



**Citation:** L. Vosding (2026) Space of Silence, Space of Sound: The Acoustic Organisation of Spaces and Places in the Nuremberg *Notel* of the Sacristan. *Jems*. 15: pp. 73-90. doi: <http://dx.doi.org/10.36253/JEMS-2279-7149-17191>

**Copyright:** © 2026 L. Vosding. This is an open access, peer-reviewed article published by Firenze University Press (<https://oajournals.fupress.net/index.php/bsfm-jems>) and distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**Data Availability Statement:** All relevant data are within the paper and its Supporting Information files.

**Competing Interests:** The Author(s) declare(s) no conflict of interest.

**Editors:** D. Pallotti, P. Pugliatti (University of Florence)

# Space of Silence, Space of Sound The Acoustic Organisation of Spaces and Places in the Nuremberg *Notel* of the Sacristan

Lena Vosding  
Linacre College, University of Oxford  
([<lena.vosding@linacre.ox.ac.uk>](mailto:lena.vosding@linacre.ox.ac.uk))

## *Abstract*

The article explores a late medieval manuscript from a Dominican nuns' convent in the city of Nuremberg, Holy Roman Empire, in which the sacristan describes her duties in ensuring the successful performance of the liturgy. By focusing on sound, the connections between liturgical practice and the spaces in which it took place are revealed. These diverse spaces were shaped by sound, which had not only sacred but also social implications.

*Keywords:* Dominican Nuns, Liturgy, Nuremberg, Sound, Urban Space

## 1. *Introduction*

Research into pre-modern spaces and places has long emphasized that buildings, as spatial and spacious objects, always have a special significance because they not only serve a functional purpose but also have symbolic power (Bandmann 2005). This is reflected in the architecture and design of palaces, town halls, or universities, but also of churches, monasteries and convents, which, as an ensemble but also in their individual parts of chapels, cloisters, living and working spaces, represented the spiritual and social authority of their communities.<sup>1</sup> Exploring these buildings in their design, their decoration, or in their relationship to other buildings leads to a deeper understanding of the invisible aspects of monastic life and its cultural relevance for society (De Paermentier 2008; Mersch 2012). In order

<sup>1</sup> The present article considers Christian monasteries in Europe, but I would like to emphasize that this also applies to the symbolic power of buildings of other cultures and religions.

to conceptualize this socio-spatial influence of monastic communities, the term ‘monastic landscape’ can be used to highlight monasteries and convents as cultural powerhouses that, individually or as a network, had a far-reaching impact on their surroundings by owning buildings, cultivating land, employing workers, but mostly by being politically and artistically active (Collins 2019; Röckelein 2020).

How this authority was actually performed depended on the circumstances of the individual community, their social and material resources, and the influences they experienced themselves from their families, the political elite, and not least the church or the monastic order to which they belonged. This is especially true for communities of religious women, as they usually had to accept male supervisors and to implement the ideal of enclosure to a higher degree than male communities. But even the convents that followed the most rigid rules of active and passive enclosure, which kept the women behind monastic walls for their entire life, remained in contact with society. They were both recipients of and contributors to the religious, political, economic, cultural, and social life of the region, maintaining these connections through diverse forms of communication. This included written media such as books or letters, visual media like small pictures, textiles or other objects, and verbal exchange permitted through grilles in parlors.

Verbal exchange or the aspect of the human voice highlights sound as an important medium to influence, fill, and shape a space (Clauss, Mierke, and Krüger 2020; Jaspert and Müller 2023). Sound, defined as the intentionally produced, information-carrying variant of noise, is an integral part of both the human experience of spaces and places as well as monastic research. However, sound is a fleeting medium, and we often find it difficult to comprehend the sound-space-experience of bygone generations. We usually have to rely on written reports or, if the buildings are still standing, on our own experiments.<sup>2</sup>

Space, on the other hand, is also a non-permanent entity, as it can be defined from at least four perspectives: It can be seen as ‘a container, ... as a system of relations and connections, ... as a product of human perception, ... and as a social [construct]’ (Braun and Knitter 2021, 38-40; similar in Kümin 2009, 8-10). Thus, space is not only defined by walls, buildings, or landscapes that might contain rooms, objects, and people, but also the distance between two or more things, as well as something perceived through a specific cultural lens and, not least, as a virtual entity, constructed only in human communication about it (compare Crang 2009, 261-265). Although this concept somewhat overlaps with the more complex definition of place, which is usually understood as a specific location imbued with a particular intellectual and emotional significance, the four aspects or dimensions of space are particularly useful to highlight the different elements that are usually involved when space is studied scientifically.

How the four aspects are linked and intertwined can be explored in a late medieval manuscript from the Dominican nuns’ convent of St Katharina in Nuremberg, one of the largest imperial cities of the Holy Roman Empire north of the Alps. On the first and second level, the manuscript’s text gives us insights into two physical spaces or two interlocking containers and systems of physical relations: first and foremost, the convent building and its inner spatial structure, namely the rooms of the church, the nuns’ choir, the dormitory and others. But with the focus on sound, some information about the physical structure of the city of Nuremberg, in which St Katharina was nested, comes into the spotlight too. On the third level, the spaces of the convent and the city were experienced by the nuns and the Nuremberg population

<sup>2</sup> The DFG Network “Lautsphären des Mittelalters” is focused on this aspect and will publish their findings in another edited volume: Clauss, Jaser and Mierke forthcoming. Unfortunately, it was not yet available when this article was completed.

in a sensual way; for them, both spaces were not only shaped and defined by the visible and tangible structures, but also by sound and its symbolic implications. The fourth dimension is finally realized in the manuscript itself, as it is a physical container which holds written descriptions of the space to which it belonged and the symbolic actions performed therein. The present article will explore these connections between the manuscript, the sound, and the space and, through the lens of sound history, will try to reveal some aspects of the complexity of late medieval life that are not often recorded.

## 2. *The Manuscript*

The so-called *Notel der Kuesterin* (Sacristan's notebook)<sup>3</sup> is a small duodecimo codex (15×10 cm) in plain red leather binding which comprises 285 paper folii, bound into 32 quires.<sup>4</sup> Its initial compilation can be dated to the year of 1436, which appears in a scribal note.<sup>5</sup> The scribe was an unidentified Dominican sister in Nuremberg, who presumably wrote down what another sister dictated to her. Their convent, St Katharina, was founded in 1295 by the patrician Konrad von Neumarkt and his wife Adelheid Pfinzing, complementing the other mendicant monasteries of Franciscans, Poor Clares, and Dominicans in the urban area. St Katharina became an influential community and left behind one of the largest monastic manuscript collections of fifteenth-century Northern Europe (Willing 2004 and 2012).

The convent also played a major role in the religious reform movement of Observantism that emerged in the Latin church from the fourteenth century. As a response to changing demands on religious communities and a perceived decline of monastic discipline, most of monastic orders strove to restore their lifestyle according to the idealized conditions of the orders' foundation. The reform entailed a new asceticism, a deeper engagement with renewed spirituality and liturgy, and reinforced enclosure, especially for the female communities (Elm 2016; Jones 2017; Neidhardt 2025). In Nuremberg, the council and patricians were also very interested in the reform and supported the efforts to implement Observant lifestyle in the city's monasteries and convents. The nuns of St Katharina initially rejected any changes, but after a period of observation and discussion, the community finally adopted the Observant reform in 1428. The supervisory duty (*cura monialium*) of the Dominican friars of Nuremberg, who had joined the reform already in 1396, was renewed, and a group of sisters from the Dominican nuns' convent in Schoenensteinbach were officially invited to St Katharina as teachers of the reformed lifestyle. Schoensteinbach, situated in Alsace not far from Muehlhausen, had adopted the reform in 1397 and was the first Observant convent in the order's *provincia teutonia* (Winnlen 1993, 33-79). With their help, the Nuremberg sisters implemented the new ideals so successfully that they became a model convent and were repeatedly called by the order's authorities to assist in the reform of other convents. Therefore, the convent of St Katharina followed Schoensteinbach's example and sent some sisters temporarily or permanently to take over offices and guide other

<sup>3</sup> Stadtbibliothek Nuremberg, Cent VII 16.

<sup>4</sup> I would like to thank Antonia Bertulies, Bianca Goch, Sabrina Marquart and Sascha Winkler, who joined me in the task of editing the manuscript (Vosding *et al.* forthcoming).

