. 7.** Anonymous: *Einfahl des Passawischen Krigvolcks, in die kleine Statt Prag*. Anno M.DC.XI. den 15 Februarij (Invasion by the Passau Troops of Malá Strana on 15 February 1611) – detail. Roupovský House (highlighted), belonging to Erasmus Habermel, opposite the church of St. Martin. Copperplate, 241 × 284 mm, published by Abraham Hogenberg (?), workshop, Cologne, 1611–1613 (Rijksmuseum, from Serie 10 album: Nederlandse en Buitenlandse Gebeurtenissen, 1587–1612, RP-P-OB-78.785-357).

*Translated by Linda Foster*