



hofabgewandte Seite

THE SIDE AWAY FROM THE COURTYARD



hofzugewandte Seite

THE COURTYARD-FACING SIDE

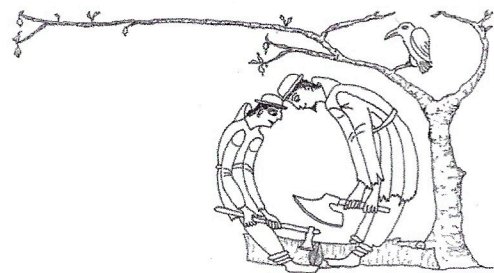
31.12.2007

20 route du Val St. Pierre
76780 Croisy sur Andelle

1. ANALYSE GEBÄUDE

AXEL WELLER

TRADITIONAL CARPENTER
• HAND MADE WOODWORK
• DRAWINGS • RESEARCH



EXPLANATION

This information is based primarily on my experiences from my 22 years of work as a carpenter, restorer and researcher. Many of my assumptions related to the building about its changes and the temporal assignment will turn out to be right or wrong, through one dendrochronological study, which Mr. Alain Mariat kindly carried out.

ON THE HISTORICAL CONSTRUCTION OF THE BUILDING

The building is divided into three equal parts and separated from each other with partition walls. The .1 part - facing west - was the living room, as all the wooden parts there were very good worked on, there is a cellar underneath (see sheet 11) and this part is probably also included had an entrance area. The current entrance is on the side facing away from the courtyard was installed later.

The 2nd and 3rd parts are at ground level. These were most likely the farm buildings. The second part is from the original building with raised windows and separate entrances provided and built without a false ceiling. This was most likely a stable building.

The .3 part has a false ceiling, although it is not clear whether this was installed later became. This part could also have been a stable, but also a workshop or storage room. The part above could very likely have been a hay or straw store. The remains of a fireplace can be suspected in the wall between the living room and the stable (see sheet 12). The theory of an open fire pit can neither be confirmed nor negated, but from my observation there are no traces of soot on the wooden structure (ceiling beams). These should be recognizable at least after using an open fireplace for a few years.

The entire building has undergone a radical renovation, especially on the side facing the courtyard, experience. There may also have been a second renovation. My guess is that the first conversion took place before the 17th century. Excellent carpenters were at work on the construction of the house, ensuring precise work have respected. This is not only shown by the beams worked with axes and pit saws:

- the main columns were specially processed in the interior, recognizable by a decoration (a triangle) with the pit saw; a very complex job, considering that it is involved only a board measuring 2.50 m x 200 mm x 30 mm came out (see sheet 10)
- the entire ceiling beams were processed with an adze after being hewn (see sheet 10)
- all wood is cut straight and without sapwood
- curved beams have an extremely even swing
- On the side facing away from the courtyard there is a continuous strip of beams with profiling, all connections are also tied very carefully. These are all signs of excellence carpentry work. The involvement of English carpenters, as suspected by the owner, is quite conceivable, but I cannot prove it.

A special feature of this building is that the tenons of all half-timbered beams are included double chest were elaborated, while in Normandy it is typical that the tenons all truss beams, which play a secondary role in the construction, are set off with a breast (See sheet 5.)

The marking of the wood is amazing as the craftsmen here use different systems have worked: both with the gouge, as well as with a straight iron and even with a Rainette. The marking indicates both a "point count" (for example Number 6 is marked with six dots, both in the main beam and the inserted half-timbered beam, see sheet 5) as well as Roman numbering.

On the side facing away from the courtyard, all main stands are marked with points from 1 to 9. On this side, I can only see Roman numerals in the 6 field. However, on the on the side facing the courtyard, the main stands are not numbered, but the connections between them Main stand and latches in Roman numerals and in the opposite direction to the numbering of the side facing away from the courtyard. On this side was also a Rainette with a compass function was used (marked with semicircles in field 1). Only on field 9 it's clear to me that point counting was used between the main beam and upper truss beams (see drawings of the side walls).

The .1 conversion.

As can be seen from the drawings, during the .1 conversion all sill beam changed. Many of the main stands, most likely all originally on Stone bases stood and were partly placed on the sill beam.

For this difficult changes, many Fake tenons were used and wooden nails were used to connect the Fake tenon with the old material. These Fake tenons are now common in professional restoration. Old I know of very few role models for this. This way of working is proof that such a restoration can last for several centuries. It's a joy for any restorer to see something like this. In all likelihood, some windows were installed as part of this renovation. Out of my opinion there are at least 3 reasons for this conversion:

1. Damage to the sill beam area due to moisture.
- 2 a change in use (a sign of this is the changed entrance areas).
- 3 the relocation of the main road from the side facing away from the courtyard to the side facing the courtyard, since the representative facade of a house usually faces the street.

Excellent carpenters were also at work on this first renovation. In processing the Beams, as well as the work on the connections, have similar quality characteristics recognize, like when building the house.

Possible 2nd conversion

There was probably a second renovation, as it was on the side facing the courtyard in fields 5 to 8 There are some abnormalities regarding the quality and static change in these fields are questionable. Both are difficult to connect with professional meticulousness that were spent on the rest of the building. The Hewing is also much worse Quality of the half-timbered timber on the gable for a possible second renovation phase.

ON THE HISTORICAL CONSTRUCTION OF THE ROOF

In the three drawings I show the structural principle of the roof structure. The original one Roof was torn down in the 1930s and replaced with the current roof. There isn't any Record or photos of the original roof pitch and construction. Except for the roof pitch, which is the same as that of the outbuilding, which is either the same time or was built during the first renovation, the dashed lines are the ones for me only options for what the original construction may have looked like (see section AB). I don't have find mortises or other connections for other roof constructions (sheet 6 shows the remains of the original main rafters, sheet 7 shows the mortise holes Recording the main rafters). What is surprising about the existing construction is that there is no brace under the ceiling beams to support the main rafters (as in the outbuilding, which was designed as a stable, see sheet 4). Since the ceiling beams of the .1 part of the building and those of the .2 and 3rd parts are on different levels. I made three drawings for the height levels. Furthermore, in my notes there are three variants of what this roof structure could have looked like. To me it seems that apart from these three variants there are no others possibilities exist. Since most Norman roofs used crooked timbers for the main rafters, the variant with the crooked timber the most likely (see possible roof constructions)

ON THE HISTORICAL CONSTRUCTION OF THE GABLE

The four main stands are most likely original, while the Horizontals as well as the crosses and diagonals as well as the small beams in the upper one Part were all inserted later. The stands were probably all continuous and stood directly on the stones below , as can still be seen on the sides of some stands. That means the sill beam were only inserted between the uprights by means of an "offset tenon". The gable was probably changed more than once. This can't be seen just by looking at it poorer workmanship of the wood. About the original condition of the gable wall. In my opinion, little can be said and hardly anything can be assumed. All stands have peg holes at intervals of 10 to 30cm throughout. This mortis holes can be seen on the left stand, which is why damage is very likely the reason is that part of the stand was removed during a renovation (there is also Traces of work on in the upper part of this stand, see sheet 3). These mortis holes leave as It is assumed that there were horizontal beams or struts on the gable wall could (ornamental framework). Since the frame wood originally has many tenon holes on the top, it can be concluded that there is another half-timbered construction in the upper part of the gable (see sheet 3) It is not possible to determine whether it is boarded or not. The window is probably added during the .1 renovation phase.

ON THE HISTORICAL CONSTRUCTION OF THE SIDE AWAY FROM THE COURTYARD (see drawing "Probable original condition")

All of the sill beams were subsequently replaced, probably during the first renovation. This can be explained mainly by the many Fake tenon used. The mortis holes in the upper part of the main stand lead to the assumption that the slide-on plates were supported by a sill beam and associated braces (as in the drawing "Cut AB" can be seen). There could also be other explanations. The marking of the wood, which were used to build the side facing away from the courtyard, runs from left to right and ends at the current entrance area.

1 segment

This segment is original in the upper part. The horizontal beam in the lower part also, while hardly anything can be said about the shape of the intermediate part. All truss beams in the lower part is subsequently inserted without a pin using Phillips screws. Due to the lack of mortis in the main stands, there can be no horizontal timbers or braces.