<sup>5</sup> 'Liebe swester küsterin, pittent got fur mich, swester küsterin, denn ich dies ding mit fleiß zu sammen gesucht han. Pittent auch fur die swester, die in geschriben hat. Als man zalt von Kristus unsers lieben Herren gepurt tausent ior und iiij c jor und in dem xxxvj jor' (*Notel*, 8v) (Dear sister *sacrista*, pray to God for me, sister *sacrista*, who has dilligently brought together all these things. And pray for the sister who has written the book. In the year counted from our dear lord Christ's birth as 1000 and 400 and 36). Already noted by Schneider 1965, 284. Unless stated otherwise, all translations are mine.

convents in the Observant way of life (Fries 1924; Kist 1963; Steinke 2006). The first such mission was sent in 1436 to the Dominican nuns' convent in Tulln, close to Vienna. It consisted of ten sisters, among them sister Katharina von Muelheim, who herself came to Nuremberg from Schoenensteinbach in 1428 and had been appointed the first sacristan after the reform in St Katharina. After eight years on duty, she was sent on again, and it is very plausible to identify her as the dictator of the *Notel* who sought to ensure that the routines she had established would continue after her departure (Vosding *et al.* forthcoming).

The manuscript, written in Nuremberg German (Pfanner 1954), is a collection of practical notes and explanations concerning the tasks the sacristan of St Katharina had to perform throughout the liturgical year. Thus, the *Notel* can be categorized as 'internal' or 'pragmatic' writing, that is, a text not intended for the liturgy itself, the convent's library, or the archival collection of legal documents, but instead for regular consultation in the course of everyday duties (Keller, Grubmüller, and Staubach 1992). Like many other handbooks for the liturgy, often called *libri ordinarii*, it was probably kept in or close to the place where it was usually consulted, thus the choir or the sacristan's workplace, particularly the sacristy (Schlotheuber and McQuillen 2020, 977-979). This function as a handbook is also reflected in the modest appearance of the paper, the writing, and the obvious anticipation of later additions. The main hand frequently leaves space for comments, and indeed later hands enter further notes, sometimes even more carelessly written. It is only in the description of the feast of Saint Catherine of Alexandria (25 November), the convent's patron, that a colorful initial of the saint adds some elaborated decor (*Notel*, 184r).

As in most reformed convents, the liturgy had been comprehensively revised according to Dominican Observant norms, alongside many other aspects of convent life. It was not only the feast days or the prayers that were revised, but all practical aspects of the liturgical performance under the renewed enclosure. The descriptions of what the sacristan and her assistants had to prepare and supervise are sometimes highly detailed in the *Notel*. They cover the feasts of the liturgical year, but also, for instance, instructions for washing the vestments or the payment for the Dominican friars from the so-called Predigerkloster in Nuremberg who celebrated the memorial services for the convent's donors. Similar to the *libri ordinarii*, the *Notel* provides a rare glimpse behind the scenes of a women's convent, allowing the reconstruction of some necessary tasks before and after the liturgy itself (van Tongeren and Caspers 2015). The *Notel* is not least a valuable source for the relationship between the Order's official liturgy and its local realization. It demonstrates how universal rules and habits, valid for all Dominican houses (Guerrini 1921; Humbertus de Romanis 1956), were adapted to the local conditions of each convent (Thomas 1965; Meyer 2015). Even communities striving to fully observe the ideals of the reform movement had to find compromises. For instance, architectural features such as the location of the sacristy, the chapels, or the dormitory could not be altered, and long-established rituals such as the veneration of regional saints were often retained, in favour of diocesan or local traditions.

The sacristan in her *Notel* explicitly acknowledges such accommodations, for example in the description of the liturgy on All Souls' day: 'Item kan die vigil an aller sel tag nit geleßen werden als vorgeschriben ist, so frog man die priorin oder sengerin, wen man si leßen schüll. Si ist nit von orden, aber man hot es hin von guter gewonheit her proht, und ist gut' (182r).<sup>6</sup> Even more explicitly, another passage reads: 'Item dise vorgeschriben weis mit den kertzen und

<sup>6</sup> (Also, if the vigil cannot be read on All Souls' day as it should be, one should ask the prioress or the *cantrix* when to read it instead. It is not a rule of the Order, but it was brought to us from good custom, and it is well). The flexibility of this vigil was probably a custom the nuns in St Katharina adopted themselves maybe from Schoenensteinbach or from other religious communities in Nuremberg.

grebern hot man von alter her gehalten und sol es auch fürpas halten, es wer denn, das es ein meisterschaft anders ordent' (178r).<sup>7</sup> These examples show that some practices at St Katharina were tolerated by Dominican authorities, although they were not based on official norms. The *Notel* is thus a reminder that official monastic rules and normative texts do not necessarily represent the actual practice in the convents which must be virtually reconstructed by combining the rule with other sources from every individual monastic community.<sup>8</sup>

Unfortunately, St Katharina's church and monastic buildings are also subject to virtual exploration only because they were destroyed in 1945. In his article 'Alltag einer Küsterin' (2003), Gerhard Weilandt used photographs from the 1920s and, mainly, the *Notel* to reconstruct the arrangement of the altars in the church and on the nuns' choir of St Katharina in relation to surviving works of art.<sup>9</sup> Weilandt's important work reveals how closely the liturgy was bound to its spatial 'stage' with its sacred places and objects. Reading the *Notel* with a focus on acoustics and sound, this aspect becomes even more evident.

### 3. *Voice, Board, Bell, and Time*

Singing, praying, reading aloud, and music were recurring forms of sound in convents, although they were always in tension with the general rule of silence, a common feature of most monastic traditions. Nevertheless, this applies to casual conversations, gossiping, or even whispered comments during rituals and mealtime, but not to sounds related to liturgy or necessary conversation, for instance in the chapter house during the daily meeting. The church and monastic buildings are therefore better understood not as a space of permanent silence, but as a space of controlled sound where distinctions were made between desired, tolerated, and forbidden sounds (Breitenstein 2023). These differences were also defined by the architectural features which shaped the internal acoustic environment or 'soundscape' (Schafer 1994; Breitsameter 2010). For example, the aforementioned grill in the parlor or the chapter house were explicitly built for conversations, while the pulpit in the refectory manifests the tradition of quietly listening to a reading during the conventual meals. In rooms like the dormitory, the scriptorium, or the cloister, conversation and sound were forbidden or only tolerated when absolutely necessary, except during liturgical rituals. This applies especially to the nuns' choir, one of the most important places for a monastic community. In St Katharina, as in many convents in northern Europe, it was situated on a gallery in the back of the church, where the sisters had their choir stalls and their main altar which was placed close to the parapet and in line with the high altar in the apse below. The choir was part of the nuns' enclosure and the place where they celebrated and contributed to mass with their singing – an invisible yet audible congregation (Pérez Vidal 2022).

The practicality of this acoustic control is a recurring element in the *Notel*, with singing and liturgical readings as the most frequently mentioned forms of sound. Both are clearly linked to the Ordinary, Proper, and Common that stipulate the constant and the variable elements of liturgy. The *Notel* is designed to complement these normative books and requires a thorough knowledge of reformed Dominican liturgy in a female community. The chants

<sup>7</sup> (Also the aforementioned manner with the candlesticks and the donors has been custom for a long time and we shall keep it further, unless the masters of our Order give a different order).

<sup>8</sup> Compare the volume Linde 2018, especially 1-18.

