Mathurins:

Recreating the lost church of Mathurins

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History

Construction on the Church of Mathurins began in Paris in 1219. In the research we were able to find, 1219 was the consensus start date. The church was named after Saint John Matha, who was the founder of the Mathurin order.[1]

Saint John of Matha, who was born in France in 1160 and died in 1213, was the founder of the "Order of the Most Holy Trinity for the Redemption of Captives", commonly called the Trinitarians, or Mathurins. History tells us that in 1197 John planned to form a group of monks to rescue Christians captured by the Muslims and enslaved in Africa. By 1198, in Rome, John obtained approval for his order from Pope Innocent III, who made John the first superior general. On his return to France, John was received by King Philip II Augustus, who sanctioned the establishment of the Trinitarians in France.[2]

The name Trinitarians and Mathurins are interchangeable, both represent the same religious order, but the title Mathurins is the name used when referring to the group in Northern France. The church, which was located in Paris, was of course in Northern France, so it is appropriate to refer to both the church and those who occupied it as Mathurins.

Though being recognized as an official religious order, the Mathurins were a mendicant order. In an effort to support the religious goal of rescuing Christian captives from Muslims, Mathurins had its own rule, distinguished for its austerity, all members of the Mathurins devoted one-third of their possessions and revenues to the liberation of slaves.[3] As a consequence of the religion's core values, the Mathurins did not enjoy the splendors, comfort, or the luxury of wealth. We kept this reality in the back of our minds

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[1] Aubin-Louis Millin, *Monesteries and Convents of Paris and Antiquites Nationales ou Recueil de Monuments*. (Lyon, 1791), 231-240

[2]The Editors of Encyclopædia Britannica, "Saint John of Matha," Encyclopædia Britannica, July 20, 1998, accessed March 21, 2017, https://www.britannica.com/biography/Saint-John-of-Matha.

[3] The Editors of Encyclopædia Britannica, "Trinitarians," Encyclopædia Britannica, July 20, 1998, accessed March 21, 2017, https://www.britannica.com/topic/Trinitarians

as we made decisions for the church. For obvious reasons, a church with great funding will have fundamental differences than a church with close to zero funding. Furthermore, economic support from the French rulers was extremely limited as well.

Despite King Philip II Augustus authorizing the establishment of the Mathurins, no information was found that dictated his financial support of the order. In fact, there was very limited research available that detailed any French ruler in the 13th century supporting the Mathurins. The only information we were able to find concerning this topic was on Louis IX's involvement with the order. However, even this did not prove to be very useful.

Because Louis ruled from 1226 to 1270, he was not directly involved with the initial building phase of the church we chose to focus on– to our knowledge, we did our best to create Mathurins as it looked in the early 13th century. Additionally, it appears that Louis IX was never really concerned with the poor Mathurins. It has been documented that from 1254-1261 Louis provided royal contributions in the form of land and rents.[4] The greatest consequence of this action from Louis IX was that the Mathurins were able to keep their prime real-estate in central Paris. Surely without support from the French King, the Mathurins would have been pushed out of their location in the Latin Quarter. Yet, this proved to be Louis' greatest contribution to the Mathurins.

Louis' only other involvement came in 1269, before he left for his second crusade, when he donated sixty French pounds to the Mathurins. Sixty pounds would certainly not be considered a lot of money now and it certainly was not a substantial sum in 1269. For perspective, Cordeliers received 400 pounds and the Franciscans and Dominicans received 600 pounds. With just sixty pounds, the Mathurins were provided very little funding to support their church– a telling statistic that illustrates Louis' limited involvement with the Mathurins and the construction of this church.[5] Though Mathurins certainly has an

[4] Meredith Cohen, The Sainte-Chapelle and the construction of sacral monarchy: royal architecture in thirteenth-century Paris (New York: Cambridge University Press, 2016), 176.

[5] Cohen, 178.

interesting history in regard to its foundation, it is evident that the French Royalty's support of the order was very limited. As we began to create our model, it was clear that our church displayed stylistic variances compared to a church with richer support and endowment.

Establishing the floor plan: 2D Modeling

As with any project grounded in history, our efforts to digitally recreate Mathurins began with research. Initially, we gathered a wide range of resources to provide background and contextual information that would help us make informed decisions as we reconstructed Mathurins. When we combined our findings from the library and the internet, with the images that were already provided to us via Box, we felt confident that we had enough information to work with as we drafted the floor plan of our monastery.

Two photos in our Box file provided to be especially useful through the entire process of this project. The first, was the historical map of Paris. (Fig. 1) This map comes from the "Archeological Plans of Paris" made by Albert Lenoir and Adolphe Berty and it was created in the mid 1800's.[6] We were not able to verify the specific date this map was created, but Lenoir's other work was created around the 1850's. However, according to the National Library of France, the map itself depicts 15th-16th century Paris. The second image that we relied on was a 13th century image of Mathurins. (Fig. 2) The image comes from Virtual Museum of Protestantism, but also can be found in chapter five of Professor Cohen's book.[7] There are hardly any historical renderings of our church, and this image was the only one we could find that depicted the façade of the church while also having a general verified date.(Fig. 2) In this image, we see the church as it would have stood in the 13th century, which matched the initial construction date of Mathurins that we were focusing on.

