The House of Books – The Metamorphosis of the Library Space (Middle Ages)

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Abstract: The emergence of the new European libraries and their spatial configuration at the beginning of the Middle Ages was due to Western Christianity, more precisely to the first monasteries erected in Italy during the 6th century. At first they were sheltered by the small space of the *armarium*, then they grew as the quantity of books increased occupying an entire room situated within the galleries of the cloister, in the immediate vicinity of the church. The emergence of a structure especially designed for medieval libraries took place at the beginning of the 15th century with the erection of new buildings such as monastic libraries, chapter libraries and collegiate libraries. These were separated from the rest of the complex, and comprised an elongated space on the upper floor designated for storing books and reading. This activity required specialized furniture, which through its purpose and layout generated the *lecterns library* design, probably the most important innovation of the Middle Ages regarding the configuration of the architectural building type of libraries.

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The book collections of ancient libraries had been dispersed and vanished during the 3rd and 4th centuries due to the collapse of the Western Roman state and the instability caused by the invasions of the first migrating peoples in the Mediterranean. During this period important book collections disappeared, thus masterpieces of ancient literature would be forgotten for a considerable period of time. The regress of the libraries was not homogeneous throughout European territories. Western ones disappeared almost completely, while Eastern Mediterranean ones, in the Eastern Roman Empire regions, survived for longer. It was no coincidence that it was here that major changes regarding the technology of manufacturing the support of the written text and implicitly book binding took place at the end of the Antiquity: the *volumen* (the scroll) was replaced by the *codex,*[1] while the papyrus was replaced by the *parchment*[2]. These were now offering

[1] Codex: rectangular parchment files bound together, a forerunner of the modern book; it originates in ancient Rome, in this case the sheets were waxed tablets.
[2] Parchment: the skin of an animal (sheep, goat, calf or rabbit) especially processed for writing; the word originates in the name of the city of Pergamon, the most important production centre during late Antiquity.

a more suitable surface for calligraphy and drawing, books became more expressive, more compact, and much more enduring in time, when manoeuvred or stored.

Paradoxically the rebirth of European libraries at the beginning of the Middle Ages is due to Christianity, the very factor that had a substantial contribution to the disappearance of the ancient ones. Their origin can be traced to the first Christian monasteries (1st, 2nd and 3rd centuries), where the most enthusiastic believers found refuge, unsatisfied with the luxury of the life in the cities alongside the African and Syrian coasts. The increasing number of these primitive monasteries generated in time a community which functioned according to a set of rules, prefiguring the monastic life from later on. Their leaders realized that without offering books of sacred texts, the life of these communities would lose its dogmatic support, therefore they sanctioned the necessity of establishing book collections. As an example we have 'the rule' of St. Pachomius (292–345), whose monastery was situated in Upper Egypt, close to Tabennisi Denderah. A kind of wardrobe is mentioned here, a *fenestra*, placed within the wall where the books of the monastery were kept and any monk could borrow a book for as long as a week.[1]

As monastic life was spreading throughout Europe, it borrowed the design of Christian monasteries from the Eastern Mediterranean, including the existence of a collection of sacred texts. The establishment of the first monasteries in Italy (Monte Cassino in 529 and Vivarium in 530) corresponds with the issuing of the Rule of St. Benedict, which required the monks to read at least two hours per day during summers. They had at their disposal the books stored in the *wardrobe of books*.[2] Similar to the first monasteries, the ones established later on were required to possess a collection of books in a variety of spaces. This fact was confirmed by the general opinion shared throughout the monastic circles and synthesized by Geoffrey of Ste Barbe-en-Ange's, who stated that a monastery without a wardrobe of books is like a fortress without an armoury.[3]

Until the 14th century books could be stored in the choir of the church, but the most common place was a niche in the western wall of the eastern gallery, close to the transept. This place was called the *armarium* and it was the first design of a space exclusively dedicated to monastic libraries, a rather modest one considering the number of books it sheltered. The most powerful monastery in the Western world, the Benedictine Abbey of Cluny, possessed in the mid-12th century about 500 volumes.[4]

During the first stages, when there were fewer books, the *armarium* was rather modest in size, a simple niche in a wall. It grew in time, receiving shelves and doors that enclosed this space (Fig. 1). When the quantity of books increased, exceeding its capacity, the niche was multiplied, as was the case of the *armarium* consisting of three joined niches of the Cistercian monastery, L'Escale-Dieu[5], in Southern France.

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[1] John Willis Clark, *The Care of books. An essay on the development of libraries and their fittings, from the earliest times to the end of the eighteenth century* (Cambridge University Press, 1901), 64–65.
[2] Nikolaus Pevsner, *A history of buildings types* (London, Thames & Hudson, 1999), 91.
[3] Ibid., 92.
[4] Ibid.
[5] Ibid.

The *armarium*-niche became insufficient for the continuous growth of the book collections and it was replaced by a small vaulted cylindrical room, placed more or less in the same area. This change was more consistent with the Cistercian monasteries, as it can be seen in 'The ideal plan of a Cistercian Monastery' (Fig. 2). Placing the *armarium*-room on the southern end of the transept, close to the sacristy and the chapter house, became a scheme used on a large scale with all Cistercian monasteries and later on by almost all Catholic monasteries.