<sup>9</sup> For other photographs see Fries 1924, 145-169. More pictures, including from drawings in manuscripts, can be found under <[https://commons.wikimedia.org/wiki/Category:St.\\_Katharina\\_\(Nürnberg\)](https://commons.wikimedia.org/wiki/Category:St._Katharina_(Nürnberg))>, accessed 1 December 2025.

for example are cited only by their incipits as cues for ritual action: ‘Mon hot auch ein gute gewöheit hinnen an dem heiligen krist obent czu vesper, so mon den MAGNIFICAT an fehet, daz denn die priorin oder die supriorin reüchet for dem altar’ (18v).<sup>10</sup> Here, the beginning of the *magnificat* marks the moment for censuring the altar which means that the prioress or subprioress had to collect the censer, maybe even light it, and go to the altar in sufficient time. In another description, about the Feast of Corpus Christi, the chant *O sacrum* is coordinated with multiple simultaneous actions:

... frü als pald noch der tertz so feht mon O SACRUM an, und die weil sol mon meß leüten. Unter dem so bereiten sich die fur den alter, die die kertzen und den fannen tragen, und wen O SACRUM aus ist, so foht der priester in der kirchen an, die kertzen czu gesegen mit gesang. Und wen es aus ist, so anwort der kofent “Amen”. (25v-26r)<sup>11</sup>

The sacristan thus not only had to instruct the community of sisters on the choir and the priest in the church on what to do and when, but also constantly keep an ear on the bells and the choir in order to coordinate ritual actions. The *Notel* even prescribes measures in case the quality of the singing should decline.<sup>12</sup>

Liturgical readings are also indicated for the knowing reader only. The respective instructions actually reveal important information not just about liturgical rituals in different rooms, but also about the self-sufficient spiritual guidance the nuns provided to each other within their enclosure. For example, in the description of the *cantrix* reading aloud from the Bible to the community of nuns: ‘... und wen der covent aller in dem capitel ist, ietliche an ir orden stat, so stet ein sengerin zu dem pulpet und lese das ewangelii. Die weil sol der covent sten und als pald das geendet ist, so sitzet die priorin und der covent nider’ (83v-84r).<sup>13</sup> Although this was a reading from the Bible – the most familiar text to all monastic individuals – rather than a sermon, the tradition nonetheless demonstrates that religious women were capable of reading and understanding central Latin texts without the guidance of university-educated men, thereby challenging an overly simplistic view of skills and knowledge in late medieval convents.<sup>14</sup> On the other hand, the *Notel* clearly reveals the hierarchy between ordained men and women. The priests, i.e. the Dominican friars, were officially entrusted with the sacraments and were permitted to perform the Eucharistic celebration in St Katharina. They were also responsible for preaching to the nuns and parishioners, thus linking an interpretation of a biblical passage or theological topic with practical advice. As the *Notel* does not include any description of

<sup>10</sup> (We also have the good custom here for the vespers at Christmas eve that the prioress, when we start singing the MAGNIFICAT, or the subprioress swing the censer in front of the altar).

<sup>11</sup> (... shortly after the terce, we start singing O SACRUM, and meanwhile the bells are to be rung for mass. At the same time, the sisters who carry candles and the banner gather in front of the altar, and when we stop singing O SACRUM, the priest in the church begins to bless the candles with his singing. And when he stops, the convent answers with “Amen”).

<sup>12</sup> Unfortunately the text of this section is missing, leaving only the heading.

<sup>13</sup> (... and when the whole convent is in the chapter house, every sister at her designated spot, the *cantrix* stands at the pulpit and reads from the gospel. During this, the convent shall stand and when the reading has ended, the prioress and the convent sit down).

<sup>14</sup> The question of language skills in convents is a recurring topic in research. The general impression is that convents in the south of the Holy Roman Empire tended to translate Latin texts into the vernacular, while in the north the nuns’ Latin skills were strengthened. Both approaches enabled religious women to understand their liturgical and monastic texts – just as the Observant reformers requested (Ehrenscheidtner 1997 and 2004; Schlottheuber 2004 and 2006). The *Notel* does not contradict this impression, but suggests a more complex situation. It is plausible to assume that convents found their own individual solutions for dealing with language requirements.

these monologues or other liturgical elements that the nuns could only observe or listen to, it seems to strictly separate the domains. But this should be seen as a result of the *Notel's* practical focus on the sisters' part in the collaboration with the priest and the friars, which had to be complemented (while reading) with the other known elements of liturgy.

In addition to singing and reading, musical instruments are mentioned as well. First, there are small gongs or percussion boards that were mostly used to wake the nuns, to summon them, or to indicate different actions during a more complex liturgical ritual. For example, the end of the liturgy of Maundy Thursday is described as follows: '... do noch so gibt die priorin das zeichen, so tafelt die küsterin dreü kurtze zeichen mit der großen tafeln peÿ der kor tür für AVE MARIA. Also ist es aus. Die zirklerin tafelt mit dem tefelein das zeichen aus dem kor' (96v).<sup>15</sup> This passage suggests that at least two percussion instruments were used by the sacristan and the *circaria*, a sister who monitors the discipline as she 'circulates' through the convent, to conduct the nuns through the liturgy and out of the choir. One of these boards was apparently quite large and was kept permanently in the chapter house, maybe hanging from a wall.

Another description, this time of the detailed performance prescribed for Good Friday morning, confirms that playing the boards was not only informative but also space-transforming:

An dem heiligen karfreytag zu meten so ist die ander vinster meten und man weket, wen der weker vel und get ümb daz tormitori und clopfet an die zellen ... Und wen alle swester gewecket sint, so get die küsterin zu dem andern mol ümb das tormiter mit dem kleinen tefelein und schleht mit dem segelein, das dor an hanget, pis si wider zu dem kor kümet. Das ist das erst und dor noch, wen die swester in dem kor sint und die kusterin vor dem alter die kertzen an gezünt hot, so nÿmpt si die großen tafeln und get in die hindern abseiten und gibt der außern küsterin und dem gesind ein zeichen und get denn ümb das tormitori mit der großen tafeln pis wider zu dem kor. (97r-98r)<sup>16</sup>

It is obvious that the sacristan's two rounds around the dormitory, first striking the small and then the large board, were not meant to wake the nuns twice. Rather, the second round served to ritually transform and include the dormitory to the liturgical ceremony of remembering the crucifixion, death, and burial of Christ. In addition, this passage also informs us that the sacristan signaled to the outer or second sacristan (usually her assistant and often occupied with the liturgy for the lay sisters and the monastic servants), who apparently had to be downstairs in the church with the lay community, by striking the board from the nuns' gallery, so that both communities could perform their rituals at the same time.

The second group of instruments are bells. Except during the *triduum sacrum* (the three days between Maundy Thursday night and Easter Sunday morning), small altar bells were used during the liturgy, rung by the priests and the nuns at the elevation of the host and on other occasions. Their function parallels practices still known in Catholic liturgy today. For the feast of Corpus Christi the *Notel* reads:

<sup>15</sup> (... afterwards, the prioress gives the sign, and the sacristan strikes the large board next to the choir's door three times quickly to give the sign for the AVE MARIA. And with that, it is over. The *circaria* strikes the sign on the small board to leave the choir).

<sup>16</sup> (On holy Good Friday we have the second *tenebrae* as mass and one wakes the sisters when the hour strikes and goes around the dormitory and knocks at the cells' doors ... And when all sisters are awake, the sacristan goes around the dormitory a second time striking the small board with the small mallet hanging on it, until she gets back to the choir. This is the first, and after that, when the sisters are in the choir and the sacristan has lit the candles in front of the altar, she takes the large board and goes to the back corner and gives the outer sacristan and the servants a sign, and then she goes around the dormitory again with the large board until she gets back to the choir).

[and when the father confessor] ... unsern Herren nimet in der monstrancien und die kusterin daz glöcklein in der kirchen hört, so heiß si das ander leüten und do mit nit auf hören pis der peihtvater wider aus kümet. Und die weil, so schik si das vier von den novicien oder vier ander iung swester vor den kertzen gen und glöcklein leüten und noch in zwü mit kertzen und dor noch der peihtvater mit unserm Herren und dor noch der covent, unter dem schüllen leüten alle die do gelöcken haben. (142r-142v)<sup>17</sup>

Here, small bells are used not only to coordinate the activities in the church and on the nuns' choir, but also to frame the rare event of one Dominican friar entering the enclosure, bringing the new host in the monstrance to the nuns' altar. He was probably coming via a staircase from the main church up to the gallery and through a usually locked door, welcomed by the nuns and included in their procession to the altar. The bell-ringing provided the acoustic signal of the real presence of Christ in the Eucharist.