One of the first books we found– *Abbeys, Monasteries and Convents of Paris,* by Paul and Marie Louise Biver, provided to be extremely helpful as we tried to orient ourselves with Mathurins within the

[6] Albert Lenoir and Adolphe Berty, "Archaeological map of Paris," map, in BNF Gallica, XIV (19th C.).

[7] Virtual Museum of Protestantism. (n.d.). Retrieved March 10, 2017, from http://www.museeprotestant.org/en/0000001137l/

scope of contemporary Paris.[8] In an entry about the Monastery of the Mathurins, the authors comment that on #7 Rue De Cluny in Paris, France, the only remains of the monastery – a stone arch – is visible from the street. We took this address and entered it into Google Earth, and through street view, we were able to see the remnants of our convent.[9] (Fig. 3) We knew that with this finding, we would be able to vertically scale and accurately render a portion of our building.

However, to be sure we could precisely scale Mathurins, we asked friends of ours in Paris if they could go to #7 Rue De Cluny and take photos of our arch and measure a portion of it so we could later scale it. Happily, they did us this favor. Due to their graciousness, we were able to acquire a series of photos of our arch that we thought we would later be able to 'stitch' in order to create a composite photo that we could use as a profile model in our digital rendering in the future.(Fig. 4) However, as we progressed through the modeling we did not end up using photogrammetry in our project.

Additionally, with the address of where our building used to stand, we were able to use Google's birdseye view of the location to help us scale our floor plan with precision. (Fig. 5) We had already been provided a primitive floor plan of our building in Box prior to the start of our research, so we took this floor plan and overlaid it on Google Maps. (Fig. 6) When we did this, we saw that the church portion of Mathurins (the most southern portion of the plan), neatly matched its contemporary counterpart. Recognizing that at least part of our plan reflected the dimensions of a modern-day building in the same location, we measured the most southern length of the Google image so that we could use the result to scale the plan we were given. (Fig. 7)

Once we scaled the image of our plan, we were able to start rendering the actual floor plan in Vectorworks. (Fig. 8) For the most part, we followed the standard approach one would take when creating our floor plan. Perhaps, unlike other churches, the property for our convent was not symmetrical.

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[8] Paul Louis-Biver and Marie Louis-Biver, Abbeys, Monasteries and Convents of Paris (Editions of the History of Art, 1970), 231-240.

[9] *Ibid*.

This meant we had to make group decisions when it came to what angle we should set buildings to. We created the church first, which had the dimensions of 39.6m x 8.74m with the horizontal walls set at an angle of 170.8º. We then created the refectory by tracing the plan which resulted in the rectangle having the dimensions of 24.8m x 9.05m, with a horizontal angle of 164.45º and a vertical angle of 74.45º. From this, we extended the most eastern outer wall at an angle of 74.45º– so that it ran parallel to the eastern wall of the refectory we just had created until it intersected the church at bottom of the plan.

We continued to make educated decisions when rendering portions of our plan in regards to the angle each component should be set at. When we felt as though it was appropriate, we created walls that were parallel to nearby sections of the building to create some visual stability. This can be seen most explicitly in the way we decided to create the cloister sector of our plan.

After creating the general foundation for our floor plan, we had to design the finer details that would eventually be the support system for our building. It was clear to us that there were buttresses surrounding the exterior of the church. So, we traced one buttress with the dimensions of .76m x 2.27m and duplicated it along the length of the exterior with a distance 4.77m between each buttress. The only exceptions to this are found when examining the distance between the ends of the church and the first and last buttresses, which have a distance of 5.12m. We then mirrored the buttresses and placed them on the southern exterior of the church. Throughout the process of creating the buttresses, we idealized how they would be placed in order to create a sensible and well-structured building. Had we just traced each individual buttress, there would have been sporadic alignment and distancing, and they would not have been symmetrical with the other side.

Upon recognizing that the altar would be on the eastern side of the church, we realized our church was oriented to face the east. This explains the somewhat irregular layout of the entire property. It is told in the bible from Matthew 24:27 that “For as the lightning cometh out of the east, and shineth even unto

the west; so shall also the coming of the Son of man be."[10] As one can see, the main portal entrance is placed on the western end of the church so that churchgoers would enter on the west and pray towards the east.

Following this, we began to refine the details of the exterior of the church itself in order to accurately render the church in its entirety later on in the project. From pictures and readings, we agreed that there were small chapels lining the southern exterior of the church. However, we do believe that these were built years after the initial construction in 1219 because they were noticeably different. Structurally, the chapels looked as if they were built outward from the church with a pierced wall in between. The chapels extrude straight from the side without any real continuity to the church. The side entrance is a lot more narrow than the rest of the seven chapels because of the large tower on the south side. It is possible that they did not have enough room spatially because the tower was built first, therefore they had to squeeze in the side entrance and chapels in between the buttresses.

As we were examining the plan and sketch of our church, we started to build the seven chapels running along the south side. The nave had seven bays with chapels extending from the buttresses on the side of the building. There is a side door that leads into the chapels and the stair tower: "A classical door, surmounted by a large carved headband, and crowned with a rectangular pediment, was open on the Rue des Mathurins."[11] Perhaps a detail that would have been missed without the help of this quote, we soon realized in all of the photos of our church that there was in fact a side door connected to the main church. (Fig 2). In response to this finding, we clipped a space in the wall of the most western chapel so we could fit the side door. Additionally, a lancet window is placed over every chapel and the side door entrance; and, what looks like a stout pointed arch window is punched into the upper third of the individual annexed

[10] Matthew 24:27

[11] Louis-Biver, 231-240

chapels. Finally, the north side of our church also had eight small buttresses with lancet windows between them, but no research indicated that there were chapels attached to this side as well.