From an architectural point of view, naming these 'book depositories' libraries is improper, regardless if they were built-in wardrobes or small rooms. In my opinion this term can only be used in the case of a proper space especially designed for storing and reading books. Early monastic libraries separated these two functions, the reading area consisted of some *working niches* where monks read and wrote. These could be placed within the actual walls of the church or, outside, throughout the galleries of the cloister,[1] as was the case of the English monasteries of Canterbury and Durham, in Gloucester.[2]

The monasteries during this period became reading centres, assuming the role of keeping and producing books.[3] Specialized monks multiplied books by manually copying them, they worked in a space naturally lit, in the vicinity of the library, which was called the *scriptorium*. The most explicit information about the functional design of the scriptorium–library duo can be found in the parchment of the layout for the Benedictine Abbey of Saint-Gall[4] in Switzerland, drawn in 820 at the request of the Abbot Gozberg. He intended to reconstruct and expand the monastery to a surface up to 3.8ha.[5] The drawing remained an ideal layout but it has the merit of having preserved a precise image of the functional design of a Benedictine monastery from the Carolingian Renaissance. This was in fact the first recording of a proper library structure. It consisted of a two-level building placed east to the western wall of the transept and north to the choir, symmetrical to the sacristy. Its size was much larger when compared to other abbeys, its width was almost as large as that of the choir, stressing upon the increasing importance of books in monastic life.

The inscription *'infra sedes scribentum, supra bibliotheca'* is explicit in placing the scriptorium underneath the library. Placing the library on the upper floor and keeping the access through the scriptorium was due to security reasons, thus avoiding unauthorized access. In many monasteries the access in the library was restricted to a handful of monks, as an exception some outsiders were allowed, but only with a special authorization issued by the prior.

The expansion of the library space due to the increased number of books and to the fact that it was now being associated with the copying workshop claimed a new position in the layout of an abbey. Thus an important shift was noted in the space of the

[1] The study niches in the galleries of the cloister could only be used when the weather permitted it.
[2] Nikolaus Pevsner, *A history of building types*, 91.
[3] Claire Graham, "Libraries in history," *The Architectural Review* 1216 (1998): 72.
[4] Originally it measured 113 by 78 cm and it can be found at Stiftsbibliothek Sankt Gallen. http://en.wikipedia.org/wiki/Plan_of_Saint_Gall
[5] Ovidiu Drimbă, *Istoria civilizației şi culturii* (The History of Civilization and Culture), vol. 2 (Bucharest: Ed. Ştiințifică şi Enciclopedică, 1987), 398.

monastic library, which implied creating several larger rooms, with good natural light, and which were used for storing books and ensuring reading seats.

During the first stage, the chosen design comprised a space for the library partly above the cloister's gallery. It resulted through the elevation of several spans close to the church, as was the case of the Benedict monastery of Chaise-Dieu, in Central France. The new building was erected at the turn of the 14th and 15th century. A rectangular room was thus obtained, 24.6m by 4.8m, topped by a rib vault whose keystone reached as high as 4m.[1] Later on, when libraries required an even larger space, a separate cloister was erected, called 'the cloister of the copiers and the library';[2] such was the example of the abbeys of Clairvaux and Citeaux. Probably the most extreme example is the one of La Bayeux, where a building erected especially for the library in 1436, was actually placed in the middle of the cloister, thus creating two much smaller courtyards. The building was built out of ashlars and consisted of a hall for the library, 13m by 7m, lit from the eastern and western sidewalls through five tall and narrow windows.[3]

Another space designed for books, which also emerged during the Middle Ages, was the *chapter library*, situated in the vicinity of the cathedrals[4] of those days. Their main purpose was to shelter book collections primarily used by the cathedral's canons. It was the equivalent of the monastic library in urban space, its functional-spatial configuration as well as its development in time was very similar to the former.

If in the case of the monastic library structure one can sense its private character, the access being restricted to monks; in the case of chapter and collegiate libraries usually situated in urban, more populated environments, the access was also granted to the pupils belonging to the cathedral's school, to the students and teachers, as well as to some resident readers. The necessity of ensuring an easier access to books was due to the increased educational level of individuals and also to the tendency of secularizing the education and adapting the book heritage to this need. From an architectural point of view this was the moment when the library rediscovered, in an incipient phase, one of its fundamental attributes – its public character – renewing the tradition of the great ancient libraries. As a consequence their space grew, while the furnishing was adapted to the new needs, ensuring book storage and reading facilities.

One of the most interesting chapter libraries, which can still be seen, was erected in France, for the Notre-Dame Cathedral, in Noyon, in 1507 (Fig. 6). The library itself occupied the upper floor of an isolated building in the immediate vicinity of the northern transept. The prismatic volume topped by a roof with two slopes rests upon a middle stone wall and on two rows of wooden pillars which support the exterior longitudinal walls. Thus an amazing 'aerial figure' was created, impressing a floating image. Throughout time two hypotheses emerged regarding the ground floor: the first, inspired by local legends, suggests that the ground floor was deliberately left unoccupied

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[1] André Masson, *La «librairie» du chapitre de Noyon et l'architecture des bibliothèques françaises à la fin du Moyen âge (The 'bookshop' of the Noyon Chapter and the Architecture of French Libraries during the Late Middle Ages),* (Paris, BBF, 1957, n°2), 95–110.