Other small bells are not mentioned in the *Notel* itself, but in the so called *Schwesternbuch* (Sisterbook) from the Dominican nuns' convent in St Gallen. Although they lived about 300 kilometres away, their manuscript contains invaluable information about the convent in Nuremberg. The St Gallen sisters never joined the reform movement officially but were trying to adapt as many elements of that lifestyle as possible. For that, they had asked their sisters in Nuremberg to describe the reformed life and the convent of St Katharina's sent them detailed letters which the St Gallen nuns copied into the *Schwesternbuch*. Thus, the St Gallen manuscript contains more descriptive information about the situation in Nuremberg and the tools the sisters in St Katharina were using. For example, this includes a *capitelgloggen* (chapter bell), which the Nuremberg *circaria* used to call the sisters to bed (Willing 2016, 610). Also mentioned is a cymbal, which was used to signal the start of meals in the refectory (616). Interestingly, the *Schwesternbuch* even describes how the sacristan could be alerted by her assistants in the sacristy using a rope (and presumably another bell) – a spatial detail that is not mentioned in the *Notel* but reveals that the sacristy apparently had two rooms: one for the enclosed part of the church and another for the space used by lay people, but both under the sacristan's responsibility.<sup>18</sup>

Finally, the bigger church bells, mentioned above, deserve particular emphasis as they created a completely different sound and were part of the wider soundscape of the city. A remarkable example would be during the *Heiltumsweisung* ('display of imperial relics'), a very specific event not just for Nuremberg but for the entire Empire.<sup>19</sup> It was a feast day on which the imperial regalia were presented to the public from one of the sumptuous balconies on the market square. Although the nuns were unable to leave their monastic enclosure and therefore did not witness the actual event, they nevertheless took an active part in the festivities:

<sup>17</sup> ([and when the father confessor] ... takes our Lord in the monstrance and the sacristan hears the small bell in the church, she signifies to ring the other small bell and not to stop until the father confessor comes out again. And then, she orders four novices or four other young sisters to walk in front of the candles and ring small bells and after them two more with candles and after them the father confessor with our Lord and after him the convent, and all who have bells shall ring them).

<sup>18</sup> 'Wenn die ober kusterin ir erstes zaichen het geton, so wartet die vnder kusterin und tut dz ander zaichen vnd versorget all ampulen im cor vnd vff dem tormitor. Vnd ob man der kustrinen in den sagrer lut, dz sait ir och die, die wuchen halt. Durch die kilchen hinab ist ain stricklin by ainer mur, wenn man der kusterin bedarf in dem sagrer vswendig' (Willing 2016, 634). (When the senior sacristan has given her first sign, the sub-sacristan waits and gives the other sign and takes care of all ampoules [maybe for holy water] at the choir and in the dormitory. And if the bell is rung for the sacristans [sic] in the sacristy, will be decided by the sister who has responsibility for the week. They have a rope hanging through a wall into the church, for when the sacristan is needed in the outer sacristy).

<sup>19</sup> The date of the *festum reliquarium* or *festum lancee et clavorum* was celebrated on the second Friday after Easter (Machilek 2002).

Und an dem obent so bereit man den alter hinnen als ein schlechten tuplex und auch die kirchen und setzet die tafeln mit dem heiltum, do daz sper innen ist, und prennet zu allen zeiten ein kertzen dor vor ... [On the same day] ... wen man das heiltum gezeiget, so leütet man gar herlich in der gantzen stat. So leüten wir auch hinnen ein langes zeichen. Dor vor schol man nit mit der rechten geloken leüten und dor nach, wen man daz zeichen zu der meß gibt, so leüt man meß nach gewonheit. (121r-122v)<sup>20</sup>

This proves not only that St Katharina's treasury included a piece of the Holy Lance and that the nuns decorated both the nuns' choir and the church for the feast day, but also that their right bell (it remains unclear whether this refers to the side or the quality in the sense of 'correct') was to remain silent on the day itself. This is likely to be the bell that usually announced church services and which, on this special day, ran the risk of disturbing the service in the market square. Later, the ringing of all bells in the city was to be joined in loudly, while the evening mass after the festival was to be rung in as normal.

The sacristan was responsible for ensuring this bell-ringing, which meant she had to listen carefully to the city's bells and coordinate accordingly. On a day such as the *Heiltumsweisung*, when all the bells in the city rang simultaneously, this must have been relatively easy. On other days, however, this task was more challenging. A striking example can be found in the regulations for Lent:

Item die küsterin sol großen fleiß haben in der vasten, daz sÿ der stat gloken war neme und das or glas zu dem garaus ümb ker und also fürpas czu allen stunden piß auf mitten tag. So kon si selten oder nimer yrrren, wen denn sich nit alwegen noch unser or czu rihten ist, wan es unterweilen nit reht schleht. ... Item wenn es den tag XIIJ schlecht, so riht die or hinn, das es frue ste ein halbe or über VJ und zu nacht zum garaus auch also. Dis sol die küsterin die vasten halden und besonders frü, das der mitag gleich werd hÿnn und in der stat. ... Und ker das or gelas ümb so wirt die küsterin nit irr. (37r-37v)<sup>21</sup>

In other words, avoiding the risk of getting confused depended directly on the sounds coming from the city, the sacristan's ability to hear, and her coordination between two different methods of measuring time in Nuremberg: first, there was the *Große Uhr* (great clock) which measured hours according to daylight and darkness rather than uniform time, and created special challenges (Gaab 2006). In summer, a day could have sixteen hours and the night only eight, while in winter, conversely, the day had only eight hours and the night sixteen. These hours were chimed by the towers of St Sebald's church, St Lorenz's church, and from two city towers, the Weiße Turm and the Laufer Turm. Second, St Katharina had their own clock, a *Kleine Uhr* (small clock) which had been installed only in 1436 and measured time in two sets

<sup>20</sup> (And in the evening, we prepare the inner altar for a *minor duplex* feast as well as the church, and place the cabinets with the relic, the one that includes the spear, and constantly have a burning candle in front of it ... [On the same day,] when they show the relics, they ring the bells marvelously across the whole city. And so we ring our bell for a long time too. Before this, we shall not ring the right bell and after it, when they call for mass, we ring the bell for mass as usual).

<sup>21</sup> (Also the sacristan shall be very diligent during lent to pay attention to the city bells and to turn the hour glass for the end of the day and all hours until noon. That way she can rarely or never go wrong, when she is not only relying on our clock, as this sometimes does not work properly. ... Also, when the 13th hour of the day strikes, adjust the clock in a way that it shows half past 5 in the morning and similar for the last hour of the day. The sacristan shall keep it like this during lent and especially in the morning, so that noon is at the same time in our convent and in the city. ... And turn the hour glass over; thus, the sacristan will not go wrong). *Garaus* was the term used for the last light hour of the day. *Ponfasten* were the fasting periods for all Christians, while *Regelfasten* were additional fasting times for monastic communities.

of twelve equal hours. Unfortunately, its mechanism was not entirely reliable and gave good reason for the sacristan to advise her successor to double-check the time against the city bells as well as the convent's hourglass.

Auditory observation of the city was thus a recurrent duty for the sacristan, important for timing the convent's liturgy in relation to that of other churches, especially the Dominican friars, who provided the sisters' pastoral care. The *Notel* contains multiple instructions for auditory coordination with the Predigerkloster, reflecting the close collaboration between nuns and friars, as for example: 'Wen unser veter das ander zur kirwey leüten, so leüt wir daz erst, wan si predigen' (119v).<sup>22</sup> This short but important sentence is a reminder that, on one hand, all churches were sacred spaces whose symbolic character was renewed in the anniversary of their dedication and, on the other hand, neighboring convents of the same order usually were well aware of their celebrations. In Nuremberg, the sisters left the acoustic stage to the brothers on the day of their church's consecration, and rang their own bell later, as if in response to the joyful message of the brothers' bells. In this acoustic performance, the two Dominican monasteries presented themselves as distinct spaces that nevertheless had a close spiritual relationship.

The *Notel* also records St Katharina's role as a station church for public processions, as for example on the day when the community of the Heilig-Geist Hospital carried their Eucharist around the city. For them, the Dominican nuns on their choir acted as invisible hosts. The sacristan was to prepare elaborate decorations in the church, then listen for the approaching procession (Reichert 2020), and at the appropriate moment, open the tabernacle and coordinate the bell-ringing:

An dem suntag in der octaf corpore Christi so legt man in der kirchen die tuxel altertücher auf und tut die tafeln auf und zündet kertzen auf de [sic] die elter an und besunder den angst alter, der der mittelst in der kirchen ist, do man unsern Herren auf setzet. Den bereit man schon aus und tut roßen, die ab geplatet sind, dor auf und heiltum. An disem suntag so kument die von dem spital her mit unserm Herren noch der ersten stund und wen si die küsterin höret, so tu si unsern Herren auf, aber die gatern bedarf si nit auf sperren. Man leüt auch mit der rehten geloken unserm Herren einhin und hin aus. Man let unser Herren also offen ston und wen es preim zeit ist, so leüt man preim und singet den vers. (150v-151r)<sup>23</sup>

Thus, the convent again integrated itself into the religious rituals of other communities through sound. The strict enclosure, rigorously imposed after the reform, created both physical and symbolic boundaries, but those boundaries were bridged. Though the sisters were invisible to the public, their voices, music, and bells made the convent of St Katharina present not just as a building in the city, but also as a symbolic space where the sacred was experienced and as a community of religious women who were in charge of it all. Ultimately, the liturgical acoustics served to express different aspects of the sisters' identity: they were an individual community of religious women, members of the Dominican Order, and part of the city of Nuremberg (compare Lagergren 2025, 18).