We also determined that the south-western tower contained a staircase. As a result of these aforementioned details, we clipped a square with a circle to represent the stairs that we would build in the tower. We also added additional walls just outside the church on Termes ou des Mathurins (now Rue du Sommerard) to represent where the chapels would go.

When tracing over the floor plan provided, we noticed that on the east interior wall of the cloister there are several columns. It appears there are no columns on the other three sides, therefore we debated whether or not the courtyard was surrounded by simple walkways or an expansive arcade. However, as we progressed through the modeling of Mathurins, no further information was found concerning this topic, so we chose to focus our primary attention on the church itself.

From the findings in our research, we concluded that the nave roofing would have been supported by a timber structure: “Given the lack of aisles and flying buttresses, it is likely that this church also had only a timber roof.”[12] To represent this, we simply drew lines across the nave to represent where the roofing system would go.

After completing the aforementioned tasks, we had a completed floor plan that we felt was ready to be rendered into a 3D model. We felt confident that our floor plan was constructed with a high level of attention and care which resulted in a generally historically accurate floor plan.

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[12] Cohen, 184.

Building Up: 3D Modeling

Once we had a solid foundation of research, we began the 3D modeling process. As there is a learning curve with Vectorworks, it took some time to figure out how to accurately construct our building, but with the help of the tutorials, we had a pretty good idea of how to approach the project.

The first thing to do was to scale our building, so we took the measurements we found on google maps and applied them to our trusty drawing of Mathurins (Fig. 2). In doing so, we were able to properly find other dimensions otherwise unknown due to our lack of finding them in a book or online. This helped us correctly proportion our church. From scaling, we found the length of the main church was nearly 40 m. When we created the rest of the church, the width came out to nearly 10 m. This 4:1 proportioning was comforting because we had seen other churches with similar proportions. After completing the floor plan measurements, we needed to scale it vertically. The only source we could use for any sort of accurate scaling was the image depicting Mathurins in the 13th century. (Fig. 2) Because our church had a length of 40 m, we projected that the height of our church from base to the apex would be roughly 20 m. From knowing the width of our church from the floor plan, we scaled the image, horizontally using the width dimensions of our church.(Fig. 2) This brought the image to scale. The final height was roughly 20 m meaning that our church had a 2:1 proportioning.

When it came to deciding the width of the walls, we did not have the resources to find an exact measurement, so we had to come to a conclusion through some research on other gothic churches. Keeping in mind that our church was not complex, included buttressing, and had timber roofing, we assumed that it did not rely on a thick wall. First, we decided to look at Sainte Chapelle and study the wall thickness throughout each section of the building. The upper chapel wall at the niche measured .44 m, and since our church does not require intense structural support, we initially decided to make the width of our walls .44 m. When we compared the Mathurins to Sainte Chapelle, which was much larger, .44 m originally seemed to be a reasonable width to incorporate into our church. Although it is possible that the

width of our walls was .44 m, we decided to make them thicker and change them to 1.01 m, in order to maintain a safe structural support system that would justify the protection of the Mathurins. We chose 1.01 m because the lower chapel wall at the dado section in Sainte Chapelle measured 1.01 m, and adjusting the width became a decision based on a more secure and durable wall to hold up the church.

As stated, the walls of our church were measured out to be at a thickness of 1.01 m. Once extruded to that, we created the shape and size of our lancet windows, also determined by the drawing of the church. After placing and piercing the walls with this shape, we were able to create windows, using a similar profile to the one found in the clerestory tutorial.

Next, we moved on to the facade. Luckily, Professor Cohen provided us with a priceless image of our building. It showed us exactly what the facade looked like. It had two small rectangular windows, a quatrefoil in place of a rose window, a lancet window, and a fairly elaborate portal, relative to the other aspects of the church. The facade's wall thickness is the same width of the other walls, 1.01m.

The challenge came with the church's portal. Using the image provided, we hand drew a profile that would create the same effect as shown in the drawing. This proved to be successful, and we placed the portal in the wall. The actual door to the church was then created with the trilobe and other details to mimic the drawing. Getting the portal to be sunk in the wall was probably the trickiest thing that we did in Vectorworks. We found success only after hours of trial and error. We ended up piercing the wall and then tapering the edge so the portal could mesh with the other part of the structure. After this, we added the solids together and our portal was complete.