[2] Ibid.

[3] Ibid.

[4] The term *cathedral* is used denoting the headquarters of an eparchy/diocese which hosts the bishop's throne.

so that it could be used by vendors as a market area, while the second, articulated by Clark, supposes that the ground floor was never intended to be left vacant, on the contrary, it was used for redirecting books.[1] A very similar layout can be found in the library of the Lichfield Cathedral (Fig. 5) erected between 1489–1493 and demolished in 1757.[2] In this case the hall was also rectangular, of 18.3m by 4.6m, somewhat smaller than the one in Noyon (21.9m by 5.2m)[3] and it is believed to have been built on pillars. Similarities can also be found in the position of the two libraries, both situated in the vicinity of the transept: in Lichfield close to the southern one, while in Noyon the library was placed close to the northern one, thus their layout was reversed relative to the main axis of the cathedral.

Another important difference between the two regards the way in which natural light was used in the interior space. If in the case of Lichfield the library hall was well lit through 8 windows on both sides, in the case of Noyon, the hall seemed to be darker because it had only 9 windows on the eastern side. This fact makes me think that even the furnishing layout was different, taking into account the custom of those days of associating a carrel with a window. So the layout in Lichfield could have consisted of two rows of lecterns with a middle aisle, while the one in Noyon had only one row.

The building system, as well as the materials which were used, were completely different: in Lichfield it seems that a brick[4] structure was used, while in Noyon they used a wooden one. The latter is the only surviving library that was built entirely out of wood, thus allowing us to understand the structural system used during the late Middle Ages (Fig. 7).

The pillars of the ground floor rested on a stone base and supported a network of beams under the slab, on top of which the walls and the roof structure were mounted. At some point a median stone wall was erected on the ground floor in order to reinforce the library's structure. The upper floor framework consisted of a network of wooden beams slightly separated, the space between them being filled by unburnt brick, accordingly to the wooden structures techniques of those days.

During the 18th century, the chapter library of Noyon underwent some major changes so that the original furnishing layout was replaced by wall mounted shelves in addition to which some light partitioning was also added,[5] it can still be seen today. One can only suppose that the initial layout was similar to the lecterns library design, placing study niches in front of the windows with a furniture design similar to the one of the Hereford Cathedral library (Fig. 8).

An important moment in the development of the library structure was the establishment of universities, during the 12th and 13th centuries. This implied relocating the secular education system outside monasteries and cathedrals, alongside the development of cities and commerce. Together with the newly established colleges, it was considered to be necessary to organize several libraries which would later be

[1] André Masson, *La «librairie» du chapitre de Noyon…*, 95–110.
[2] Ibid., 95–110.
[3] John Willis Clark, *The Care of books…,* 123.
[4] Clark mentions that in 1489 Thomas Heywood, the dean in Lichfield, "payed 40 pounds for erecting a brick library" - Ibid., 123.
[5] André Masson, *La «librairie» du chapitre de Noyon…*, 95–110.

referred to by specialists as *collegiate libraries*. Even though the university educational system was established outside the monastic environment, their library structure was influenced by the monastic and chapter designs. This was due to the fact that it was the only available inspiration and also because most colleges were under the patronage of a monastery. Moreover most of the students were monks and the first book collections belonging to the collegiate libraries were donated by the monasteries they belonged to. Thus we should not be surprised by the obvious similarities between the layout of the collegiate libraries and the one of the monastic or chapter libraries. Clark states that two thirds of the libraries belonging to universities built during the 15th century are the same as monastic ones.[1]

In England most colleges reused the general layout of the courtyard of monastic cloisters. Thus a central enclosed courtyard was obtained, usually a square one, on whose sides buildings hosting educational spaces, students' and teachers' quarters, the chapel, the library etc. were erected. The library of Queens College in Cambridge was typical among the 15th century university libraries built in England. It was built in 1448. On the first floor, on the northern side, it comprised a rectangular hall of 13.4m by 6.1m. This hall was furnished with lecterns and was lit through 11 windows.[2]

It seems that the most important colleges in France did not adopt the design of the monastic nor the one of chapter libraries. These were hosted in separate buildings, within the university's campus, as was the case of the ones in Paris: the College of Sorbonne and the College of Navarre. The former was established in 1254 by Robert de Sorbonne, chaplain of Louis IX[3], while the latter was established by Joan I of Navarre in 1305.