<sup>22</sup> (When our fathers ring their bell for the anniversary of the dedication of their church the second time, we ring our bell only after they started preaching).

<sup>23</sup> (On Sunday in the Octave after Corpus Christi we put the altar cloths for *duplex* feasts on the altars in the church, open the altarpieces, light candles on the altars, and especially the altar with the Resurrection, which is standing in the center of our church, because they will place the host there. We prepare it beautifully with pressed roses and relics. On that Sunday, they come from the hospital with the host after the first hour and as soon as the sacristan hears them, she shall open the tabernacle where our monstrance stands, but keep the grill closed. Also, we ring our right bell while their monstrance is carried in and out our church. The compartment with our monstrance is kept open and when it is Prime, we ring for Prime and sing the verse).

#### 4. *Sound, Meaning, and Space*

As has become apparent, the different sound types given in the *Notel* can be assigned to specific functions, allowing a partial reconstruction of the convent's sound profile as well as some physical and social dimensions of its acoustics. Although oriented to internal practice, the text also allows insights into the convent's interaction with the outside world. The sounds mentioned are time-structuring and highly symbolic which made them intelligible only to initiated listeners. They can be distinguished into three social groups: first and foremost, the community of St Katharina themselves; second, the neighboring clerics, such as the Dominican friars or the priests of the Holy Spirit Hospital; and third, the people of Nuremberg, who experienced St Katharina as both a convent and a parish church (Reitemeier 2020). Along with these groups, three levels of space related acoustic communication emerge: internal, semi-external, and external. For the convent itself, there were quieter sounds such as the board tapping in the dormitory, audible only to the nuns. The singing and the ringing of small bells on the choir could be heard by those in the church under the nuns' choir, while the loud church bells in the ridge turret were audible to the entire population of Nuremberg and extended the nuns' voice beyond the convent walls into the urban area.

This highlights again that sounds rooted in liturgy carried not only spiritual but also spatial and thus socially hierarchizing and even political elements. The ability to produce and use sound to convey information, take a stand in society, and mark a sphere of influence was a regulated asset for institutions like monasteries and convents. As sound always was (and is) a medium of power and dominance over meaning, space, and social order, organizations and individuals with influence used it to negotiate their balance. So, when sound was produced within established rituals, it served to stabilize society, but when used against the rules and customs it also had the potential for social disruption (Wagner 2019; Baker 2021; Dillon 2012, 92-128).

From this perspective, monastic communities, with their chants, musical instruments, and bells, had powerful tools at hand to confirm or oppose socio-political structures or developments. Thus, accounts of pre-modern convents using their distinctive sound as means of disagreement with interference in their domain hardly come as a surprise, as for example nuns singing songs of protest against restrictions or the violation of their rights (Nolte 1932, 99; Koldau 2005, 758-799; Schmidt 2006; Jones 2022). Sound as a medium for negotiating social and legal issues can also be found in the history of St Katharina. The first attempt to implement the Observant reform in 1396, just after the successful reformation of the Predigerkloster, turned into a sonic power struggle. When the reformers tried to read out the text of a corresponding papal bull, officially announcing the reform to the convent in their church, the nuns refused to listen, responding with rude remarks and physical resistance. Only after distracting the nuns by throwing bags of flour were the reformers able to read out the text and thus force the nuns into the reform (Meyer 1909, 12-14). This dramatic episode reveals the performative power of reading a (legal) text aloud and being forced to listen, especially in a situation where the convent's members were not able to flee without leaving their own church to the opponents. The effectiveness of this reading is also confirmed by the fact that the convent of St Katharina later obtained the repeal of the imposed reform by officially appealing to the emperor and the order's master general (Kist 1963, 34).

Later, the Protestant Reformation forced the religious communities in Nuremberg to defend, reconsider, and adapt their sound profile. After the city embraced the new faith in 1525, the monasteries and convents, including St Katharina, were gradually dissolved. The female communities fought fiercely for their survival by engaging in theological discussions

or keeping their doors shut. Finally, the convents and the city council agreed on a relatively peaceful process; the communities were prohibited from accepting new members, but there was no major destruction. The preceding disputes, however, were always heated and often related to sound. No descriptions have survived from St Katharina, but the abbess of the Nuremberg convent of Poor Clares, Caritas Pirckheimer († 1532), described in detail how her community and the other monasteries and convents were repressed by the reformers and the city council. She vividly illustrates how the Nuremberg patricians demanded to open the windows for speaking in the parlor (i.e., removing the grill or screen) and how the mothers came to the convent and forcibly took their daughters back. These fights in the church are depicted with an aggressive soundscape: screaming, crying, ranting, wailing. The sermon of a Lutheran priest from the pulpit is characterized as shouting.<sup>24</sup> Thus, the monastic space of ordered sound is described as being invaded and disrupted by discordant sounds from the external. Caritas also recounts how the choral prayer and bell-ringing were forbidden to the Franciscans who supervised the Poor Clares, and how her own community continued to practice both praying and bell-ringing despite all prohibitions. People responded with swearing, shouting, and throwing stones, which once again illustrates the symbolic power of sound and its capacity to provoke aggressive reactions when unwanted. Regarding the Dominican sisters of St Katharina, Caritas only reports that they have not rung the bells for mass for six months.<sup>25</sup>

In other regions, convents were also physically attacked by the Protestants who entered the space of enclosure or destroyed parts of the monastic infrastructure. It is telling that these attacks were often directed against the instruments and bells (Meyer 1909). They were either completely removed or made useless.<sup>26</sup> In some convents in north Germany, the former provost had been kept from entering the premises and the nuns had to accept mass according to the new faith in their church. This acoustic penetration of the semi-external space also entailed acoustic control of the internal space, as the nuns were forbidden to sing certain hymns. Their reaction was to recite these lyrics only within their cloister (Meyer 1909, 214-219; Brandis 2004, 385). Although concessions like this proved to be beneficial in the long term, as many of the convents in north Germany ultimately survived as Protestant Ladies' convents, such restrictions on acoustic expression once again reveal the symbolism of a convent's soundscape. Occupying acoustic space through song and music represented a claim to religious and social

<sup>24</sup> All three aspects can be found multiple times in Pfanner 1962, 70, 74, 79, 81-84 and 102.

<sup>25</sup> 'Do wir nun also in vill engsten und notten warn und teglich mer ungelucks warteten und wir uns also truckten und schmuckten, das wir kaym den gotlichen dinst dorfften halften noch dy glocken im chor leutten, den wen man etwas von uns hort,so hub sich fluchen und schelten, schryren in der kirchen herauf gegen uns, wurffen mit steynen in unßern chor und zerwurffen uns dy fenster in der kirchen und sungen schentliche lyeder auf dem kirchhof, troeten uns off, wen wir noch ein nacht metten leutten, wollt man uns große ding thun. Aber wir wogten es immer auf dy genad gottes, lyeßen keyn nacht on geleudt und ungehalten dy metten; sunst warn lengst all metten abgangen; dy swester zu s. Katterina leutten woll in einem halben jar keyn metten' (Pfanner 1962, 67). (And we were in great fear and distress and expected further misfortune every day, and we cowered and cringed, because we were not allowed to hold services or ring the bells in the choir, for if anyone heard us, they would start cursing and scolding us, shouting up at us from the lower church, and they threw stones at our choir and smashed the windows in the church and sang shameful songs in the churchyard. They often threatened us that if we rang the bells for the night mass again, they would do something terrible to us. But we always dared to do it, trusting in God's mercy, and did not let a night pass without ringing the bells and holding mass; otherwise, all masses have long since disappeared; the sisters in St Katharine's have not rung the bells for mass for six months). The Franciscans are mentioned in Pfanner 1962, 65.