As we had no idea what the rear elevation looked like, we took a solid guess and mirrored it with the front, with the exception of the quatrefoil and portal. (Fig. 9)

Next were the towers. We began with the south tower. Knowing from our resources that it contained a staircase, we essentially created an open box, in which we would place a staircase once completed. (Fig. 10) From the image, we knew that the tower had a rectangular base measuring at 12.5 m

tall, the same height as our walls. Placed on top of that was a hexagonal component. On the front and back sides of the hexagonal component were what looked to be miniature buttressing. Once these details were created, we encountered the challenge of the roofing. Each side had roofing that extended upwards another three meters. This was a challenge as we had to figure out how to create a surface three-dimensionally without simply extruding and flipping to the correct angle. We used the 3D polygon tool to create this effect. The staircase ended up being easier than we thought, as we were able to use the stair tool to create the spiral staircase; and, although they turned out to look rather modern, we used them as a placeholder for a real, stone staircase. (Fig 11)

The north tower required less effort considering it did not need the room or hollowness for a staircase. This tower was built by extruding a circle to the height of 12.5 m. The roof of this tower was easily executed with the cone tool. Lastly, we added detailing on the towers found in the drawing that were probably added to Mathurins during construction for drainage purposes.

The buttressing was the next important aspect of our building we addressed. It made sense the size of the buttressing was relatively small because of the church's lack of funds– resulting in a lack of total height. A building measuring at approximately 20 m in height would not need the structural support of long, heavy buttressing; so, we made the buttresses come out of the building by 2.27 m. Since they were not flying buttresses, constructing the buttresses was straightforward, we merely followed the previous tutorial for creating a buttress.

The chapels were next in our building process. These were similarly scaled using the drawing. They came out to be at a reasonable height of 6 m. We found in our research that the first chapel contained a side door. This matched up perfectly with our drawing, so we used that to find the dimensions of the door. To render the remaining chapels, we created the exterior framework of the chapels and the attached walls to connect them to the main segment of the church.(Fig 12) We then added the windows,

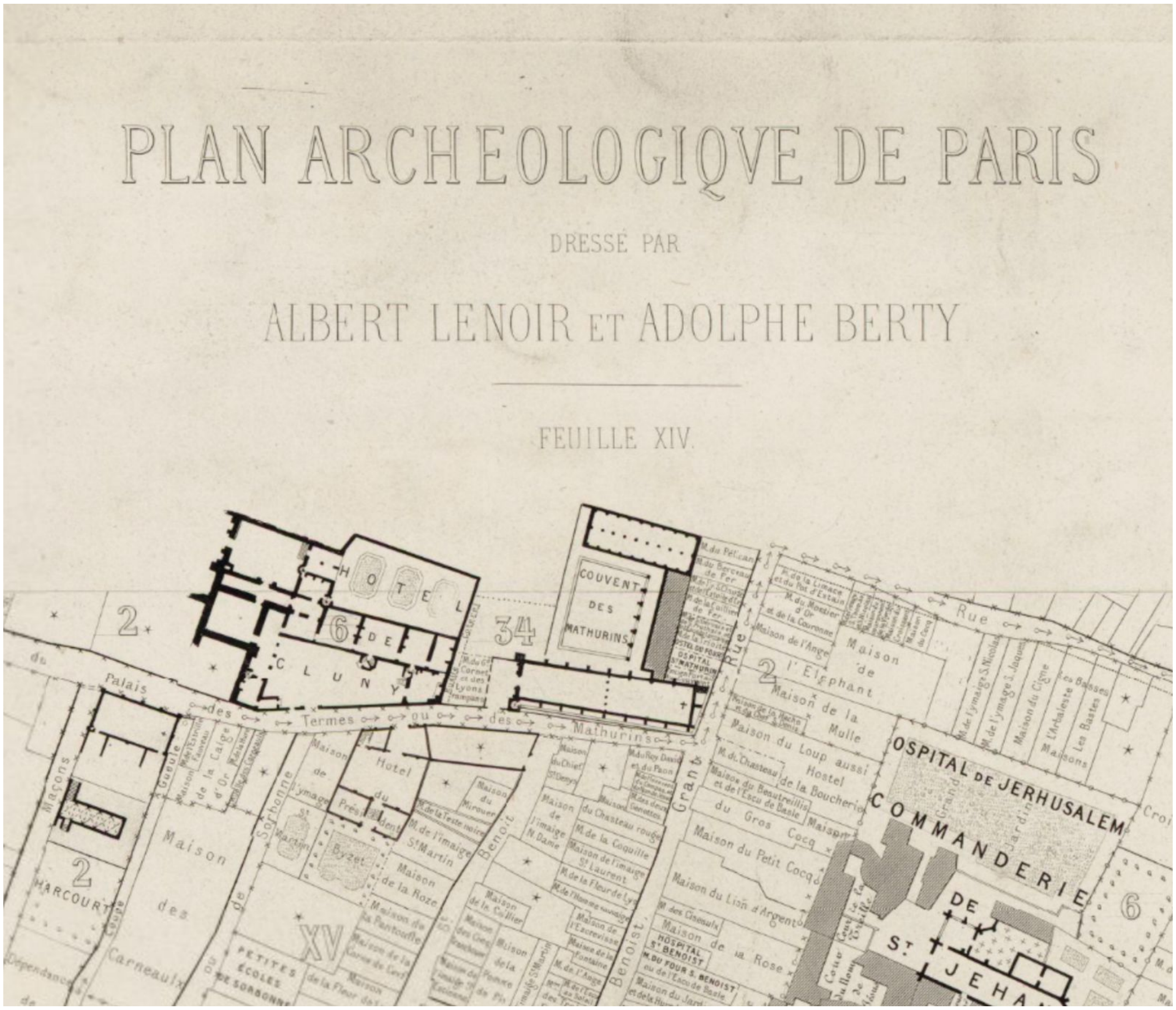
which just required centering a window for each chapel. After this, we were sure to line them up between the buttresses perfectly. (Fig 12)

After the chapels were complete, we moved onto the roofing. In our research, we concluded that the roofing was a king post truss timber structure. Following the basic profiling of a king post truss, it was simple enough to model by extruding each rectangular piece of timber (Fig. 13) We placed a truss between each buttress and on each buttress to create a strong roof. Then used the angle of the gable to create a profile for the roof and then extrude it.