The library hall in Sorbonne had 36.6m by 10.9m and sheltered two distinct book collections: the former comprised the most frequently studied books, called 'magna libraria', while the latter was called 'parva libraria' and comprised the most valuable books. The former, also known as the great library or the common library, gave access to all readers, while the latter, the small library, could be accessed only by the carefully chosen ones.[4] The interior space was lit by 19 windows dividing the interior space and placed on the eastern and western sidewalls. Thus they imposed a furnishing layout of 28 lecterns, marked by letters, which were positioned perpendicular to the longitudinal walls, generating in front of each window a carrel with reading desks placed in the middle.[5] The library of Navarra College was very much alike, it was erected in 1506 and demolished in 1867 (Fig. 9). It sheltered on the upper floor a hall of 32.9m by 9.2m[6] in which light penetrated through 19 narrow windows placed on both longitudinal walls.

The lectern library formula was also used in Italy, a good example is the Malatestiana Library in Cesena, built between 1447 and 1452.[7] It is a very well known example because it was the first European public library opened to the residents of

[1] John Willis Clark, *The care of books…,* 143.
[2] Ibid., 151–152.
[3] Pevsner, *A history of building types*, 93.
[4] John Willis Clark, *The care of books…,* 165.
[5] Pevsner, *A history of buildings types,* 93.
[6] John Willis Clark, *The care of books…,* 166.
[7] Knud Bøgh, "La première salle de bibliothèque du Cardinal Mazarin et son architecte Pierre Le Muet," *Bulletin des Bibliothèques de France* 5 (1970): 235–242.

Cesena, but also the first humanistic-monastic library. It was named after the Malatesta family, a family which governed the city during the 15th century, more precisely Domenico Malatesta Novello the founder and sponsor of the building. It was built according to a design by Matteo Nuzio de Fano[1], a disciple of Leon Battista Alberti.

The building sheltering the library was placed on the eastern side of St. Francis Monastery, whose monks overlooked the administration. It had an elongated rectangular shape (40.5m by 10.4m)[2] with two rows of 11 marble columns which divided the hall into three naves, according to the 'tre navate con volta' formula (Fig. 10 and 11). This design focused on the way in which the space was roofed: the shorter side naves were roofed by groin vaults, while the taller central one had a barrel vault. The side naves were the only one furnished, with two rows of 28 lecterns each, alongside the longitudinal walls. Light penetrated through 44 Venetian windows, enhancing the spectacular interior space roofed by vaults but at the same time of an austere simplicity given by the white limestone.[3] The architect used the white stone in order to increase the light in a hall of such dimensions, its size being imposed by its public character, a hall designed to serve an entire urban community.

The three naves formula used in Cesena was a real success, thus, together with the San Marco library in Florence, it became a prototype used later on for the monastic libraries of Santa Maria della Grazie in Milan (1469), San Domenico in Perugia (1474) and San Giovanni in Parma (1523). The three naves layout was used until the first decades of the 16th century, when the architectural principles of the Renaissance imposed a layout which favoured spatial unity, abandoning any partitions.

No matter how succinct this overview of the library space is, one cannot leave out the birth of the Vatican library, established by Pope Nicholas V (1447–1455), a great bibliophile who inaugurated the tradition of collecting books by the Pontiffs of Rome. The initiative of building a library belonged to Sixtus IV who intended to built an independent building during the year of the inauguration of his papacy, a project which was soon abandoned[4] and replaced by a conversion of a ground floor space belonging to a building within the complex of the pope's palace, which was used as a warehouse under Nicholas V.[5] Designing a space especially for the library became imperative if we take into account the fact that at that time the collection comprised 2,527 volumes, out of which 770 in Greek and 1757 in Latin.[6] They were stored in improper conditions and even accessing them was difficult. The ground floor of the given building was rectangular in shape, neighbouring to the south Cortille del Papagallo, through which the main access was granted, and to the north the vacant site of the future to be Cortille del Belvedere, on which the windows of the library overlooked.

The layout was simple (Fig. 12) and consisted of four halls sheltering different collections: the first one (17.9m by 10.7m) was the largest and it hosted Latin texts, the second one (8.5m by 10.7m) hosted Greek literature, the third was designed for the most

[1] John Willis Clark, *The care of books…,* 199.
[2] Ibid., 201.
[3] Knud Bøgh, "La première sale…," 245–242.
[4] John Willis Clark, *The care of books…,* 208.
[5] Ibid., 209.
[6] Ibid., 209.

valuable texts, while the last one built between 1480–1481 comprised the papal archives and it was called the 'pontiff library'.[1] The first two had a somewhat public character and were known as 'the public library' or as 'the common library', they could be accessed from the south through the Cortille del Papagallo. The other two were restricted to the public, being accessed only by the library and the archive personnel through the eastern Cortille S.Damaso.

The interior layout was not remarkable from an architectural point of view, due to the fact that it was a modified space and not one especially designed for its purpose. The farthest hall to the west seems to have been the most spectacular one, the Latin library, which due to its size required a central rectangular pillar, which bore the groin vault.

The library was housed by this space for a century, until 1587, when pope Sixtus V commissioned the architect Domenico Fontana to design a new library, which is still being used today.