2 segment

This segment is also in its original state with the window area.

3rd segment

This segment is difficult to interpret. Leave the multitude of mortises in the left stand the assumption that there was an ornamental framework here. But since there is no one on the right stand. A possible explanation is that there is an entrance to the stable building found with half an ornamental framework, similar to segment .7

4 segment

This entrance area was added later. The window area certainly went, as in the 6th segment, through.

5th segment

The upper part of this segment has been preserved in its original form. The window at the bottom was installed later. Based on the existing tenon holes, it can be assumed that it is in Originally there was a window similar to that in the 2nd segment.

6th segment

This segment is also in its original condition except for the sill beam. A very nice detail here the late medieval window area.

7th segment

This segment is in original condition except for the sill beam.

8th segment

The window was most likely added later. The horizontal beam was certainly also inserted later (Fake tenon). It stated in the original there is no continuous profiled at this point, as in the other segments. It can be assumed that the original entrance was at this point.

9th segment

This segment was completely changed in the first renovation phase. The horizontal beam was subsequently inserted using Fake tenon. This was certainly the original here too profiled beam at the same height as most other segments continued (tenons and mortis holes can be seen).

ON THE HISTORICAL CONSTRUCTION OF THE COURTYARD-FACING SIDE (see drawing "Probable original condition")

The entire sill beams were subsequently replaced, in a first renovation phase and probably some also in a second renovation phase. Here too, many Fake tenon can be seen.

There are no mortis in the upper parts of the main stands, such as on the side facing away from the yard. The height of the sill beams are partly changed in level. The marking of the wood, which were used to build the side facing the courtyard, runs from left to right and ends in the straw-covered cultivation.

1st segment

This segment is in its original condition except for the sill beam.

2nd segment

The window in this segment was added later. The phases on the main stand and the original main horizontal beam suggest a window like the Segment 8. However, it did not extend across the entire segment. The upper part of this segment is in Original state.

3rd segment

The upper part as well as the main beam are in their original condition. The lower part was original a reflection of the upper area. Presumably the lower part was during the first renovation changed, the sill beam was also moved up, probably by around 35 cm.

4th segment

The upper part as well as the main beam are in their original condition. The lower part was original a reflection of the top area, except for the window. Presumably the lower one was Part changed during the first renovation, the sill was also moved upwards, probably around 35 cm. The window in the upper part is original. This detail repeats itself in segment 9.

5th segment

The upper part of the segment is in its original condition, while the main horizontal beam and sill are newer dates are. This means that no statement can be made about the original half-timbered of the lower area.

6th and 7th segments

Within these segments there is a post in the upper part next to the windows was certainly ongoing. These stands extend beyond the frame in the upper part and were subsequently cut off there (the flame was tapped into these stands, see Sheet 8). The windows in between are original. The cross of the window in Segment 6 was probably removed because it was damaged. These continuous Stands are the only ones of their kind in the entire building and are a structural weak point.

The only explanation to me for the original use of these beams is that it was once there was a bay window in the roof at this point. This bay window could have been used to be possible to bring the hay from the wagon directly to the hayloft. Shape and the height of this bay window cannot be interpreted based on the few remains found. The main beams of both segments are original, everything underneath is later been added. Hardly anything can be said about the shape and form of this area. The main column between segments 6 and 7, is at the same time the partition wall between the stable and assumed workshop or storage room. has been a door below each window.

8th segment

In the upper part of this segment, the first truss beam is most likely a later addition, while the rest is original. The right part of the main horizontal beam is original. It can be assumed that the window is part of the original structure. About the rest of the segment Hardly anything can be said.

9th segment

The upper part of the segment is in its original condition, as is the main beam, while both the door and the half-timbered details were most likely added later.

CULTIVATIO

This building could be original as the working marks on the beams identically to the marks of the main house. The studs are constructed in the same way as in the main building and the surface of the ceiling beams is in the same way inside show the same traces of processing as in the main house. But It is possible that this building was built during the first renovation.

DAMAGE ANALYSIS

All wood marked on the "Damage Analysis" sheet must be made of static and replaced or reinstalled for structural reasons.

CONCLUSION

I think this building is definitely worth preserving for the following reasons:

1. Marking:

The marking of the wood clearly shows the transition from "point counting" to Roman Number marking. This transition, which occurred in French cathedrals in the 13th century, I think that what took place can hardly be seen again with such clarity find. This building can be used to carry out a dendrochronological study even determine an exact year for this transition (Annotation 2024 quite similar marking systems are known from England it is not absolutely clear it is the mission from pointing to Roman marking)

.2 Significance of construction

The entire construction of the house is well thought out, excellently executed and with the „Kniestock“ not typical for Normandy. The separation of rooms is clearly visible. Late medieval stable windows are still there, the ones that are

pushed through and wedged Ceiling beams are preserved and well finished and the original condition of the building remains are definitely understandable.

3. Type of conversion

In the course of the renovation of this building, first-class restoration methods were used, What should be particularly mentioned here is the abundance of Fake tenon, which are difficult to find on other buildings can be found, especially since this restoration probably took place before the 17th century. It is a very important visual object for all aspiring and existing restorers.



Giebel

Gable



Giebel des Anbaus

Gable off the extension



Giebel
Gable



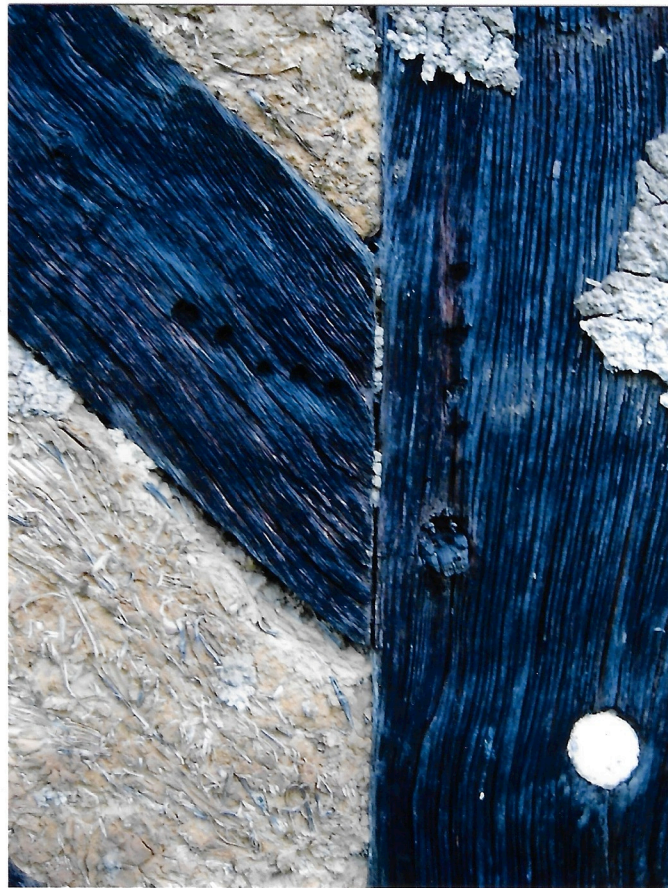
nahe stehender Stall

Nearby stable



Konstruktion des Stalles

Construction of the stable



Markierung an der hofabgewandten Seite

Marking off the wood, the opposites of the courtyard site



doppelseitige Zapfenbrust der Fachwerkbalken

double-sided tenon breast of the truss beams



Reste der Hauptsparren im Deckenbalken des Wohnraum

Remains of the main rafters with ceiling beams in the living room



Zapfenloch im Deckenbalken zur Aufnahme der Hauptsparren

Tenon hole in the ceiling beam to accommodate the main rafters



durchlaufende Ständer in der hofzugewandten Seite
Continuous Post on the side facing the courtyard



eingestemmte Löcher zur Aufnahme der Sparren

The holes to accommodate the rafters



Längsverbindung des Rähms

Longitudinal connection of the frame



mit Dixel bearbeiteter Deckenbalken

Ceiling beams finished with adze



Klobsägespuren auf der Hauptsäule

Log saw marks on the main column



Balkenauflage im Keller

Beam support with basement



Balkenauflage im Keller

Beam support with basement



Wand zwischen Wohnraum und Stall

Wall between living room and stable



Reparatur am Deckenbalken im Stall

Evaporation off a main beam in the stable



Decke im Wohnraum mit gespaltenen Eichenschindeln und Lehm Boden darüber
Ceiling with living room with split oak shingles and clay floor above