We had little trouble with the spire because we had learned the skill of pointed roofing, making it easy to create. The spire was in a hexagonal shape similar to that of the top component of the south tower. Each wall had a miniature lancet window that took up most of the wall. Once the walls had been pierced we created the roof using our favorite 3D polygon tool. We also added a weathercock (the rooster) as it was shown in several of the images we found in our research. This was a fun little addition that we think gives our poor church some personality! (Fig 14)

Once all of this was completed, we added texture. This was very fun because Vectorworks has so many different texture options. We used the stone texture given to us for one of the tutorials. (Fig. 15) Then found a good wooden roofing texture for the roof. (Fig. 16) We used a dark wood for the doors and the timber trussing. (Fig. 17) Then used a different stone for the portal and windows. (Fig. 18) The rendering turned out really well and the church looks fabulous.

In addition to the main church, we attempted to provide some context with the refectory and cloister. (Fig. 19) As we spent most of our resources on the main church, it was hard to find any information on the cloister and refectory. Despite this, we created walls to display where these buildings were in reference to the main church. We rendered nice green grass for the center of the cloister. Overall the 3D modeling aspect of this project was very interesting and fun, it really forced us to think visually and to combine our research with our imagination.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DRESSÉ PAR
ALBERT LENOIR ET ADOLPHE BERTY
FEUILLE XIV.
HOTEL DE CLUNY
COUVENT DES MATHURINS
Palais des Termes
Rue des Mathurins
OSPITAL DE JERHUSALEM
COMMANDERIE DE ST JEHAN
Maison de l'Elephant
Maison de la Mulle
Maison du Loup aussi Hostel de la Boucherie
Maison du Gros Cocq
Maison du Petit Cocq
Maison du Lion d'Argent
Maison de la Rose
PETITES ECOLES DE SORBONNE
HARCOURT
Maison des Carneaulx

Figure 1

Figure 2


3 Rue de Cluny
Paris, Île-de-France
Street View - Apr 2016
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Église Saint-Séverin
Cluny - La Sorbonne
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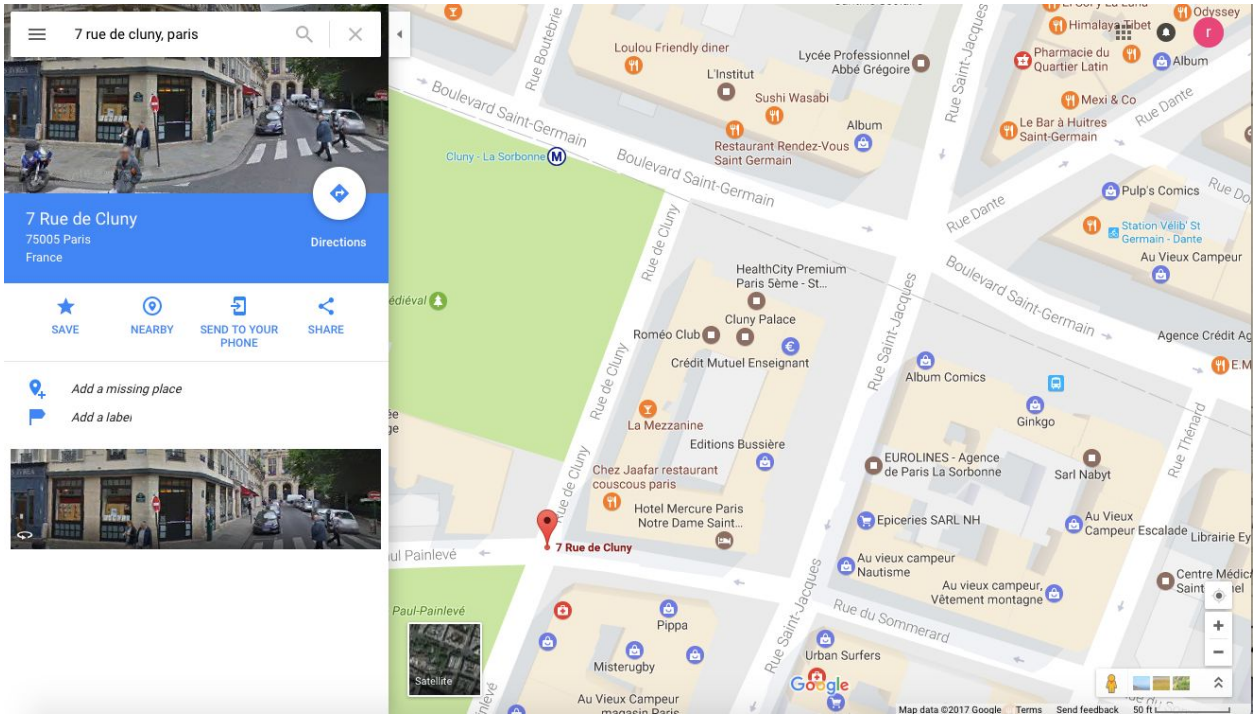
Figure 3


