

Astronomy and Culture in the Czech Republic

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The history of astronomy in the Czech lands dates back to the medieval period when astronomical observations and studies were closely tied to the universities and religious institutions of the time. To date, the Czech Republic remains active in the field, contributing to both astronomical education and global research. Let us present some of the most iconic people and places related to astronomy in our country.

The location of the Czech Republic
in Europe, highlighted in the colours
of the Czech flag

Tadeáš Hájek of Hájek

Tadeáš Hájek of Hájek, born around 1525 in Prague, was a Czech astronomer, mathematician, and later also personal physician to the Holy Roman Emperors Maximilian II and Rudolf II. Hájek studied astronomy and medicine in Vienna and Italy. Then, he started lecturing in mathematics in Prague.



In November 1572, he observed the so-called Tycho's supernova in the constellation Cassiopeia, and was able to determine that this "new star" was far beyond the orbit of the Moon, proving that the prevailing Aristotelian notion of the immutability of the heavens was wrong. He recorded his observations in a treatise called *Dialexis de novae et prius incognitae stellae*.

In 1577, he also observed a comet and found it to be beyond the orbit of the Moon as well. Thanks to his influence, he was able to arrange with the emperor for the arrival of both Tycho Brahe and Johannes Kepler to Prague.

Prague Astronomical Clock

In the heart of the capital city of Prague is the Prague (Old Town) Astronomical Clock. As its name suggests, it can fulfil your astronomical needs in terms of time but also much more. This gothic machine from the turn of the 14th and 15th centuries shows Central European, Sidereal, Babylonian and Old Czech time, as well as the current month and day. Moreover, careful observation of the main dial will also reveal the information about dusk, dawn, sunrise, sunset, lower culmination and height above (or below) the horizon for the Sun and the Moon. The position of the Sun and the Moon among the zodiac signs is also visible thanks to the inner moving dial. Finally, the phases of the Moon can be deciphered from its relative position to the Sun on the clock!

But do you know why most tourists visit this UNESCO cultural monument? Because every full hour from 9 a.m. to 9 p.m., it presents a short puppet show with moving sculptures accompanied by a glockenspiel, powered by its inner mechanism.



Jan Ondřejův, called Šindel

Jan Šindel was a Czech priest, mathematician, renowned professor of astronomy, rector of the Prague University, and personal physician to Kings Wenceslas IV and Sigismund of Luxembourg. He compiled the tables *Tabulae astronomicae* used by Tycho Brahe, and is also the presumed author of the concept and design of the Prague Astronomical Clock. He was said to be extremely knowledgeable and versatile – as is demonstrated by a number of theological, mathematical, biological and medical writings. His main impact in astronomy are the calculations and predictions of the Solar and Lunar eclipses and planetary conjunctions (a lot of his astronomical works have unfortunately not survived).

In 2002, an automated telescope located in the Observatory and Planetarium in Hradec Králové (Šindel's birthplace) was named after him.

Astronomical Clementinum

The Astronomical Clementinum is part of the Baroque complex founded by the Jesuits in the 16th century. It is famous for its astronomical tower (left photo) and baroque library (bottom photo), considered one of the most beautiful in the world. The tower was built in 1722 and was used for astronomical observations until 1938. The Clementinum is also known for its long history of weather measurement. In fact, the local weather station has been collecting data since 1752, making it the longest-running meteorological station in Europe!



Johannes Kepler

Johannes Kepler is considered one of the most influential astronomers and the founder of modern astronomy. He spent his most productive years, from 1600 to 1612, in Prague where he initially worked with Tycho Brahe (their commemorative statue is situated in Prague, see below). Kepler lived in a street adjacent to the Clementinum (see his house below).

After Brahe's sudden death in 1601, he succeeded him as the imperial mathematician. Kepler used Brahe's precise observations of Mars to formulate the laws of planetary motion. He published his findings, including what became known as the 1st and 2nd Kepler laws, in *Astronomia Nova* in 1609. Kepler also systematically observed the supernova SN1604, known as Kepler's supernova. Following the Emperor's abdication and illness in his own family, Kepler moved to Linz in 1612.



References (websites as of Sep 4, 2024)

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online poster

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