Zapfen an der hofabgewandten Seite mit unbekannter Nutzung

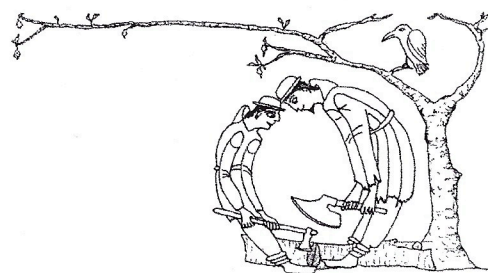
3. ANHANG

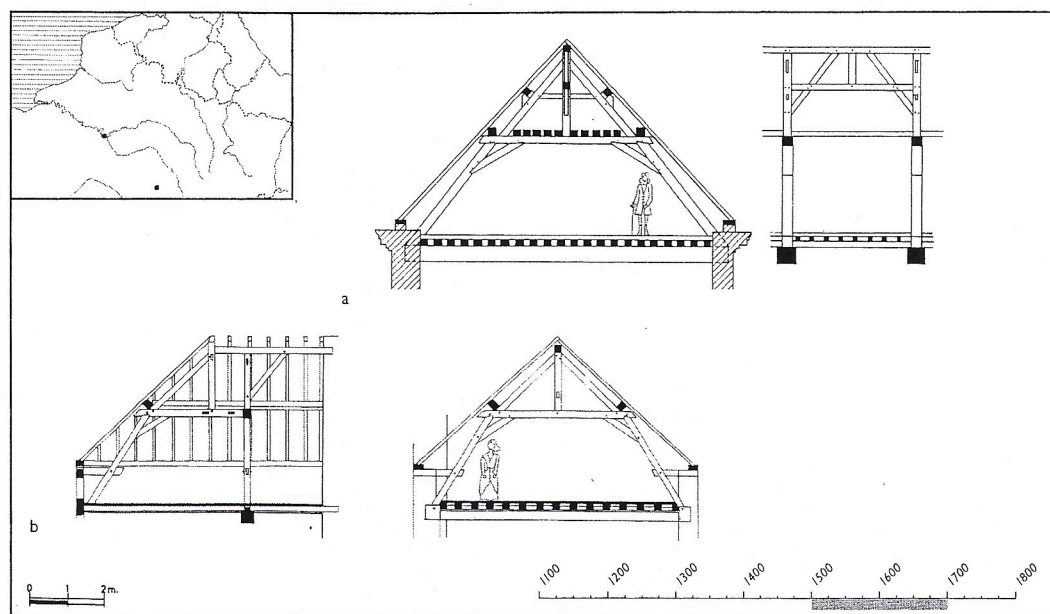
AXEL WELLER

TRADITIONAL CARPENTER

• HAND MADE WOODWORK

• DRAWINGS • RESEARCH





2.2.

Avec des pannes assemblées à des arbalétriers de chambrée

On trouve des exemples dans des simples combles ou des combles à surcroît.

2.2.1.

Dans de simples combles

En région mosane, la panne est souvent assemblée dans l'arbalétrier, à tenons et à mortaises, dans le même plan, ce qui garantit un

bon contreventement et fait gagner de la place dans l'épaisseur du versant. Les exemples de la région liégeoise abondent, comme on l'a vu à propos des chevrons-fermes (cf. 1.2.3), on en trouve aussi à Luxembourg et à Troyes. Ces charpentes sont très soignées et souvent renforcées de contrefiches au sommet du comble.

Le musée Curtius (1599-1600d) possède une des plus hautes (12 m) et des plus larges (19 m) toitures

de Liège, comprenant trois niveaux de greniers. La charpente s'enfonce jusqu'au dernier étage de la construction en maçonnerie, prenant appui sur quatre rangées de poteaux, deux élevées contre le parement intérieur des gouttereaux et deux sur les cloisons longitudinales enserrant le couloir de circulation de l'avant-dernier étage.

La charpente de la cathédrale de Troyes, mise en place en 1705, a été conçue suivant un schéma très

Pl. 57

Charpentes à fermes et pannes avec des arbalétriers de joug, poinçon de ferme sans contrefiche, des des combles à surcroît

a. Vincennes (Val-de-Marne), château, pavillon de la Reine, vers 1635; CRMH, Charpente, D 3948; Cordey, 1975

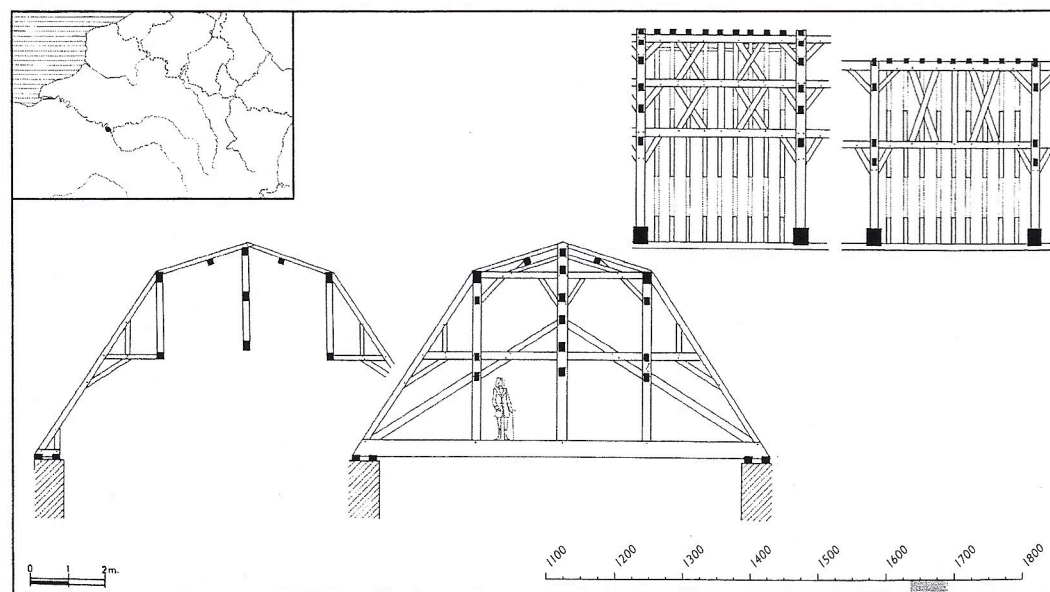
b. Noyers (Yonne), immeuble rue Vendôme, XVI^e siècle; CRMH, D 6674

Autres exemples

Auxerre (Yonne), maison, 49, rue Saint-Murs, XVI^e siècle; CRMH, D 3925

Noyers (Yonne), immeuble place de la Petite-Étape-aux-Vignes, fin XV^e-début XVI^e siècle; CRMH, D 150