<sup>26</sup> The Lutheran liturgy did not completely ban church bells, but their proper use was a recurring topic of discussion (Hahn 2015).

authority, which the reformers sought to curtail. Another and particularly striking example of such conflicts of authority is the Peasants' War of 1524-1525 (Roper 2025), where the rioters used drums, pipes, and bells to disrupt the established boundaries of acoustic authority of lords, cities, churches, and of course convents (Hacke 2016).

Against this backdrop, the practices described in the *Notel* gain even more significance. The nuns of St Katharina rang their bells themselves – it was not the friars or some other (male) office holder – and they determined their own liturgical schedule. For women living in enclosure, the symbolism is clear: they could make themselves heard independently and regulate their own liturgy, with only limited external influence from male clergy. Although late medieval society was patriarchal, these women possessed their own unmistakable voice. Of course, it was tied to their shared identity as brides of Christ and to the public expectations placed on their institution as part of the spiritual infrastructure of the city. This raises questions of female agency and the capacity to act autonomously within social constraints. It is certainly worth discussing to which elements of the nuns' sonic expressions the term of 'agency'<sup>27</sup> can actually be applied, especially if they complied with their socially expected role, and to what extent their agency would have increased or decreased if they had counteracted this role through arbitrary action.<sup>28</sup>

In any case, the nuns had authority over sound-determined spaces and their symbolic meaning. While the internal and semi-external space was limited by the architectural structures of walls, roofs, and doors, the question remains as to how far the external space, claimed by the sisters through sound, extended. St Katharina was located near the river Pegnitz, close to the city wall, about 200 meters from the parish church St Lorenz, and some 650 meters from the Predigerkloster across the river and the island with the Heilig Geist-Hospital. Also nearby was the large paper mill, located on the banks of the Pegnitz just on the other side of the city wall. The convent was thus probably embedded in a dense soundscape, shaped by churches, towers, and urban activity. The everyday noise of the city was surely considerable, though not comparable to modern levels. In fact, Nuremberg's city center is now relatively traffic-free and quiet.<sup>29</sup> It would be tempting to create a digital reconstruction of the convent's medieval acoustic 'catchment area' (Bertoldi *et al.* 2022), but factors such as the height and materials of Nuremberg's premodern buildings, the noise of the workshops, or the size of St Katharina's bells remain unknown.<sup>30</sup> For now, we must assume that the convent's bells covered the whole urban area and even the land outside the city walls, though on days of great civic festivity, such as the *Heiltumsweisung*, their sound likely merged with the general peal (Schmidt 2003). Conversely, it also remains opaque how clearly the nuns could hear the Dominican friars' bells, though there are no extraordinary efforts of listening mentioned in the *Notel*. This suggests that the different external bells were indeed distinguishable even from within the sacristy and behind thick convent walls.

<sup>27</sup> 'Agency' is a powerful yet complex concept and requires definition. A rudimentary definition would be that a living entity has the (gradual) ability and opportunity to act as an 'agent' in its own cause, i.e. to adapt its life and environment according to its own ideas. From a historical perspective, however, the question arises as to what the rules and limits are. Is simply existing and self-preserving already agency? Is it possible to live a life entirely without agency? To what extent is compliance with society's norms and expectations agency? See Wiesner-Hanks 2023.

<sup>28</sup> I would like to thank Daniela Hacke and the Oxford-Berlin Workshop for Early Modern History for the discussion of these aspects.

<sup>29</sup> I would like to thank Louisa Bergold for testing today's soundscape at the location of St Katharina. Research also assumes that the Middle Ages were 'relatively quiet' (Jaspert and Müller 2023, 14).

<sup>30</sup> I would like to thank Aaron Larsen for introducing me to QGIS and the discussion of problems for a soundscape of the fifteenth century. An important source for research into trades, workshops, and used materials is Endres Tucher's *Baumeisterbuch* (von Weech and Lexer 1862). Here, I have to thank Niklas Groschinski for his thoughtful comments.

Finally, this leaves the manuscript itself as a spatial container with the overriding, virtual concept of the spaces shaped by liturgical sounds. The *Notel's* focus shifts through the rooms of the church and the enclosure, always to where work needed to be done. Since the sacristan and the scribe assumed that the users of their notes were familiar with the premises, a clear description of the rooms is lacking in some sections. Thus, despite the text's attention to detail, it can prove challenging for us to visualize the spatial layout or even the details of the physical boundaries around the enclosure. As the *Notel's* perspective on sounds and spaces is not one from the sacristy but rather from an omniscient point of view, we can assume a writing situation that did not take place in the sacristy alone – the sacristan and her scribe probably wandered through the convent, maybe only in their thoughts, and worked in a room where they could talk about the rituals and interactions without disturbing others. This becomes apparent, for example, in the descriptions of objects and tools in the sacristy and around the convent: 'Doch so ist das und mer dinges an einem püchlein geschriben, das hanget in dem sagrer. Man hot auch sider mangerley zu der kuster geben, das vor nit dor an waß, das nit not ist, alles zu schreyben' (*Notel*, 236v).<sup>31</sup> The sacristy is not marked as 'here'; rather, it is mentioned as another actual room (*sagrer*) as well as the virtual collection of liturgical objects distributed throughout the convent (*kuster*).

In this instance, the concept of 'sacred scriptural spaces' helps to emphasize once again the connections between space and defining writings about it (Frese and Krüger 2019, 1-3). The concept, summarizing the comprehensive research on sanctity, states that a sacred site such as a church or a convent is not sacred in itself, but only through repeated rituals, purposefully placed objects and, in particular, through the shared knowledge of the communities who gather there to experience God through words and deeds. Thus, the liturgical message was not only one of faith but also of social and cultural capital, controlled by those who shaped its performance and its sensorial form (Droste 2001). This knowledge has been and continues to be conveyed through texts that therefore determine these sacred spaces – the church and the convent are spaces in which text-based reflections (prayer, worship, contemplation) mentally expand the physical environment to encompass the dimension of divine grace (Alsmann 2025, 25-75). The *Notel*, although not sacred as an object or text itself, was an important tool for this intellectual creation of a transcendent space of the divine with immediate, transformative effects on the physical space and human society. We can assume that the sacristan and her scribe, like all subsequent users of the *Notel*, visualized the entire space of St Katharina in their mind – including all three-dimensional features and objects which the *Notel* does not mention, but which could be filled in by the women who knew the place. This connection between the *Notel* as a book and the building where it belonged to is also mirrored in the fact that, due to the loss of the buildings of St Katharina's and the topographical transformation of the city of Nuremberg, the impression of spatial, sensory, and social experience can no longer be truly comprehended. Although the *Notel* provides an unusually direct insight into the liturgical practices, the veil of historical distance nevertheless remains opaque.

## 5. Conclusion

The *Notel* reveals the practical, non-public organization underlying the liturgical routines of a late medieval women's convent in a capital city. It records the tasks necessary for liturgy under

<sup>31</sup> (But these and more things are described in a little book hanging in the sacristy. Also, people have donated many things for the sacristy that we did not have before, but it is not necessary to write about this all).

the spatial and social conditions of the reformed Dominican convent in Nuremberg. As a handbook or rather a collection of instructions from one sacristan to her successor, it is of both descriptive and normative character, documenting established customs and prescribing norms for the future. The *Notel* also enables a partial reconstruction of the sisters' sensory, in this case acoustic, perception of their surroundings. It reveals a community involved in the expression of faith not only in a cognitive, but a very physical way.

Liturgy was firmly grounded in the physical world of those who enacted, observed, smelled, and heard it. Thus, liturgical sounds both created and structured community, within and across the physical boundaries of the convent walls. Sound was probably the most suitable medium for this task, as acoustic volume and complexity were relatively easy to adjust to a specific audience and space. The consideration of the *Notel's* acoustic elements has shown both the diversity of sound in St Katharina and the varied meaning of the convent's soundscape. There are sounds mentioned that mainly carried organizational information, and there are sounds with more symbolic meaning as elements of the liturgical ritual. Its references to sound give evidence that the spaces of the monastic enclosure, the church, and the city did not exist independently but in relation to each other. In St Katharina and in Nuremberg, physical and social spaces were not created simply by architectural elements and an abstract idea of belonging, they were also defined and organized by acoustic experience. The *Notel* proves that sound was used by the nuns to define their enclosure, but also to control the outside space. Although it is not explicitly stated in the *Notel*, the sisters were surely aware of the symbolic power of sound, which has been confirmed in other examples. As custodians of silence and sound in their convent, church, and beyond, they became an authority for all who heard them; and thus mistresses of the physical spaces in and around Nuremberg.

