

Does the foot size matter? We are searching for the answer to this ultimate question by studying the layout of medieval towns and villages in historical Silesia, Poland and Western Europe. Between the 12th and 15th century the terrain of Central and Eastern Europe was a subject to an extensive urbanization action that has severely changed the cultural landscape of this part of the continent. On Polish lands, a few hundreds of towns emerged on a greenfield, including over a hundred in Silesia only in the 13th century. Silesia appears to be a phenomenon also because it is the place where a model of regular town with orthogonal streets and rectangular market square evolved before it spread across the other Polish lands. Because of that, the question of the original, primary layout and planning of Silesian towns is particularly important and the way how the medieval surveyors established the size and parcellation of newly located towns is still a mystery and a subject of speculation. The studies of urban planning of Silesian towns have a long tradition. Up to this day, to reconstruct the original layout the architecture and urban planning historians applied the, so called, **modular analysis method**. They assumed that the layout could be deciphered by establishing a basic unit - module - used by medieval surveyors. To accomplish that, they recalculated the lengths and widths of objects appearing in the town's plan to medieval units (feet), length of which are known from written sources. Inaccuracy of archival plans and the necessity of "adjusting" to known units undermine the credibility of this method and make it a subject of criticism of researchers. In search of an objective method to establish the original length of the basic unit used for planning, we tried another metrological method - **cosine quantogram**. This stochastic method has proven its usefulness in studies on prehistoric and antique units of measure, but has **never been applied before to urban studies**. Using the cosine quantogram might allow us to verify the results obtained by modular analysis and also to check the hypothesis about the existence of two or more different lengths of foot used to measure and plan the Silesian towns. We want to check the methodology developed for Silesian cities on a few case studies from Poland (cities based on silesian law) and examples of regular cities from Western Europe, where the plots regulation has a different genesis, but masonry buildings appeared shortly after the location (Southern France, Tuscany).

Discovering the first on Polish lands fully preserved medieval deserted village of Goschwitz in 2013 made us revise all the common in literature assumptions about the existence of two official lengths of foot in Silesia. As the village's layout appears not to conform to any of known measure systems, we suggest that there might be more basic units and applying a particular one might have been depending on several factors, such as chronology, legislation, the influence of nearby trade centers, preferences of the founder or simply the imperfection of the measurement devices (length of the cord). In parallel to towns' location, Silesia was also the place of rural revolution. New villages were located and some of the existing were migrated to new legislation systems, which caused the regulation of their layout. New village types emerged – Angerdorf in the lowlands, with a regular core and layout, Waldhufendorf in highlands. Up till today the methods of planning of their layout was not a subject of research. We know though that in many cases the village core and fields have not changed at all since the Middle Ages. **We plan to apply the metrological methods of modular analysis and cosine quantogram to study the layout of selected medieval villages and verify their usefulness**. The applied theoretical methods will also be confronted with results of archaeological research, conducted for decades in different Silesian towns and those that will be held in Goschwitz and Zulzendorf - two first discovered in Poland fully preserved deserted medieval villages. Thanks to the fact that the villages were deserted shortly after its location, the site has an enormous potential for research. It might bring us answers to many questions about the rural life in medieval Silesia, such as how did the peasant houses look like, what was the arrangement of plots, which animals were bred, which plants cultivated and what tools were used. From the perspective of this project, the most important will be the answers to the questions about how the village core and fields were measured and planned and did the original layout change in time. We are also hoping that the time and reasons for abandoning the villages could be established. In the project, we will use the wide scope of methods, from traditional historian studies, up to the modern methodologies such as cartographic analysis in GIS environment and airborne laser scanning data processing and analysis. The archaeological research will be supported by geophysics (magnetometer), geochemistry and specific analysis (dendrochronology) - all that to obtain as much information as possible to create a broad view on the subject and work out a methodology for similar studies conducted in other regions of Poland and Europe.