Troyes (Aube), 10, rue Linard-Goussier, XVI^e siècle; CRMH, D 150



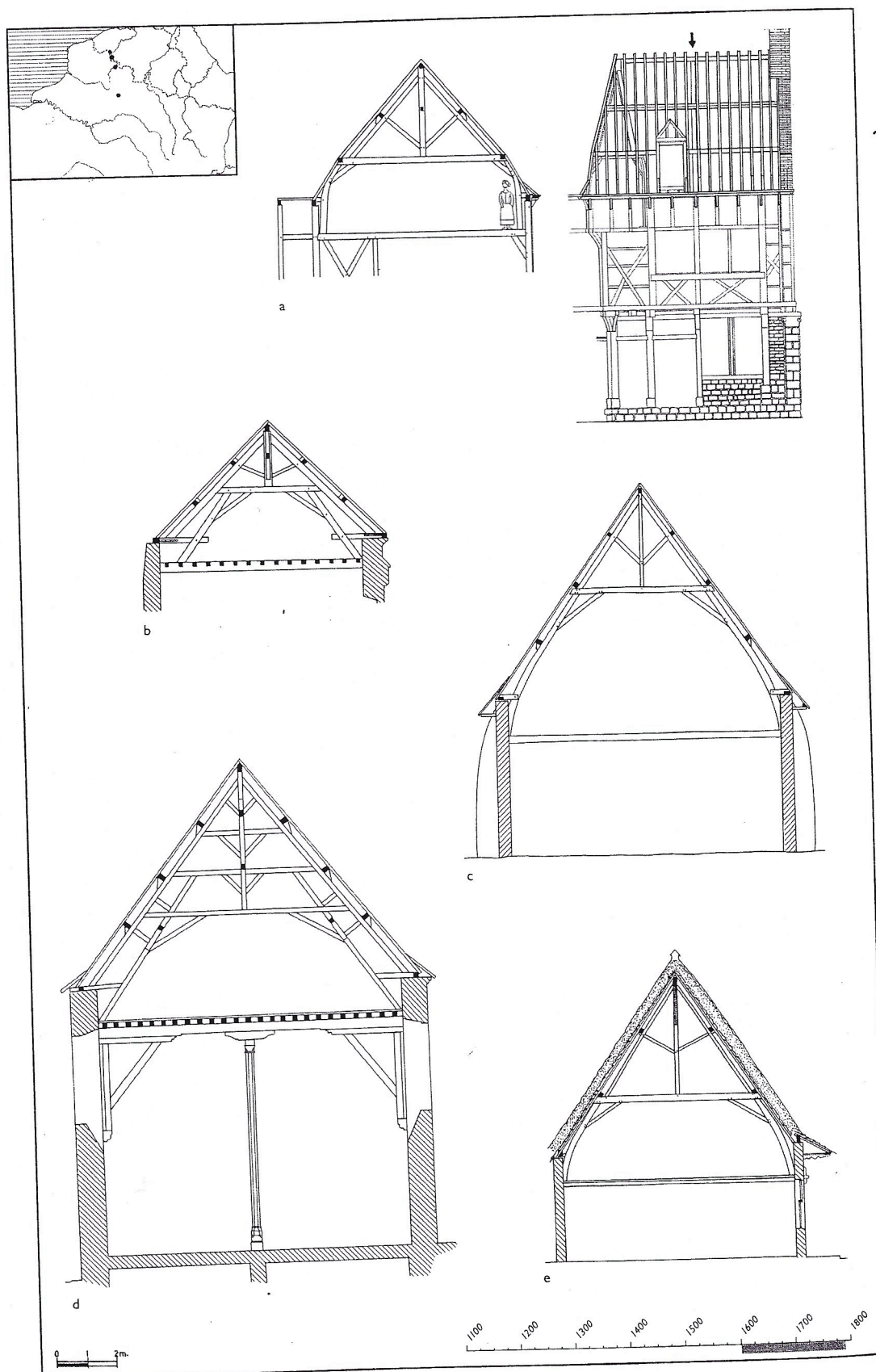
Pl. 58

Charpentes à fermes et pannes avec des arbalétriers de joug, poinçon de ferme sans contrefiche, des des combles à surcroît

Paris, chapelle de la Sorbonne, du chœur, vers 1635-1640; CRMH, Charpente, vol. 9, D 1028

Autre exemple

Versailles (Yvelines), Grand Trianon, de l'aile sud-est, vers 1687; CRMH, Charpente, vol. 5, D 2058



Pl. 49
Charpentes à poutres et pannes, avec arbalétriers de poinçon de fer, contrefiches, faux-entrait, le plus souvent sur un portique en trapèze, dans des combles.

a. Valenciennes, maison espagnole, remontée 11^e s., CRMH, D 8847 et D 8847.

b. Laon (Aisne), Dieu, place du Hoffsumme, 1995a, p. 109.

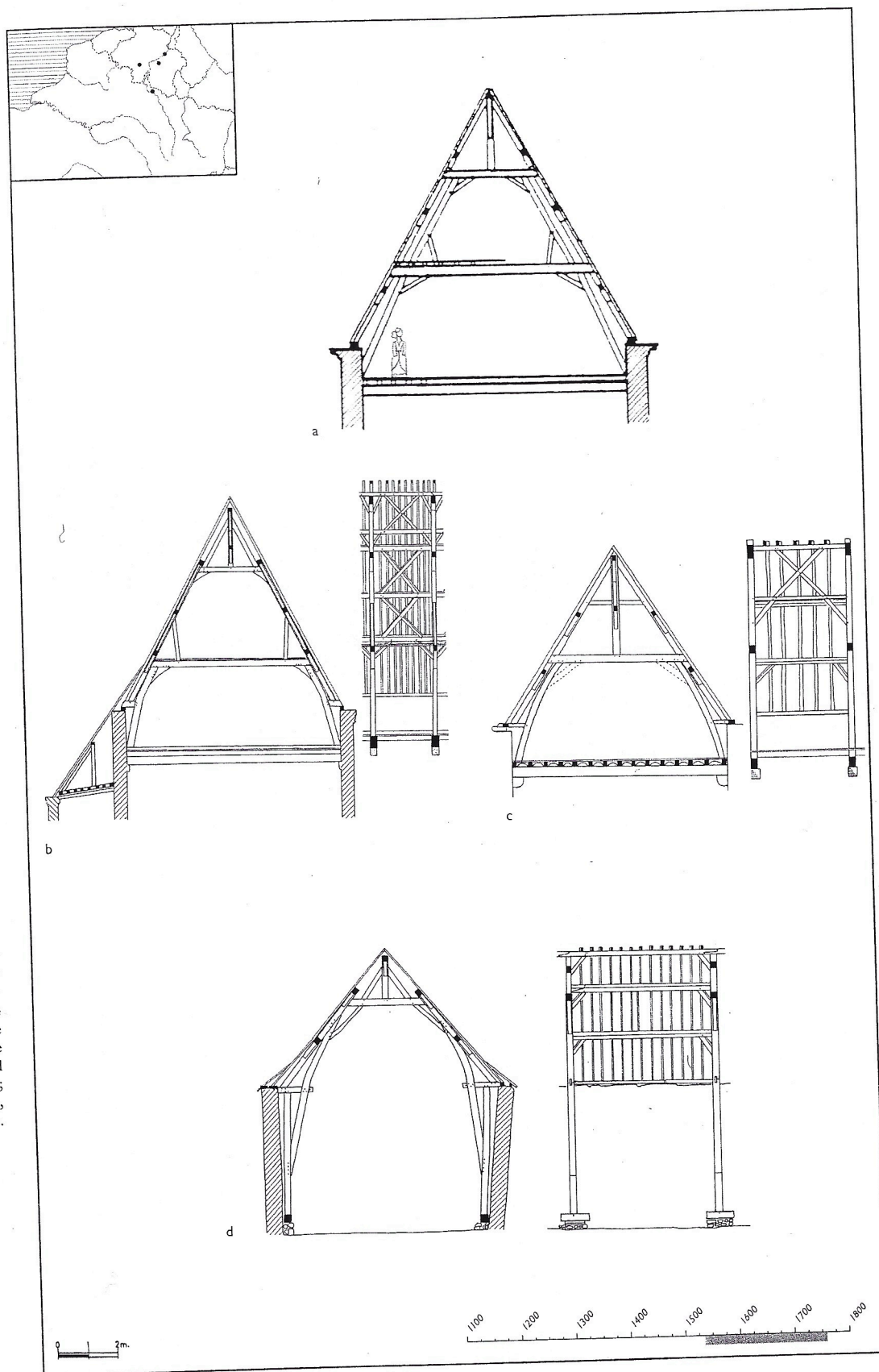
c. Mouscron (B.), Hainaut, ferme de la grange en 19^e s., ARTW, 19^e s., Hoffsumme, p. 109. Rareté de grange, d'un comble avec ferme.

d. Laon (Aisne), Hôtel-Dieu (détruit), et Plouvieux.

e. Tournai, temple de à Cazeau, ARTW, 19^e s.

Autres ex : Épernay, maison de Plombières, Rocard, 19^e s.

Escolive, château du XVII^e s., Charpente, D 10729.



Pl. 61
Charpentes à fermes
et pannes avec
des arbalétriers
cambriés, dans
des toitures à surcroît
pour une grange
apparentée
aux crucks :

1. Charleroi (B.),
abbaye de
Saint-Étienne,
vers 1610,
toiture sur cour,
perpendiculaire à l'aile
principale, toiture
à surcroît; Rocard, 1984,
pl. XIII, n° 41.