The development of the spatial configuration of libraries during the Middle Ages was decisively influenced by the perception of those days reflected in the way in which the functional distribution was organized: the community it served, collecting and sheltering books and the access of the reader. This matter seems to be even more important as we are talking about a time when the library was being 'rediscovered', after the loss of the ancient one. The architectural building type of libraries reached its final shape only during the 14th and 15th centuries when it was understood that its space is a meeting point between books and readers. The way in which architects 'responded' to this basic requirement was reflected in the interior spatial configurations, in the way in which they were furnished and implicitly in the furniture ergonomics.

One of the most important discoveries during the late Middle Ages was the *lecterns library design*, also known as *the chained library*, which became the most common design for most buildings until the Renaissance. It is a space furnished with simple or double lecterns with benches, generating study niches placed perpendicular to the longitudinal walls. The lectern system used up a lot of space, but this flaw was overcome by using a layout with up to 3 shelves placed one on top of the other, thus amplifying the storage area, a need of the ever increasing amount of books, due to the invention of printing. For a long time the lecterns of the libraries were associated with chains securing the books, which made manipulating and reading them more difficult. They disappeared throughout the 18th century when the large number of books, the need of a mobility specific to the reading process and the improvement of the multiplying processes, decreased their costs, thus their vulnerability to theft.

A very special moment in the history of medieval libraries was acknowledging the fact that the space between the axes of the lecterns, about 2.5m, could be used as a guideline for establishing a span, thus modulating the building. The libraries erected at the end of the 15th century and at the beginning of the 16th century can exemplify this (Noyon, Lichfield, Cesena etc.). In other words the size of the studying and storing stations became the fundamental unit in determining the spatial dimensions, creating a simple 'network' in designing and building libraries from this moment onward.

[1] Ibid., 211.

Illustrations

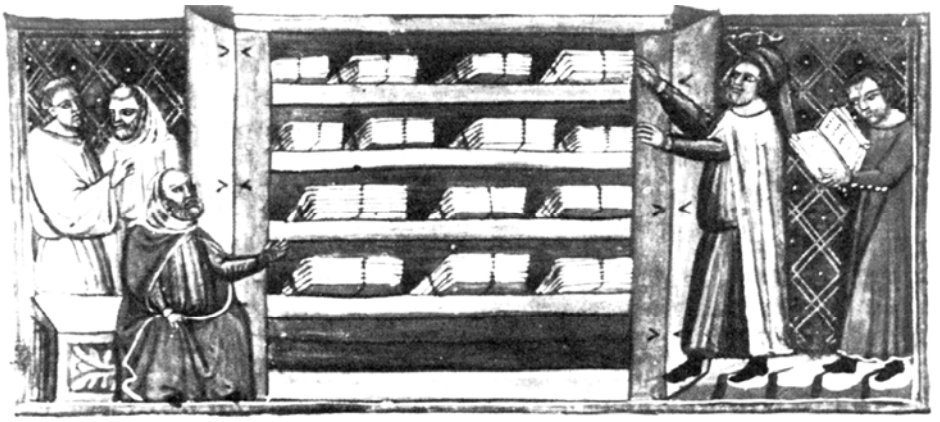

fig. 1 – *Armarium*, a niche with shelves and doors.

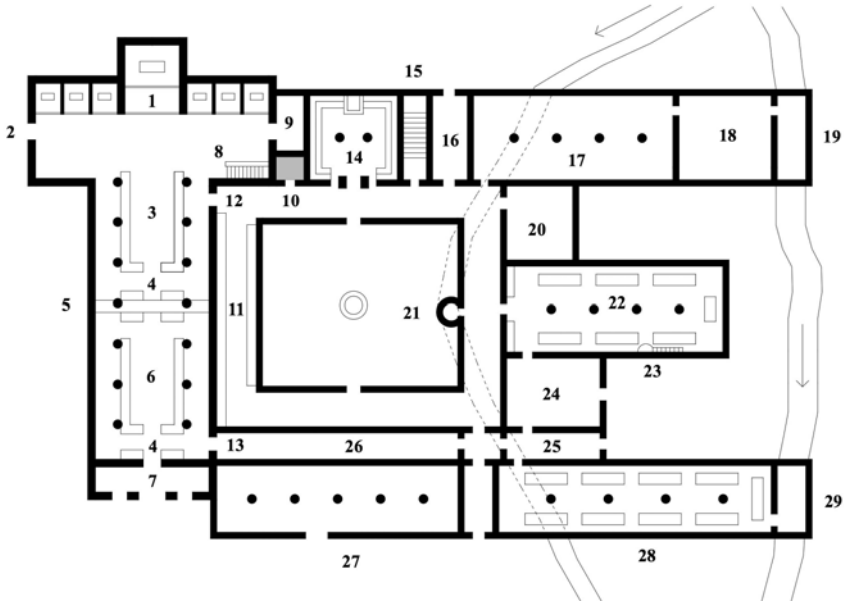

fig. 2 – Ideal plan of a Cistercian monastery (after W. Braunfelds):
1. Sanctuary, 2. Dead gate, 3. Monks' choir, 4. Invalids' benches, 5. Rood screen, 6. Lay brothers' choir, 7. Narthex, 8. Dormitory steps, 9. Sacristy, ***10. Armarium, monastic library****, 11. Mandatum, stone benches for reading and washing feet, 12. Monks' gate, 13. Lay brotherts' gate, 14. Chapterhouse, 15. Dormitory steps, 16. Auditorium, 17. Monks' hall, 18. Noviciate, 19. Monks' latrine, 20. Warming room, 21. Well, 22. Monks' refectory, 23. Pulpit, 24. Kitchen, 25. Cellarer' consulting room, 26. Lay brothers' passage, 27. Storehouse, 28. Lay brothers' refectory, 29. Lay brothers' latrine.*