#### *Works Cited*

##### *Manuscript Source*

Stadtbibliothek Nuremberg, *Notel der Kuesterin*, Cent VII 16.

##### *Printed Sources*

- Alsmann Max (2025), *Dimensionen der Gnade – Räume und Raumstrukturen in der Engelthaler Viten- und Offenbarungsliteratur*, Berlin, De Gruyter.
- Bandmann Günter (2005 [1951]), *Early Medieval Architecture as Bearer of Meaning*, trans. and with an introduction by K. Wallis, afterword by H.J. Böker, New York, Columbia University Press.
- Baker L.B. (2021), 'The Sound of Sin: Episcopal Noise Regulation in the Later Middle Ages', *Viator. Medieval and Renaissance Studies* 52, 2, 131-178.
- Bertoldi Stefano, Gabriele Castiglia, Angelo Castrorao Barba, and Cristina Menghini (2022), 'Soundscape and catchment analysis for a spatial geography of Medieval monastic estates in southeastern Tuscany (11th-12th centuries)', *Archeologia e Calcolatori* 33, 2, 95-114, doi: 10.19282/ac.33.2.2022.06.
- Brandis Wolfgang (2004), 'Quellen zur Reformationgeschichte der Lüneburger Frauenklöster', in F. Eisermann, E. Schlotheuber, and V. Honemann, eds, *Studien und Texte zur literarischen und materiellen Kultur der Frauenklöster im späten Mittelalter*, Leiden, Brill, 357-398.
- Braun Ricarda and Daniel Knitter (2021), 'Landscape as Concept of Space', *eTopoi. Journal for Ancient Studies* 9, 37-53, doi: 10.17169/refubium-29546.
- Breitenstein Mirko (2023), 'Die tönende Stille. Vom Klang des klösterlichen Schweigens', *Klangräume des Mittelalters* 94, 91-125.

- Breitsameter Sabine (2010), 'Hörgestalt und Denkfigur – Zur Geschichte und Perspektive von R. Murray Schafer's Die Ordnung der Klänge. Ein einführender Essay', in R.M. Schafer, *Die Ordnung der Klänge. Eine Kulturgeschichte des Hörens*, ed. and trans. by S. Breitsameter, Mainz, Schott, 7-28.
- Clauss Martin, Gesine Mierke, and Antonia Krüger, eds (2020), *Lautsphären des Mittelalters. Akustische Perspektiven zwischen Lärm und Stille*, Wien, Köln, and Weimar, Böhlau.
- Clauss Martin, Christian Jaser, and Gesine Mierke, eds (forthcoming), *Medialisierung des Ephemerem. Dimensionen des Akustischen in Texten, Bildern und Artefakten des Mittelalters*, Göttingen, Vandenhoeck & Ruprecht.
- Collins T.E. (2019), 'Space and Place. Archaeologies of Female Monasticism in Later Medieval Ireland', in D. Heath, E. Klafter, and V. Blud, eds, *Gender in Medieval Places, Spaces and Thresholds*, London, Institute of Historical Research, 25-44.
- Crang Mike (2009), 'Spaces in Theory, Spaces in History and Spatial Historiography', in B. Kümin, ed., with a preface by J.C. Scott, *Political Space in Pre-industrial Europe*, London, Routledge, 249-266.
- De Paermentier Els (2008), 'Experiencing Space Through Women's Convent Rules: The Rich Clares in Medieval Ghent (Thirteenth to Fourteenth Centuries)', *Medieval Feminist Forum* 44, 1, 53-68.
- Dillon Emma (2012), *The Sense of Sound. Musical Meaning in France, 1260-1330*, New York, Oxford University Press.
- Droste Heiko (2001), 'Habitus und Sprache. Kritische Anmerkungen zu Pierre Bourdieu', *Zeitschrift für historische Forschung* 28, 1, 95-120.
- Ehrenschtendner Marie-Luise (1997), 'Puellae litteratae: The Use of the Vernacular in the Dominican Convents of Southern Germany', in D. Watt, ed., *Medieval Women in their Communities*, Cardiff, University of Wales Press, 49-71.
- Ehrenschtendner Marie-Luise (2004), *Die Bildung der Dominikanerinnen in Süddeutschland vom 13. bis 15. Jahrhundert*, Stuttgart, Franz Steiner.
- Elm Kaspar (2016), 'Decline and Renewal of the Religious Orders in the Late Middle Ages: Current Research and Research Agendas', in J.D. Mixson, ed. and trans., *Religious Life Between Jerusalem, the Desert, and the World: Selected Essays by Kaspar Elm*, Leiden and Boston, Brill, 138-188.
- Frese Tobias and Kristina Krüger (2019), 'Sacred Scripture / Sacred Space. The Interlacing of Real Places and Conceptual Spaces in Medieval Art and Architecture. An Introduction', in T. Frese, W.E. Keil, and K. Krüger, eds, *Sacred Scripture / Sacred Space. The Interlacing of Real Places and Conceptual Spaces in Medieval Art and Architecture*, Berlin and Boston, DeGruyter, 1-10, doi: 10.1515/9783110629156-010.
- Fries Walter (1924), 'Kirche und Kloster St. Katharina in Nürnberg', *Mitteilungen des Vereins für Geschichte der Stadt Nürnberg* 25, 5-143.
- Gaab Hans (2006), 'Die große Nürnbergsche Uhr', in W. Dick and J. Hamel, eds, *Beiträge zur Astronomiegeschichte*, Frankfurt, Harri Deutsch, 43-90.
- Guerrini Franciscus-M. (1921), *Ordinarium juxta ritum sacri Ordinis Fratrum Praedicatorum*, ed. by Ludwig Theissling, Romae, Collegium Angelicum.
- Hahn Philip (2015), 'The Reformation of the Soundscape: Bell-ringing in Early Modern Lutheran Germany', *German History* 33, 4, 525-545.
- Hacke Daniela (2016), 'Klangräume. Zu den akustischen Revolten des frühen 16. Jahrhunderts', in K. Igel and T. Lau, eds, *Die Stadt im Raum. Vorstellungen, Entwürfe und Gestaltungen im vormodernen Europa*, Cologne, Weimar and Vienna, Böhlau, 317-333.
- Humbertus de Romanis (1956 [1888-1889]), *Opera de vita regulari I-II*, ed. by J.J. Berthier, Torino, Marietti.
- Jaspert Nikolas and Harald Müller (2023), 'Klangräume des Mittelalters. Eine Einführung', in Idd., eds, *Klangräume des Mittelalters*, Ostfildern, Jan Thorbecke, 9-28.
- Jones C.T. (2017), *Ruling the Spirit: Women, Liturgy, and Dominican Reform in Late Medieval Germany*, Philadelphia, University of Pennsylvania Press.
- Jones C.T. (2022), 'Religious Reform and Liturgical Change in the Fifteenth Century. Chant as Women's Protest Music', in A.K. Grau and L. Colton, eds, *A Companion to Female-Voice Song and Women's Musical Agency in the Middle Ages*, Leiden, Brill, 91-117.