2. Charleroi (B.),
abbaye de
Saint-Étienne,
vers 1610,
toiture de
surcroît; Rocard, 1984,
pl. XIII, n° 41.

3. Charleroi (B.),
abbaye de
Saint-Étienne,
vers 1610,
toiture de
surcroît; Rocard, 1984,
pl. XIII, n° 41.

4. Havelange (B.,
Namur), grange
de Chantraine
à Verlée, 1751-1761d
(ULg 207);
Hoffsummer, 1999,
p. 102-103.

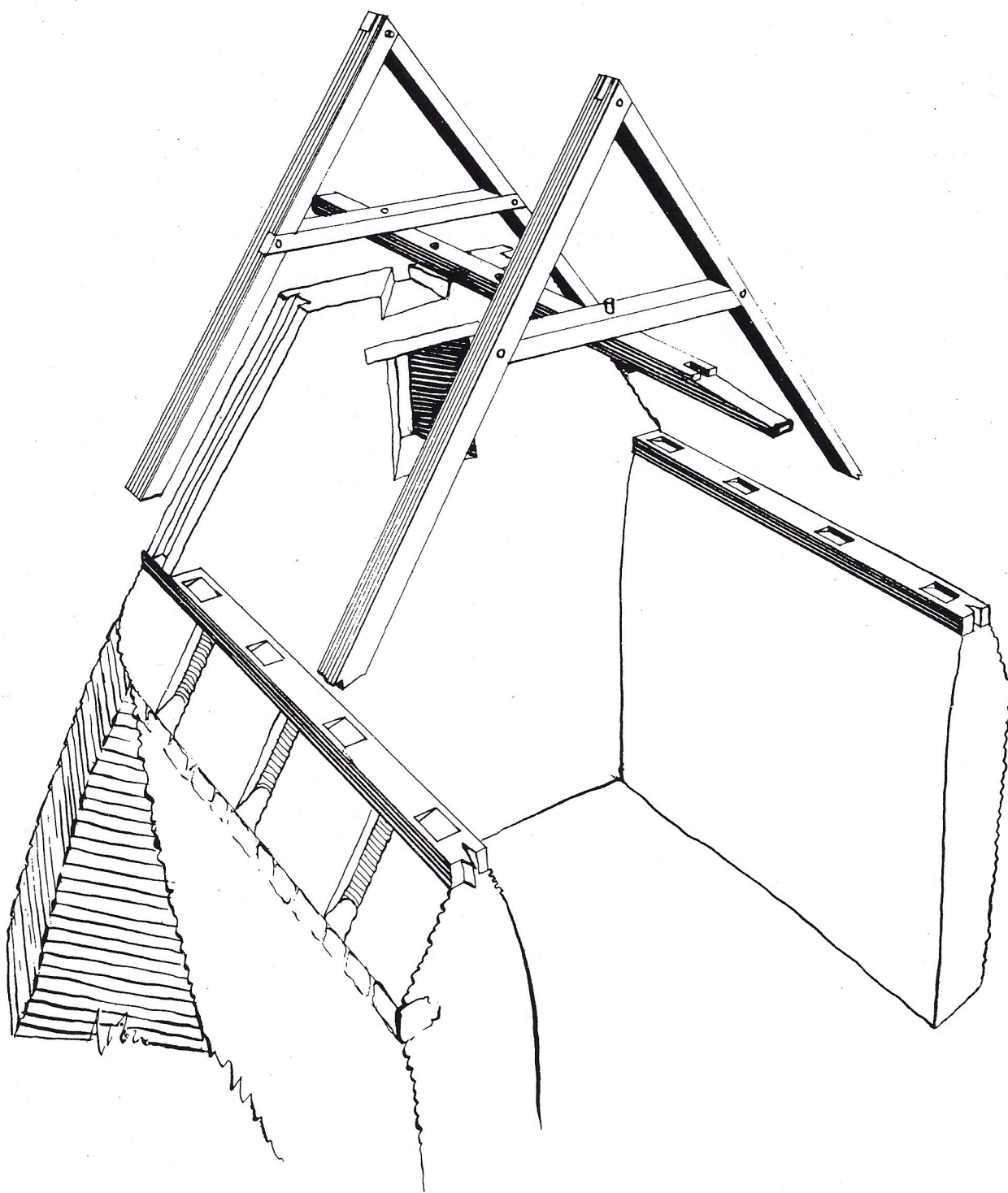


Fig. 43. Original and subsequent roof-mounting at Harlowbury.

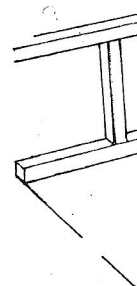
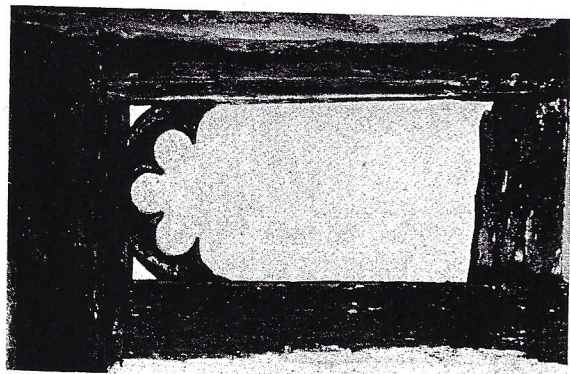
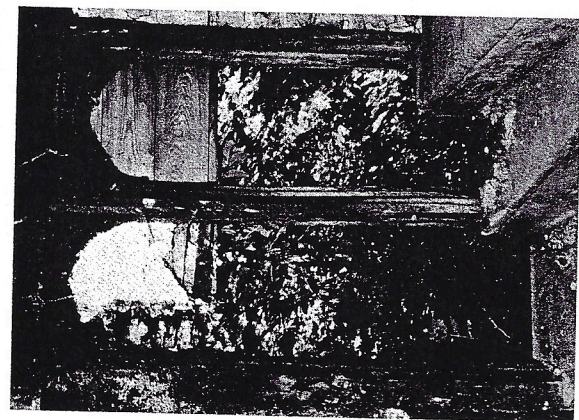


Fig.

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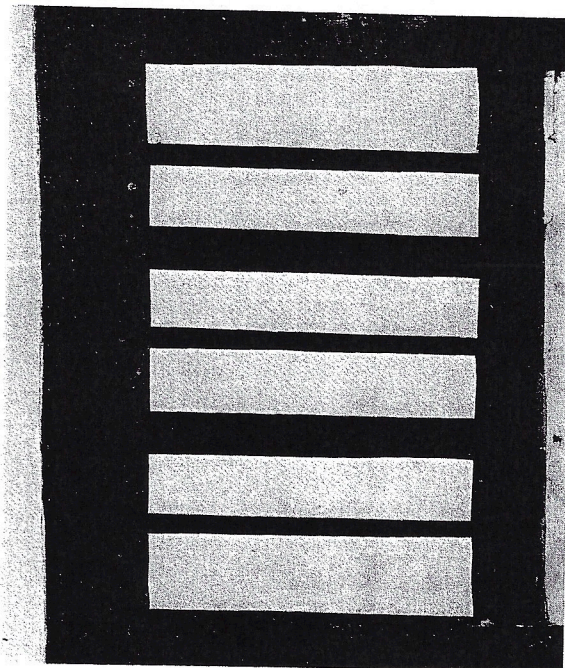
[214] Kent. Late 15th century.



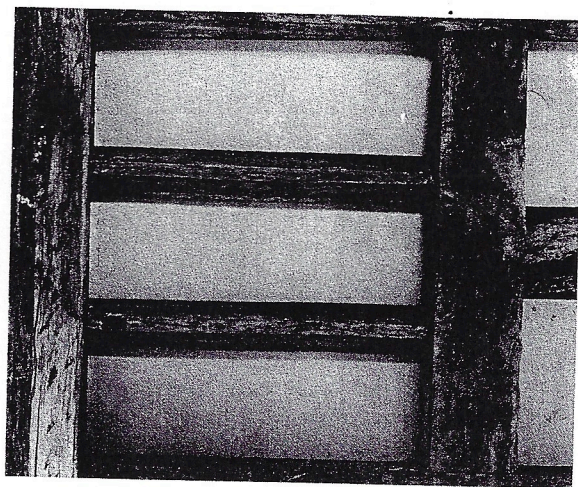
[230] Kent. Mid 15th century.