VESTIGE DU CLOÎTRE
RAPPELANT QU'ICI CET EMPLACEMENT
S'ÉLEVAIT AU XIIIe SIECLE
JUSQU'À LA RÉVOLUTION
LE COUVENT DES TRINITAIRES
APPELÉS MATHURINS

Figure 4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Cluny - La Sorbonne
7 Rue de Cluny
Loulou Friendly diner
L'Institut
Lycée Professionnel Abbé Grégoire
Sushi Wasabi
Restaurant Rendez-Vous Saint Germain
Album
Pharmacie du Quartier Latin
Mexi & Co
Le Bar à Huitres Saint-Germain
Pulp's Comics
Station Vélib' St Germain - Dante
Au Vieux Campeur
HealthCity Premium Paris 5ème - St...
Cluny Palace
Roméo Club
Crédit Mutuel Enseignant
Album Comics
Ginkgo
La Mezzanine
Editions Bussière
Chez Jaafar restaurant couscous paris
Hotel Mercure Paris Notre Dame Saint...
EUROLINES - Agence de Paris La Sorbonne
Sarl Nabyt
Epiceries SARL NH
Au Vieux Campeur Escalade
Au vieux campeur Nautisme
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Figure 5

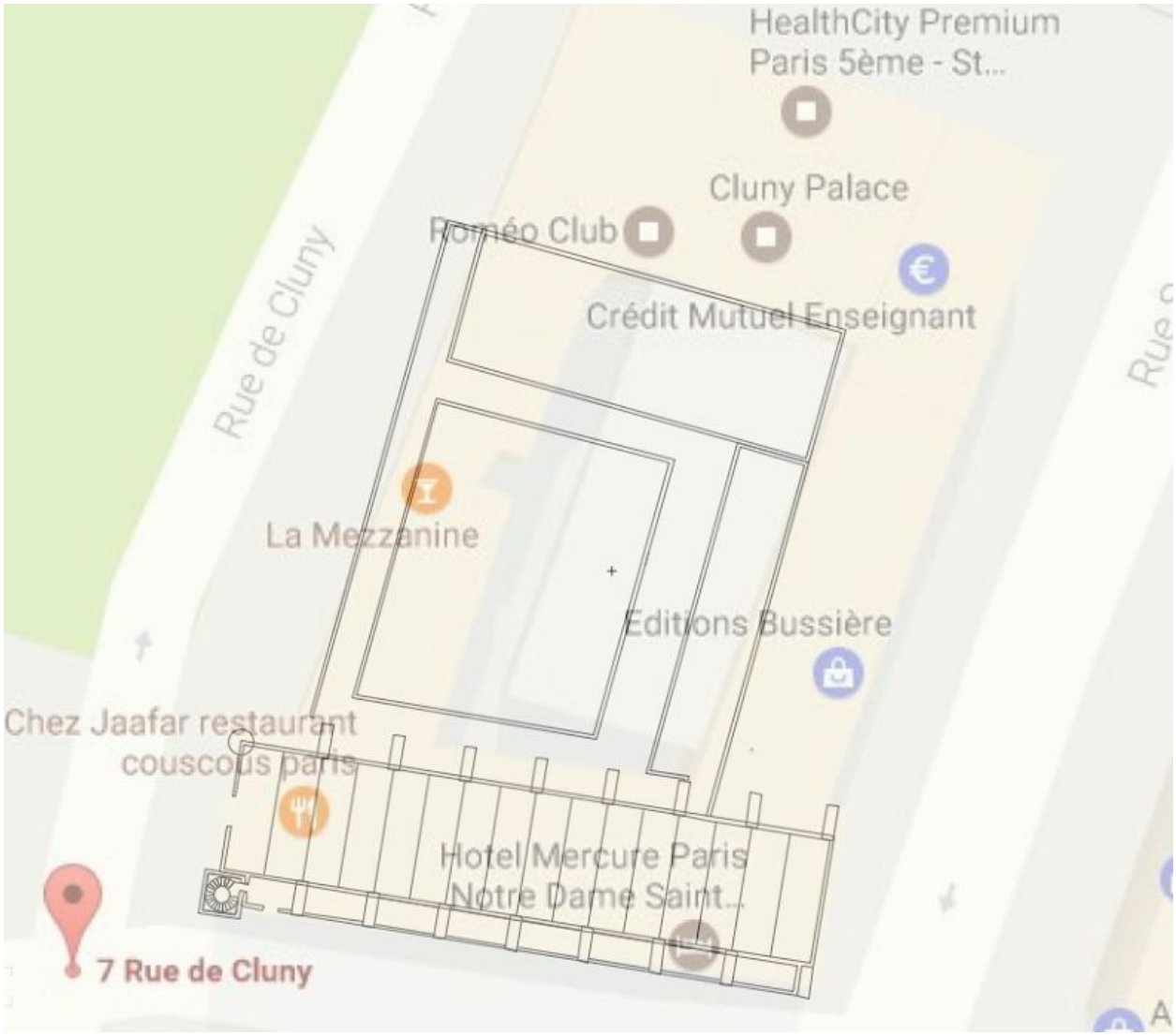
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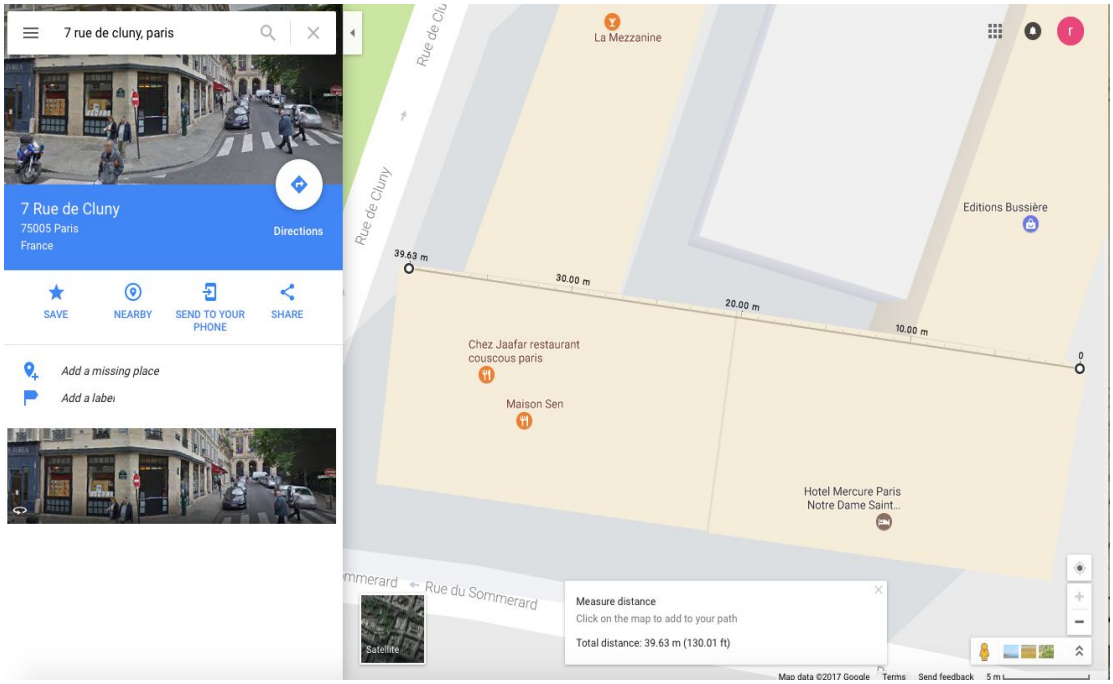
Figure 6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Satellite
Map data ©2017 Google
Terms
Send feedback
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Figure 7