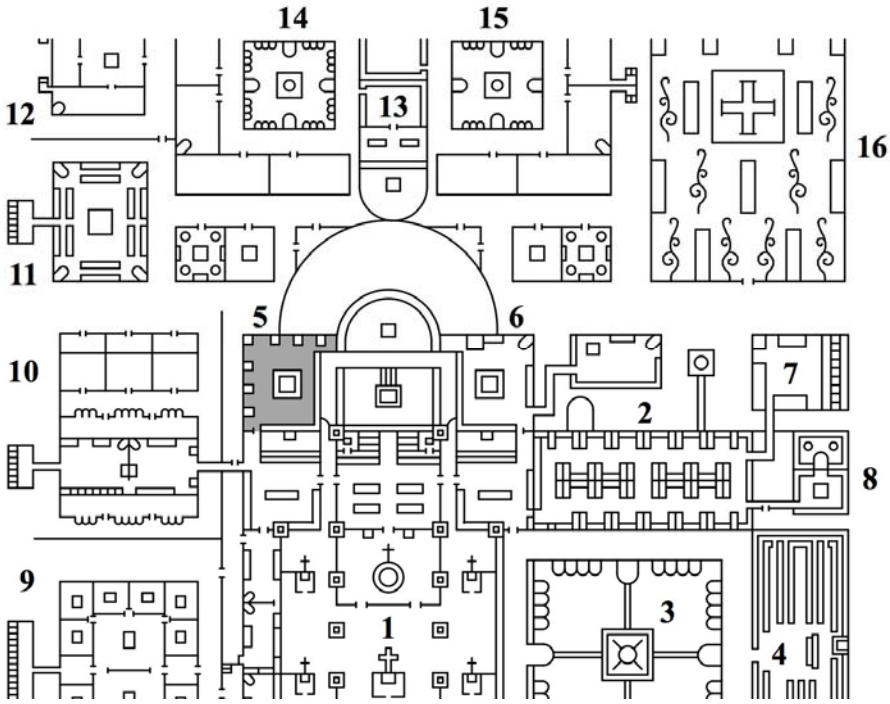

fig. 3 – The plan of the Benedictine monastery of Saint Gall (fragment) 820:
1. Church with two apses and several altars, 2. Dormitory above, room with heating apparatus below, 3. Main cloister, 4. Refectory below, wardrobe above, ***5. Scriptorium below, library above,*** *6. Sacristy, 7. Latrines, 8. Bath, 9. School, 10. Abbot's house, 11. Surgery, 12. Physician's quarters, 13. Church (novices and the ill), 14. Infirmary, 15. Noviciate, 16. Cemetery and orchard.*

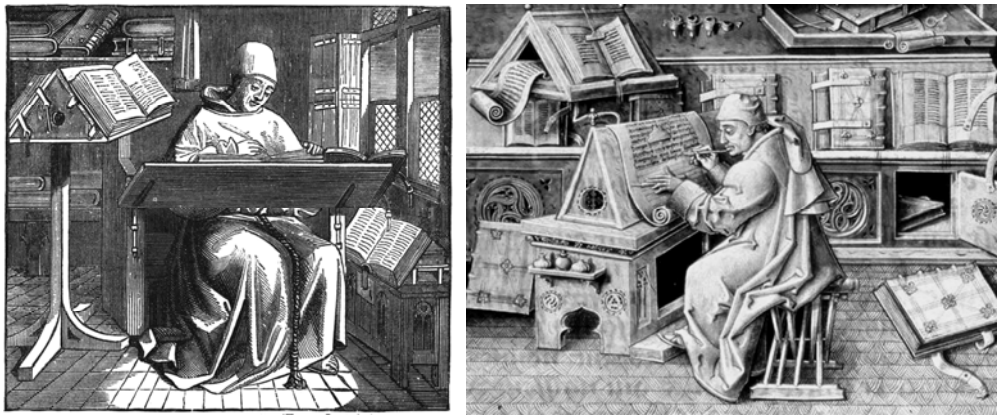

fig. 4 – Scriptorium, monks at work.