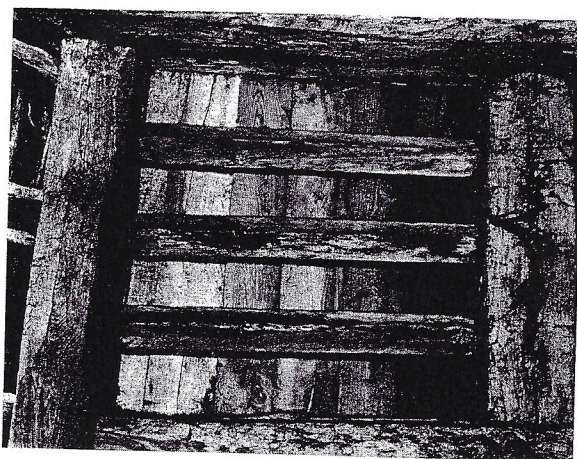
[22] Cheshire, Austerson Old Hall. Mid 17th century.



[341] Oxfordshire, Thame. Late 17th century.



[124] Essex. Late 17th century.



[419] Sussex, Crawley. c. 1500.

SITE D'ÉTUDE

Manoir du Val Saint-Pierre (76201)

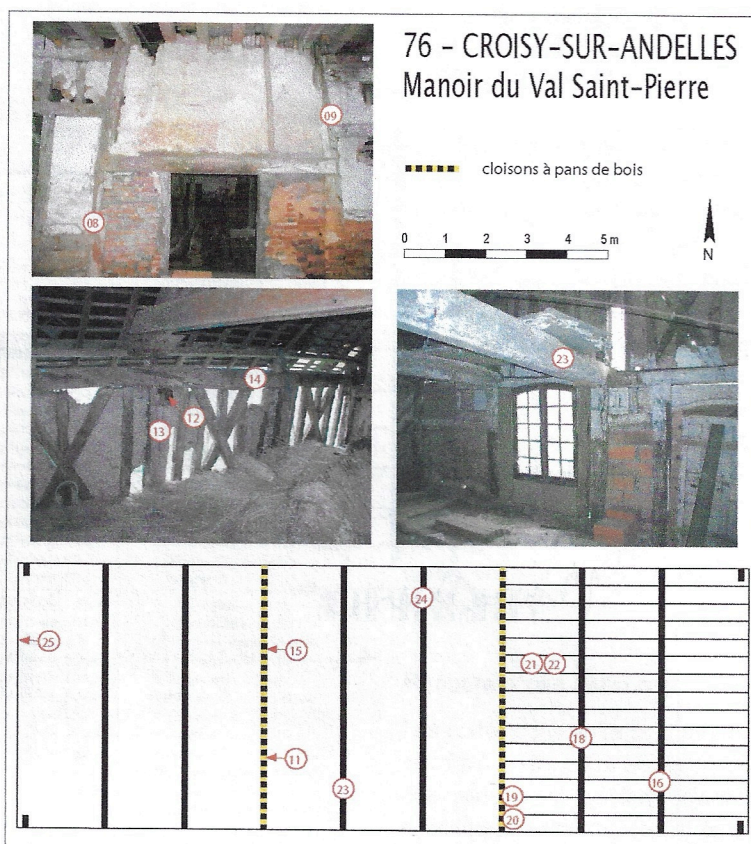
CADRE DE L'INTERVENTION

Ces analyses dendrochronologiques s'inscrivent dans le cadre du projet de restauration du Manoir du Val Saint-Pierre financé par son propriétaire, Alain Mariat.

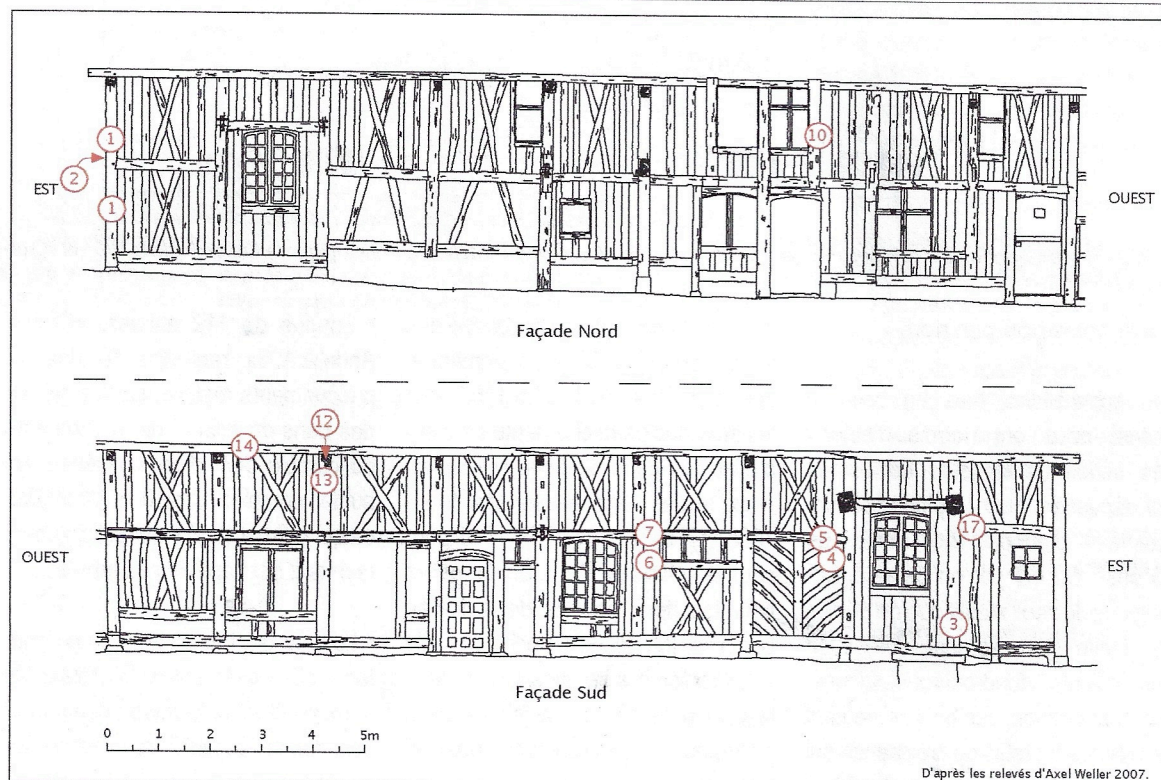
L'ÉCHANTILLONNAGE

Au Manoir du Val Saint-Pierre, l'échantillonnage aura permis la collecte de 25 échantillons répartis sur les différents pans de bois, la charpente de comble, le plancher de la partie est ainsi que sur les deux poutres (de plancher ?) centrales. Ils proviennent des principales pièces de ces différentes structures (poteaux, entretoises, entrait, poutres et solives), ainsi que de deux lattes récupérés sur la sous-face du plancher.