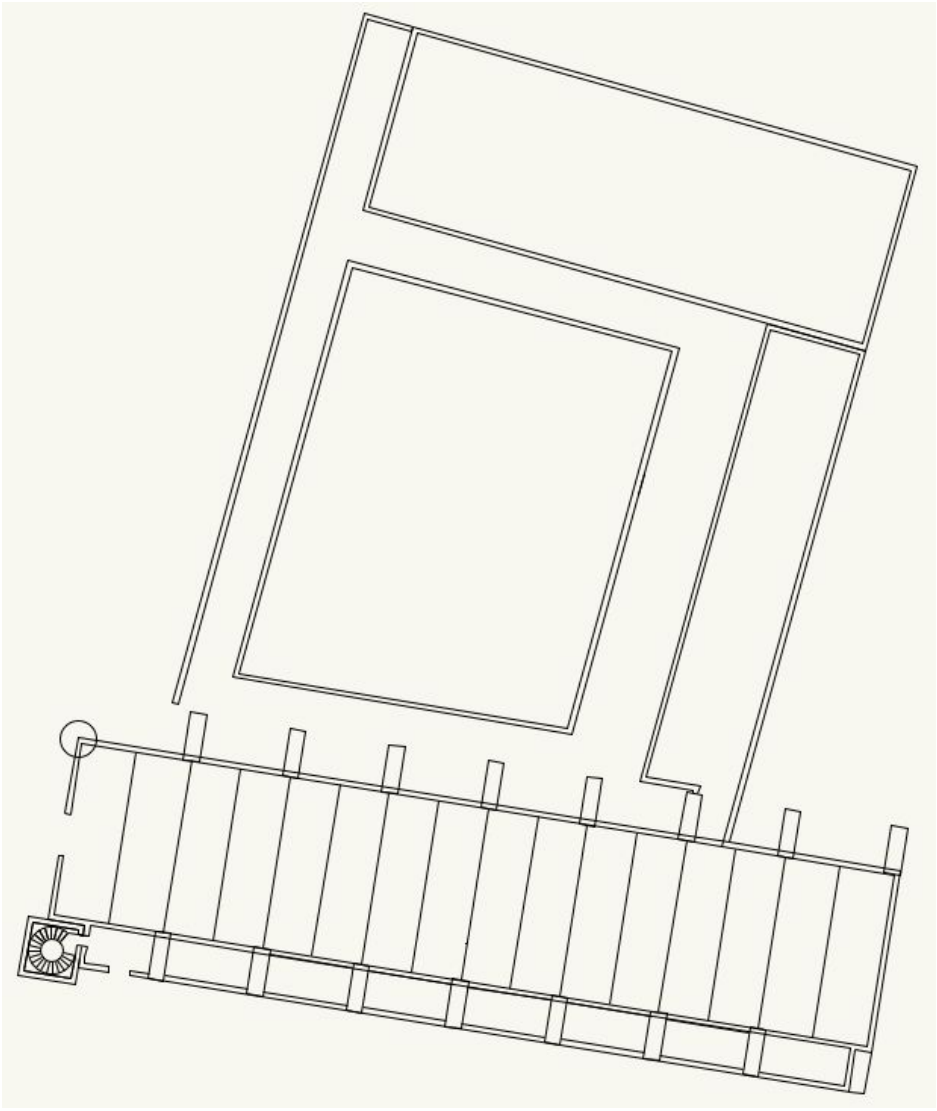


Fig. 8

Figure 9

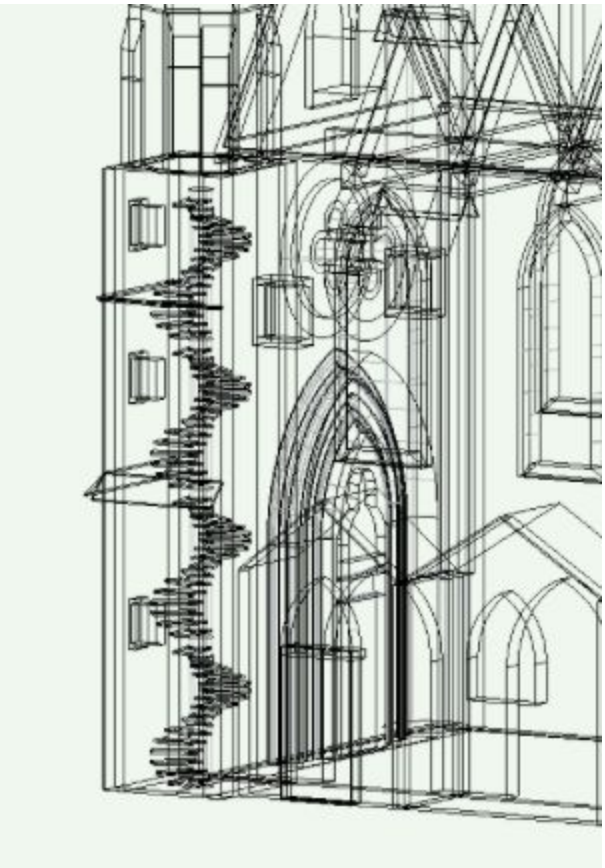
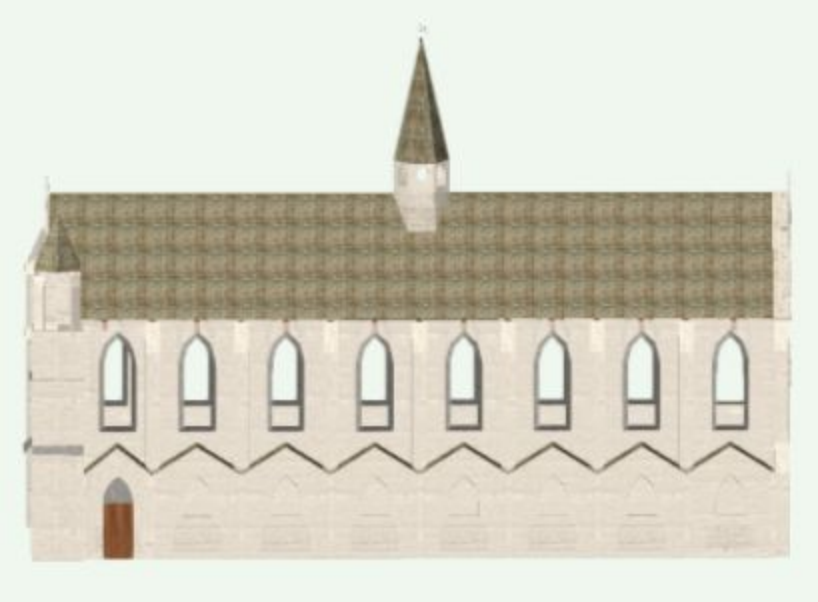


Figure 10

Figure 11



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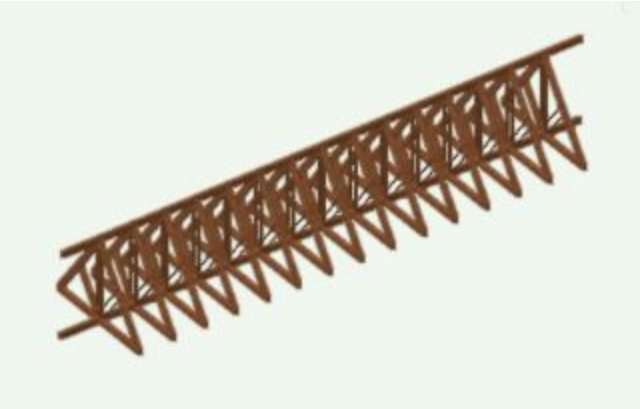

Figure 13

Figure 14

Figure 15

Figure 16

Figure 17

Figure 18

Figure 19

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