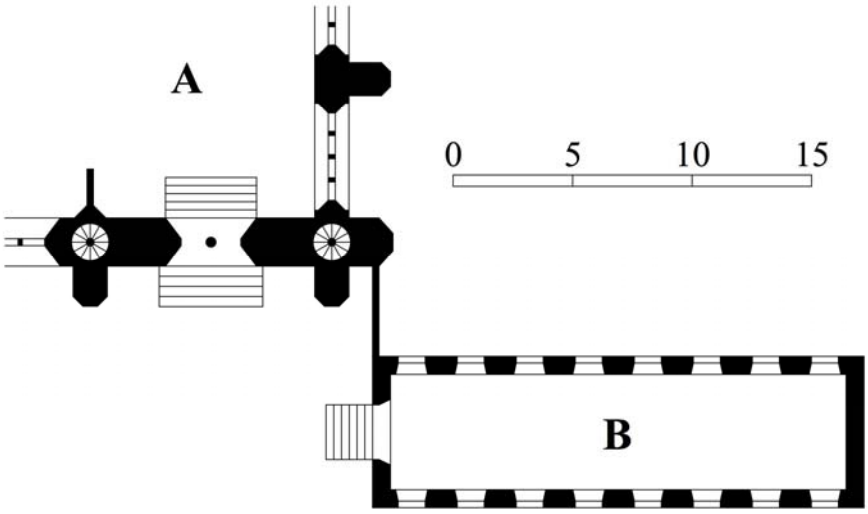

fig. 5 – Lichfield (England), chapter library, 1489–1493 (demolished in 1757):
A - south transept, B - library (after Clark).

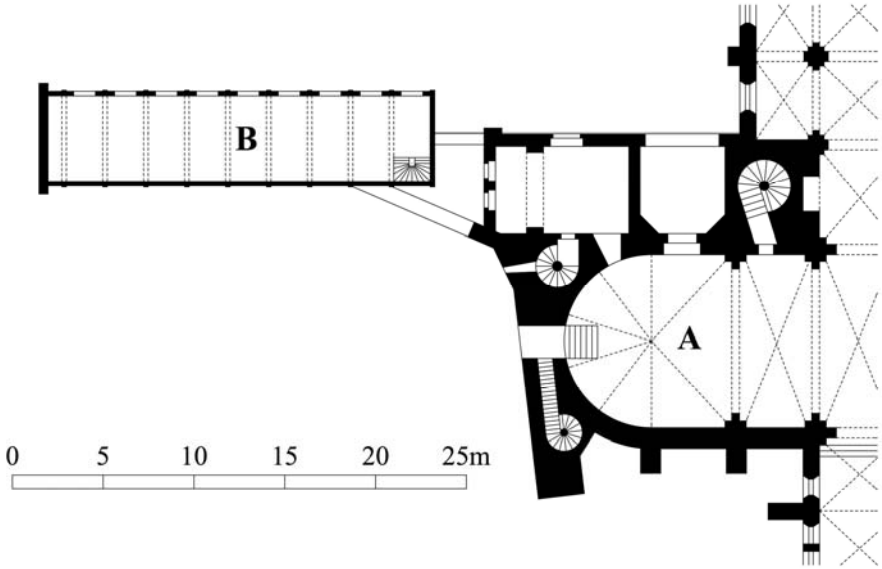

fig. 6 – Noyon (France), the wooden chapter library, 1507 (author's reconstitution):
A - north transept, B - library

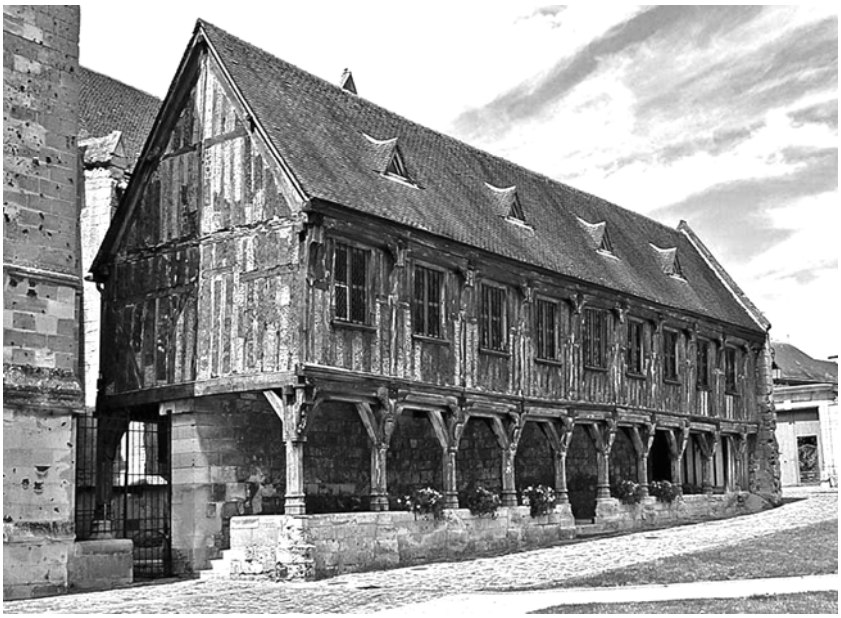

fig. 7 – Noyon (France), the wooden chapter library.

fig. 8 – Hereford, chapter library - lecterns system.