▼ ► • Fig. 1 - Localisation des prélèvements dendrochronologiques •



- 11





• Fig. 2 - Synchronisation des composantes en valeurs naturelles des moyennes dendrochronologiques « Croisy/Andelle.106 » et « Croisy/Andelle.003 » •

L'INTERDATATION DES BOIS

Les échantillons, tous en bois de chêne, nous ont permis d'obtenir des séries de largeurs de cernes qui dépassent pour la plupart la cinquantaine d'années (âge moyen de 63 ans). On est par conséquent au-dessous du seuil statistique de 80 ans qui limite normalement l'utilisation des calculs dendrochronologiques. Mais par chance, ces bois présentent des chutes brutales de croissance qui marquent des années particulière-

ment mauvaises pour l'ensemble des arbres exploités. C'est notamment le cas en 1538 et de 1557 à 1559 pour les individus de la charpente de comble et des pans de bois. Mais c'est aussi le cas dans les années 1684-1688, 1709-1711 et 1743-1745 pour ceux du plancher de la travée est et pour les deux poutres de la travée centrale (fig. 2). La recherche de synchronisme s'est ainsi trouvée facilitée et a permis de constituer deux moyennes dendrochronologiques distinctes :

- Longue de 119 années, «Croisy/Andelle.106» regroupe 10 des 17 prélèvements réalisés sur les pièces des pans de bois et de la charpente de comble dont deux possèdent un aubier complet (Croi10 et Croi06M), ce qui permet de donner précisément la date d'abattage de ces arbres,

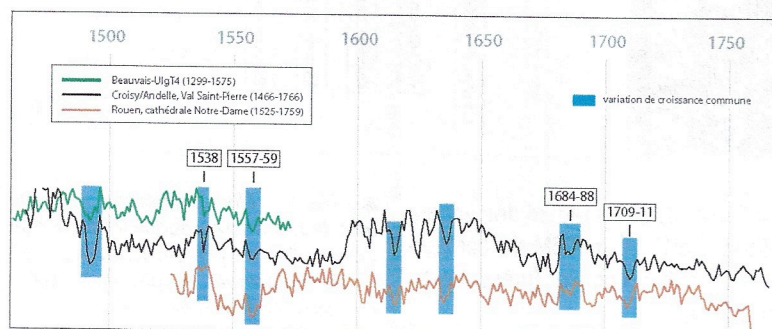
- Longue de 198 années, la chronologie «Croisy/Andelle.003» réunit les deux poutres de la travée centrale et cinq des six échantillons prélevés sur le plancher est. L'un d'eux dispose

Calculs	période proposée pour les séries	nom des séries à dater	références interrogées
t de Student	sécurité théorique	début fin	
5,42	1	1568 1763	Croisy/Andelle.003
4,2	0,9999	1568 1763	Croisy/Andelle.003
4,32	0,9999	1568 1763	Croisy/Andelle.003
3,93	0,9998	1568 1763	Croisy/Andelle.003
3,73	0,9997	1568 1763	Croisy/Andelle.003
3,65	0,9997	1568 1763	Croisy/Andelle.003
3,72	0,9997	1568 1763	Croisy/Andelle.003
3,73	0,9997	1568 1763	Croisy/Andelle.003
3,73	0,9997	1568 1763	Croisy/Andelle.003
3,55	0,9996	1568 1763	Croisy/Andelle.003
3,59	0,9996	1568 1763	Croisy/Andelle.003
3,55	0,9996	1568 1763	Croisy/Andelle.003
3,61	0,9996	1568 1763	Croisy/Andelle.003
3,32	0,9995	1568 1763	Croisy/Andelle.003
3,27	0,9993	1568 1763	Croisy/Andelle.003
3,2	0,9992	1568 1763	Croisy/Andelle.003
3,24	0,9991	1568 1763	Croisy/Andelle.003
3,26	0,9991	1568 1763	Croisy/Andelle.003
3,16	0,9991	1568 1763	Croisy/Andelle.003
3,19	0,999	1568 1763	Croisy/Andelle.003
3	0,998	1568 1763	Croisy/Andelle.003
2,91	0,9969	1568 1763	Croisy/Andelle.003
2,69	0,9955	1568 1763	Croisy/Andelle.003
2,72	0,9954	1568 1763	Croisy/Andelle.003
2,68	0,9951	1568 1763	Croisy/Andelle.003
2,61	0,995	1568 1763	Croisy/Andelle.003
4,91	1	1466 1585	Croisy/Andelle.106
4,2	0,9999	1466 1585	Croisy/Andelle.106
4,3	0,9999	1466 1585	Croisy/Andelle.106
3,99	0,9999	1466 1585	Croisy/Andelle.106
3,93	0,9998	1466 1585	Croisy/Andelle.106
3,97	0,9998	1466 1585	Croisy/Andelle.106
3,61	0,9996	1466 1585	Croisy/Andelle.106
3,63	0,9996	1466 1585	Croisy/Andelle.106
3,55	0,9996	1466 1585	Croisy/Andelle.106
3,51	0,9996	1466 1585	Croisy/Andelle.106
3,44	0,9995	1466 1585	Croisy/Andelle.106
3,24	0,9992	1466 1585	Croisy/Andelle.106
3,26	0,9991	1466 1585	Croisy/Andelle.106
3,13	0,9978	1466 1585	Croisy/Andelle.106
2,86	0,9967	1466 1585	Croisy/Andelle.106
2,85	0,9966	1466 1585	Croisy/Andelle.106
2,79	0,9961	1466 1585	Croisy/Andelle.106
2,75	0,9959	1466 1585	Croisy/Andelle.106
2,72	0,9954	1466 1585	Croisy/Andelle.106
2,67	0,9953	1466 1585	Croisy/Andelle.106
2,68	0,9951	1466 1585	Croisy/Andelle.106
2,6	0,9945	1466 1585	Croisy/Andelle.106
2,48	0,9923	1466 1585	Croisy/Andelle.106
2,47	0,9921	1466 1585	Croisy/Andelle.106
2,42	0,9908	1466 1585	Croisy/Andelle.106
2,45	0,9905	1466 1585	Croisy/Andelle.106

référence(s) locale(s)

▲ • Fig. 4 - Table (extrait) de propositions du calcul dendrochronologique pour dater les chronologies « Croisy/Andelle.003 » et « Croisy/Andelle.106 » •

▼ • Fig. 3 - Synchronisation de la moyenne dendrochronologique « Croisy/Andelle.004 » en valeurs naturelles sur les référentiels •



d'un aubier complet, ce qui permet là aussi de donner précisément la date d'abattage de ces arbres.

Ces séquences moyennes ont ensuite été confrontées aux références de notre banque de données les plus pertinentes chronologiquement et géographiquement. Le bon résultat statistique n'est pas le seul critère recherché ici ; la répétition d'une même proposition entre plusieurs références constitue véritablement une aide dans le choix d'une datation. L'acceptation d'une proposition de datation n'est, bien sûr, opérée qu'après vérification visuelle du bon niveau de concordance entre la courbe à dater et les courbes de référence.

RÉSULTATS DES DATATIONS

Les corrélations entre la chronologie « Croisy/Andelle.003 » et les références consultées, qu'elles soient régionales ou extra-régionales, se sont avérées d'excellent niveau (fig. 3) : le risque d'erreur est insignifiant sur la période 1568-1763, ce qui permet de considérer la datation de cette première chronologie comme acquise.

En ce qui concerne la seconde séquence dendrochronologique, les propositions des calculs sont également excellentes sur les principales chronologies de référence disponibles (fig. 3). Ils situent le premier cerne mesuré en 1466 et le dernier en 1585. Nous pouvons aussi considérer cette datation comme acquise.

Ces deux séquences se synchronisant donc sur une courte période, il a été possible de les réunir en une seule et même moyenne dendrochronologique : « Croisy/Andelle.004 » (fig. 2 et 4).

DATATION RELATIVE

La présence des aubiers, et à plus forte raison des cambiums (assise génératrice dont l'observation atteste de la présence du dernier cerne, soit l'année d'abattage) est indispensable pour permettre d'attribuer à chaque bois une phase d'abattage. Parmi les échantillons datés :

- Trois individus présentent un *cam-bium*. Il s'agit d'un poteau de la façade nord (Croi10), d'une entretoise de la façade sud (Croi06M) et d'une des poutres de la travée centrale (Croi24).

