

Analytical and Experimental Studies on the Technology of Late-Gothic Vault Constructionⁱ

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Introduction

This paper outlines how analytical and experimental studies in construction history have led to a fuller understanding of the construction of “cell vaults”, which has enabled restoration of such vaults to be undertaken with greater confidence. According to common belief, cell vaults were invented around 1470 for the construction of the Albrechtsburg, the new palace of the princes of Saxony at Meissen (Germany). These vaults that sometimes have stone ribs

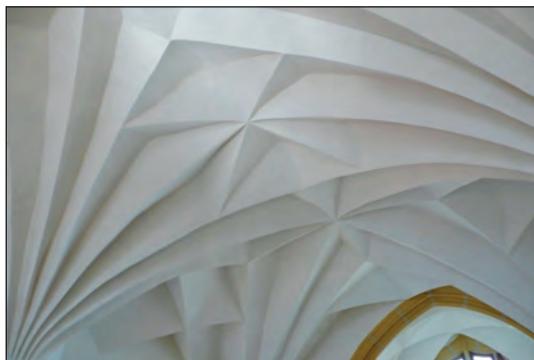


Fig. 1: Cell vault in the second floor of the Albrechtsburg at Meissen (Germany). The folded surface of such vaults are built with brick masonry (Courtesy: D. Wendland)

but in many cases only have sharp groins are characterized by their folded surface with ridges between the groins (*Fig. 1*), creating ceilings with subtle patterns of light and shadow. The construction material (apart from few exceptions) is brick masonry. Their design corresponds to that of late-Gothic net vaults, but the pattern of their groins and arches is often much more complex than that of conventional rib vaults. Cell vaults rapidly became popular first in Saxony and then spread all over central-eastern Europe, including Bohemia, Poland, the Baltic, Prussia and even beyond. During more or less a century, hundreds of them were built in palaces, town houses, convents and churches.

ⁱThis paper is a reduced version of ‘Research on “cell vaults”: analytic and experimental studies on the technology of late-Gothic vault construction’ published in Ref. [1].