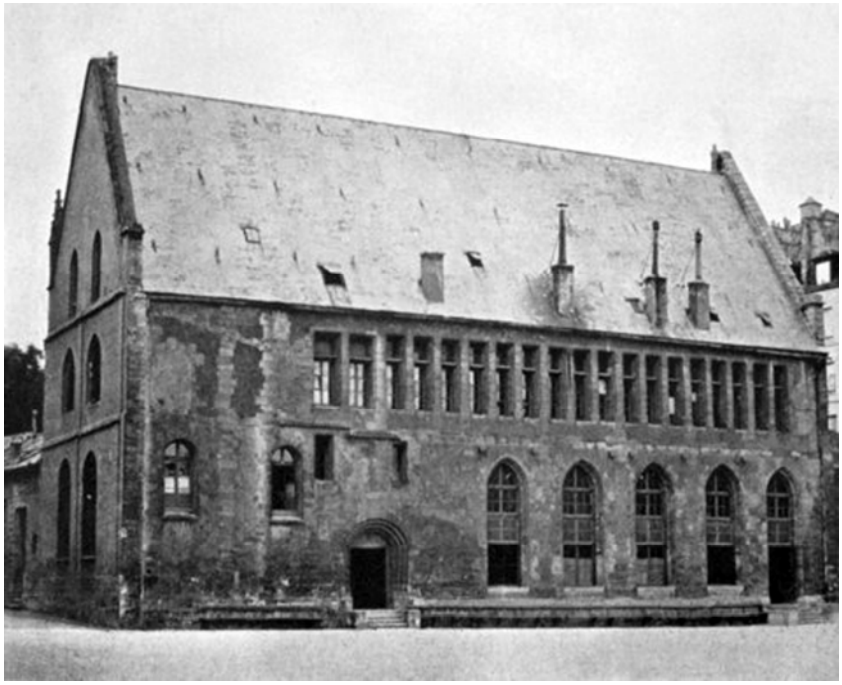

fig. 9 – Paris, Library of the College de Navarre, 1506, now destroyed.

fig. 10 – Cesena, Malatestiana Library, 1447-1452, arch. Matteo Nuti da Fano - general view.

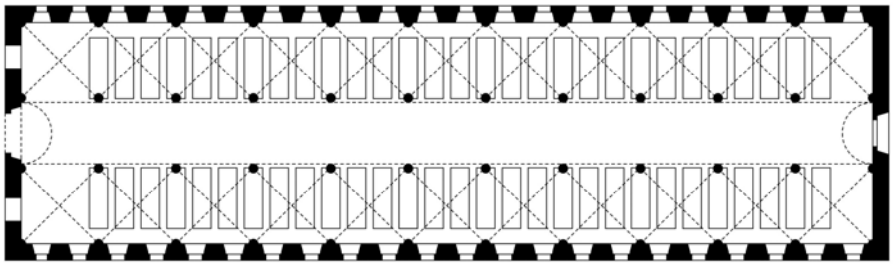

fig. 11 – Cesena, Malatestiana Library, ground-plan.

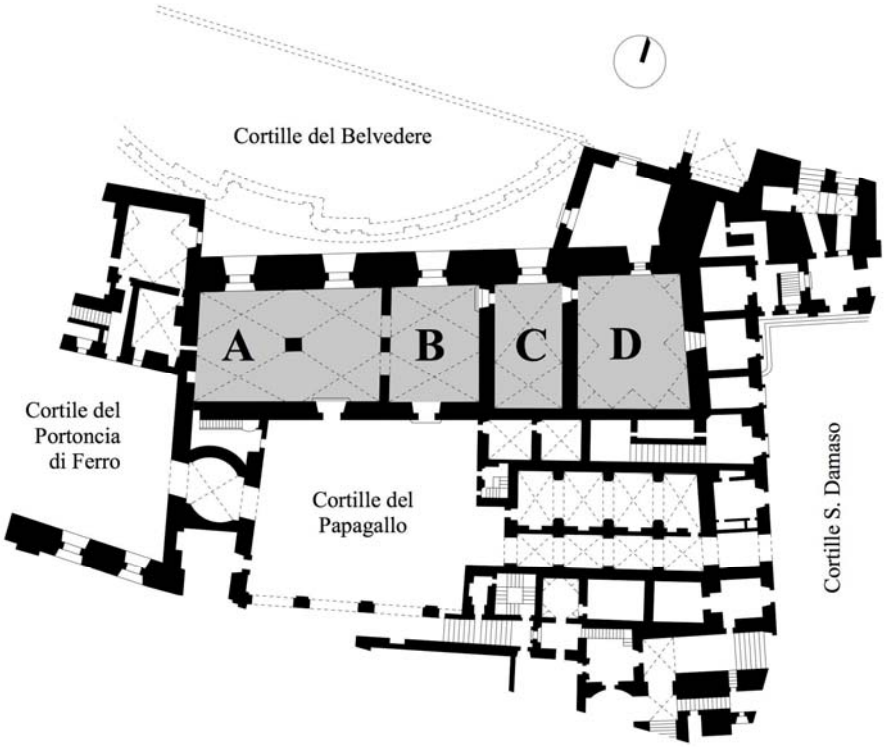

fig. 12 – Rome, Vatican library, 1471-1481, ground-plan:
A. Latin library, B. Greek library, C. secret library, D. pontifical library.

Translated by Dana Pop