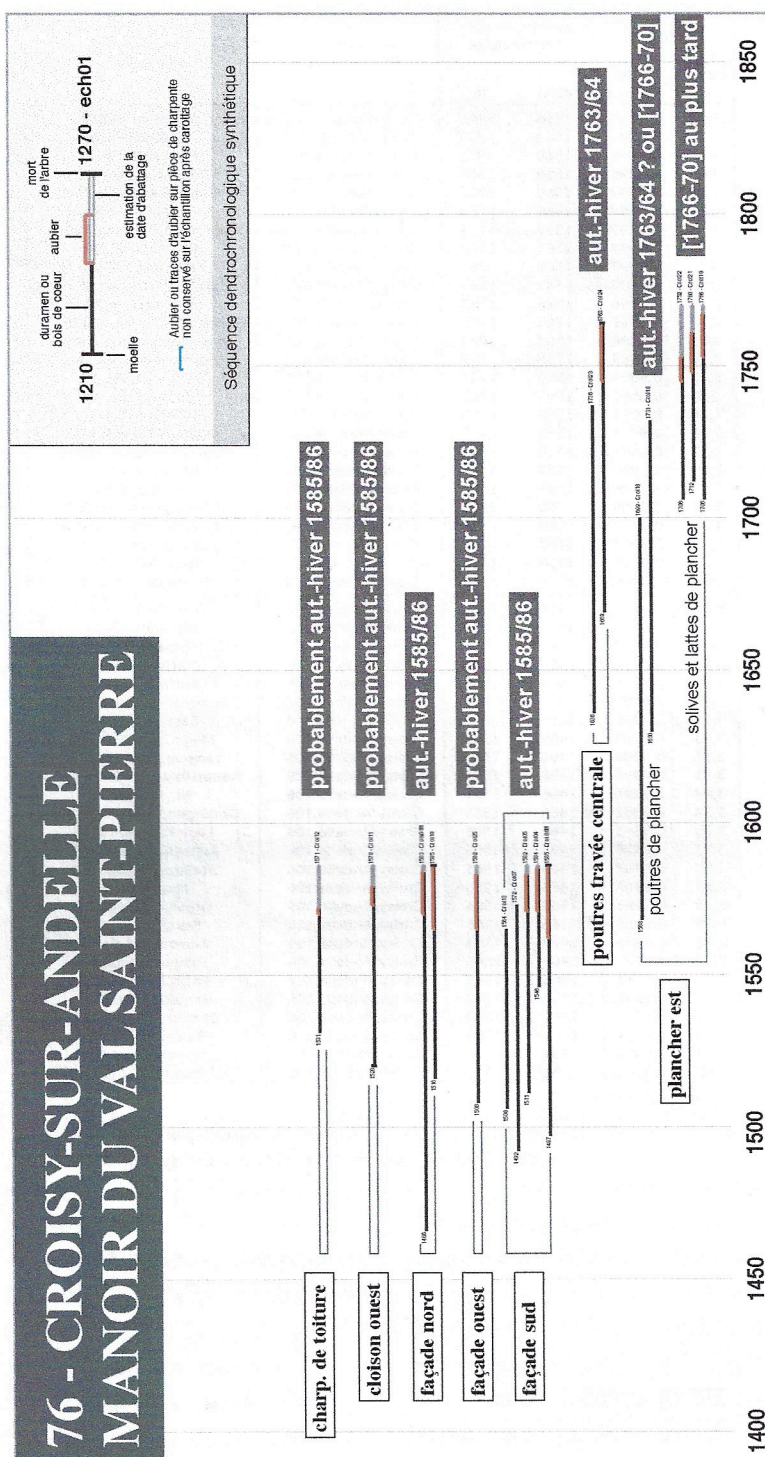
- En dehors de ces individus, 9 autres présentent toujours un aubier partiel, soit endommagé par les insectes xylophages, soit entamés par l'équarissage. Malgré cet état, ces bois peuvent livrer de bons indices sur la phase de construction à laquelle ils appartiennent.

- Les échantillons restants ne sont plus représentés que par du bois de cœur (*duramen*), ou présentent un terminus qui correspond à l'interface du *duramen* et de l'aubier. Ces bois, là encore, même dépourvus d'aubier, se révèlent importants pour rallonger la chronologie générale du site, et assurer ainsi la datation de ce qui deviendra notre référentiel local. Ils peuvent aussi déterminer des phases de restaurations, visibles uniquement sous la forme de ces pièces.

CHRONOLOGIE GÉNÉRALE

Au regard des éléments datés, trois phases d'abattage/construction peuvent être identifiées (fig. 5 et Tableau des composantes) :

1 - Ainsi, la phase qui voit l'installation du manoir primitif peut être située en 1585, et probablement même entre le mois d'octobre 1585 et le mois



de février 1586 au regard des échantillons Croi10 et Croi06M qui comportent un aubier complet (présence du bois final),

▲ • Fig. 5 - Blocs-diagramme représentant de façon schématique les séquences individuelles au sein des moyennes dendrochronologiques «Croisy/Andelle.003» et «Croisy/Andelle.106» •

2 - La deuxième phase d'abattage situe l'insertion des poutres de la travée centrale à l'automne-hiver 1763/64, et peut-être même celle des deux poutres de plancher de la travée est puisqu'elles ne présentent aucun cerne d'aubier (*post quem* de 1731). Mais les datations obtenues sur les solives et les latis (phase 3) qui reposent sur ces poutres peuvent également suggérer qu'elles aient été mises en place au cours d'une autre campagne de travaux,

3- qui serait intervenue probablement entre 1766 et 1770 au plus tard si l'on en juge par la proximité des derniers cernes mesurés de l'ensemble des solives et des latis de ce plancher.

▼ **TABEAU DES COMBSANTES**

Ensemble	Structure	Type pièce	N° bois	Long.	Origine (1)	Terme (2)	Moelle	Aubier	Cambium	Date maxi (3)	Esti. date d'abattage (4)
Manoir	charpente de comble	entrait	Croi2	41	1531	1571	-	1569	-	1603	aut-hiver 1585/86 après J.-C. ?
	cloison est	poteau	Croi08	25	non daté	non daté	non daté	non daté	non daté	non daté	non daté
		poteau	Croi09	23	non daté	non daté	non daté	non daté	non daté	non daté	non daté
	cloison ouest	poteau	Croi11	59	1520	1578	1570	1572	-	1606	aut-hiver 1585/86 après J.-C. ?
		poteau	Croi15	42	non daté	non daté	non daté	non daté	non daté	non daté	non daté
	façade est	poteau	Croi02	33	non daté	non daté	non daté	non daté	non daté	non daté	non daté
	façade nord	poteau	Croi01M	118	1486	1583	-	1569	-	1603	aut-hiver 1585/86 après J.-C.
	façade ouest	poteau	Croi10	70	1516	1585	-	1564	1585	-	aut-hiver 1585/86 après J.-C. ?
		poteau	Croi25	75	1508	1582	-	1564	-	1598	aut-hiver 1585/86 après J.-C. ?
		décharge	Croi04	39	1546	1584	-	1570	-	1604	-
		entretroise	Croi05	72	1511	1582	-	1570	-	1604	-
		entretroise	Croi06M	89	1497	1585	-	1561	1585	-	aut-hiver 1585/86 après J.-C.
Manoir	façade sud	entretroise	Croi07	81	1492	1572	-	-	-	-	-
		poteau	Croi13	59	1506	1564	-	-	-	-	-
		poteau	Croi03	45	non daté	non daté	non daté	non daté	non daté	non daté	non daté
		sablère	Croi14	33	non daté	non daté	non daté	non daté	non daté	non daté	non daté
		entretroise	Croi17	55	non daté	non daté	non daté	non daté	non daté	non daté	non daté
	plancher est	poutre	Croi16	102	1630	1731	-	-	-	-	aut-hiver 1763/64 après J.-C. ?
		poutre	Croi18	132	1568	1699	-	-	-	-	non daté
		solive	Croi20	-	non daté	non daté	non daté	non daté	non daté	non daté	non daté
		solive	Croi19	61	1706	1766	-	1762	-	1786	entre 1766 et 1770 après J.-C. au plus tard
		latis	Croi21	49	1712	1760	-	1747	-	1781	-
Manoir	poutres (de plancher ?) travée centrale	latis	Croi22	47	1706	1752	-	1744	-	1778	-
		poutre	Croi23	101	1636	1736	-	-	-	-	-
		poutre	Croi24	95	1669	1763	-	1744	1763	-	aut-hiver 1763/64 après J.-C.

(1) soit le premier cerne mesuré de la séquence individu.
 (2) soit le dernier cerne mesuré de la séquence individu.
 (3) estimation établie selon l'écart-type fixé par le Laboratoire de Chrono-Ecologie (UMR 6565) de Besançon, soit 19,15 de cernes d'aubier dans 96,5% des cas.
 (4) estimation établie à partir de l'observation des pièces de charpente avant et après échantillonnage (aubier quasi-complet ou cambium partiellement détruit par le carottage).