- Keller Hagen, Klaus Grubmüller, and Nikolaus Staubach, eds (1992), *Pragmatische Schriftlichkeit im Mittelalter. Erscheinungsformen und Entwicklungsstufen*, Munich, Wilhelm Fink.
- Kist Johannes (1963), 'Klosterreform im spätmittelalterlichen Nürnberg', *Zeitschrift für bayerische Kirchengeschichte* 32, 31-45.
- Koldau L.M. (2005), *Frauen – Musik – Kultur. Ein Handbuch zum deutschen Sprachgebiet der Frühen Neuzeit*, Cologne, Weimar and Vienna, Böhlau.
- Kümin Beat (2009), 'Introduction', in Id., ed., *Political Space in Pre-industrial Europe*, London, Routledge, 5-15.
- Lagergren Karin (2025), *Birgittine Chantscapes. Chant and Liturgy in the Order of St Birgitta of Sweden 14th – 21st Century*, Uppsala, Uppsala Universitet, doi: 10.33063/nqnv762.
- Linde Cornelia, ed. (2018), *Making and Breaking the Rules. Discussion, Implementation, and Consequences of Dominican Legislation*, Oxford, Oxford University Press.
- Machilek Franz (2002), 'Die Nürnberger Heilumsweisungen', in K. Arnold, ed., *Wallfahrten in Nürnberg um 1500. Akten des internationalen Symposiums vom 29. und 30. September 2000 im Caritas-Pirckheimer-Haus in Nürnberg*, Wiesbaden, Harrassowitz, 9-52.
- Mersch K.U. (2012), *Soziale Dimensionen visueller Kommunikation in hoch- und spätmittelalterlichen Frauenkommunitäten. Stifte, Chorfrauenstifte und Klöster im Vergleich*, Goettingen, V&R unipress.
- Meyer Johannes (1908), *Buch der Reformacio Predigerordens. IV und V Buch*, ed. by B.M. Reichert, Leipzig, O. Harrassowitz.
- Meyer Johannes (1909), 'Zur Reformationgeschichte des Klosters Lüne', *Zeitschrift der Gesellschaft für niedersächsische Kirchengeschichte* 14, 162-221.
- Meyer Johannes (2015), *Das Amptbuch*, ed. by S. Glenn DeMaris, Roma, Angelicum University Press.
- Neidhardt S.M. (2025), 'The Observant Dominican Friars as the Main Support for the Women's Reform?', in C. Andenna, M. Benedetti, S. Duval, H. Morvan, and L. Viallet, eds, *Les réformes de l'Observance en Europe (XIVe-XVIe siècle)*, Rome, Publications de l'École française de Rome, 147-156.
- Nolte Ernst (1932), *Quellen und Studien zur Geschichte des Nonnenklosters Lüne bei Lüneburg. Die Quellen. Die Geschichte Lünes von den Anfängen bis zur Klostererneuerung im Jahre 1481*, Göttingen, Vandenhoeck & Ruprecht.
- Pérez Vidal Mercedes (2022), '“Estavan todas no coro e ben cantand' e leendo”. Tipologie e funzioni dei cori nei monasteri delle domenicane dal XIII al XVI secolo, con particolare riferimento alla Castiglia', in H. Morvan, ed., *Spaces for Friars and Nuns: Mendicant Choirs and Church Interiors in Medieval and Early Modern Europe*, Rome, Publications de l'École française de Rome, 227-258, doi: 10.4000/books.efr.21290.
- Pfanner Josef (1954), 'Die deutsche Schreibsprache in Nürnberg von ihrem ersten Auftreten bis zum Ausgang des 14. Jahrhunderts', *Mitteilungen des Vereins für Geschichte der Stadt Nürnberg* 45, 148-207.
- Pfanner Josef (1962), *Die 'Denkwürdigkeiten' der Caritas Pirckheimer (aus den Jahren 1524-1528)*, Landshut, Solanus-Druck.
- Reichert Sabine (2020), 'Religiöse Umgänge in der mittelalterlichen Stadt und ihre Klangwelt', in M. Clauss, G. Mierke, and A. Krüger, 301-319.
- Reitemeier Arnd (2020), 'Städtische Pfarrkirchen als "Soundzentren" des Mittelalters', in M. Clauss, G. Mierke, and A. Krüger, 291-300.
- Röckelein Hedwig (2020), 'Monastic Landscapes', in A. Beach and I. Cochelin, eds, *The Cambridge History of Medieval Monasticism in the Latin West II: The High and Late Middle Ages*, Cambridge University Press, Cambridge, 816-830.
- Roper Lyndal (2025), *Summer of Fire and Blood. The German Peasants' War*, London, John Murray.
- Schafer R.M. (1994 [1977]), *The Soundscape. Our Sonic Environment and the Tuning of the World*, Rochester, Destiny Books.
- Schlotheuber Eva (2004), *Klostereintritt und Bildung. Die Lebenswelt der Nonnen im späten Mittelalter; mit einer Edition des 'Konventstagebuchs' einer Zisterzienserin von Heilig-Kreuz bei Braunschweig (1484 – 1507)*, Tübingen, Mohr Siebeck.

- Schlotheuber Eva (2006), 'Sprachkompetenz und Lateinvermittlung. Die intellektuelle Ausbildung der Nonnen im Spätmittelalter', in N. Kruppa and J. Wilker, eds, *Kloster und Bildung im Mittelalter*, Göttingen, Vandenhoeck & Ruprecht, 61-87.
- Schlotheuber Eva and J.T. McQuillen (2020), 'Books and Libraries within Monasteries', in A. Beach and I. Cochelin, eds, *The Cambridge History of Medieval Monasticism in the Latin West II: The High and Late Middle Ages*, Cambridge, Cambridge University Press, 975-997.
- Schmidt Dieter (2003), *Das Nürnberger Glockenbuch. Nürnbergs Glocken in Geschichte und Gegenwart*, Nuremberg, Verein für Geschichte der Stadt Nürnberg.
- Schmidt Hans-Joachim (2006), 'Widerstand von Frauen gegen Reformen', in E. Klüeting, ed., *Fromme Frauen - unbequeme Frauen? Weibliches Religiosentum im Mittelalter*, Hildesheim, Zurich and New York, Georg Olms, 143-180.
- Schneider Karin, ed. (1965), *Die Handschriften der Stadtbibliothek Nürnberg I. Die deutschen mittelalterlichen Handschriften, Beschreibung des Buchschmucks*. Heinz Zirnbauer, Wiesbaden, Harrassowitz.
- Steinke Barbara (2006), *Paradiesgarten oder Gefängnis? Das Nürnberger Katharinenkloster zwischen Klosterreform und Reformation*, Tübingen, Mohr Siebeck.
- Thomas A.H. (1965), *De oudste Constituties van de Dominicanen. Vorgeschiedenis, Tekst, Bronnen, Ontstaan en Ontwikkeling (1215–1237), met Uitgave van de Tekst*, Leuven, Bureel van de R.H.E.
- Tongeren Louis van and C.M.A. Caspers, eds (2015), *Unitas in pluralitate: Libri ordinarii als Quelle für die Kulturgeschichte; Libri ordinarii as a source for cultural history*, Münster, Aschendorff.
- Weech Friedrich von and Matthias Lexer (1862), *Endres Tuchers Baumeisterbuch der Stadt Nürnberg (1464-1475)*, Stuttgart, Litterarischer Verein Stuttgart.
- Vosding Lena, Antonia Bertulies, Bianca Goch, Sabrina Marquart, and Sascha Winkler, eds (forthcoming), *Das Notel der Küsterin. Edition und Kommentar*.
- Wagner W.E. (2019), '“ut moris est studentium”'. Nachtschwärmen, Lärmen, Zechen, Zücken, Raufen und andere deviante Verhaltensmuster spätmittelalterlicher Rostocker Scholaren im Spiegel von Bittschreiben an den Papst', in M. von der Höh, ed., *Traditionen, Zäsuren, Dynamiken. 600 Jahre Universität Rostock*, Göttingen, Böhlau, 83-116.
- Weilandt Gerhard (2003), 'Alltag einer Küsterin. Die Ausstattung und liturgische Nutzung von Chor und Nonnenempore der Nürnberger Dominikanerinnenkirche nach dem unbekanntem Notel der Küsterin (1436)', in A. Moraht-Fromm, ed., *Kunst und Liturgie. Choranlagen des Spätmittelalters - ihre Architektur, Ausstattung und Nutzung*, Ostfildern, Jan Thorbecke, 159-187.
- Wiesner-Hanks M.E. (2023), 'Women's Agency: Then and Now', *Parergon. Bulletin of the Australian and New Zealand Association for Medieval and Renaissance Studies* 40, 2, 9-25.
- Willing Antje (2004), *Literatur und Ordensreform im 15. Jahrhundert. Deutsche Abendmahlschriften im Nürnberger Katharinenkloster*, Münster, New York, Munich, and Berlin, Waxmann.
- Willing Antje (2012), *Die Bibliothek des Klosters St. Katharina zu Nürnberg. Synoptische Darstellung der Bücherverzeichnisse I-II*, Berlin, De Gruyter.
- Willing Antje, ed. (2016), *Das 'Konventsbuch' und das 'Schwesternbuch' aus St. Katharina in St. Gallen. Kritische Edition und Kommentar*, Berlin, Erich Schmidt.
- Winnlen J.C. (1993), *Schönensteinbach, une communauté religieuse féminine (Wittenheim) 1138-1792*, Sierentz, Société d'Histoire du Sundgau.