

**Geared to the Planets: The
Digital Re-Animation of a
War-Damaged Renaissance
Equatorium**

**Rapport sur les
contributions**

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Ptolemy's theory to predict the motion of the planets was received and refined over many centuries by successive generations of mathematicians and astronomers writing in Greek, Arabic, and Latin, for whom the theoretical models largely served for the computation of tables to predict planetary positions. At least since the eleventh century, a class of specialized, analog mathematical instruments known as equatoria emerged alongside these tables. They consisted of rotatable graduated disks and radially turned arms or threads, with which planetary positions could readily be found. Such instruments offered both a visual representation of Ptolemy's geometric models and a means for the approximate calculation of the planets' positions. Certain of these instruments used metal gears to realize interconnected components of the desired motion.

Next to nothing of these early geared mechanisms survives, so that rediscovery or re-analysis of each such instrument is a cause for interest. Such a geared equatorium made of brass, with a simultaneous display of the "true" position of all seven of the classical planets in the zodiac, was sent to the Saxon court by the Coburg mathematician Nikolaus Valerius in 1564. After it was caught up in the bombing of Dresden in 1945, it survives only as a disfigured, burnt fragment, but even before WWII it was never subject to a comprehensive analysis. The talk describes the many steps undertaken in the attempt to use digital means to analyze and reconstruct what this equatorium once did –and did not –show.

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