

# Recording and interpretation of tool marks on historic roof structures in the Walloon Region (Belgium)



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## *Interpretation of woodworking tool traces<sup>1</sup>*

At this stage of the study interpretation of tool traces on timber in the Walloon Region is based on Czech research by Petr Růžicka and his *Ars Tignaria*-team. They developed a methodology focused on reading and comparing visible tool traces imprinted on the surface of beams. This methodology is based on the research of historical, archaeological, iconographic and especially experimental archeology/carpentry. Its objectives are to distinguish different types of tools used and “to identify ancient working techniques more carefully to truly imitate them”.

After the recording *in situ*, it is possible to reconstruct some or all steps of the carpenters’ timber construction. Like in the case of *hewing* and *sawing*, they leave specific and identifiable traces on the wood:

### Scoring or notching

The carpenter, standing on the trunk most of the time, “divides the round edge into shorter segments by making notches perpendicular to the log axis”. This technique facilitates the next step because the timber between the notches can easily be removed. Generally traces of scoring disappear with the subsequent hewing, but sometimes a vestige like an oblong and triangular notch below the edge of the beam or a small cup in the middle can still be observed.



Scoring



An oblong and triangular notch (Cz)



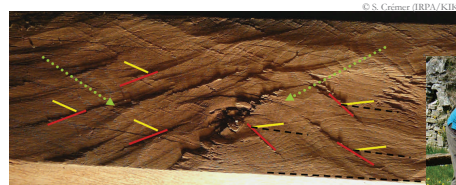
A small cup in the middle. Saint-Hermes-et-Alexandre, Theux (B)

### Hewing

There are several techniques that leave very characteristic traces:

1. The *splinter mark* or *bladeprint* is “a straight or curved split on the surface of the hewn timber” left by the cutting edge of the axe blade after each blow. Their length and number depend on the type of axe, the quality of the blade and the ability of the carpenter. During *low work* (when the log is hewed on the ground), “the carpenter must proceed backwards with an axe as a result of his high position in relation to the log”; the splinter mark will move downwards relative to the horizontal axis of the cut face. During *high work* (when the log is hewed on trestles), the carpenter uses an adze and works in forward direction; the splinter mark therefore will move upwards relative to the horizontal axis of the cut face.

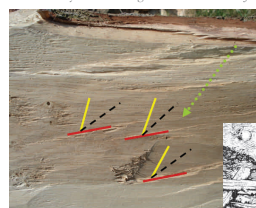
2. The *licks* or *scratches* of the surface are small inconspicuous parallel lines. They are left “on the surface of the cut due to small irregularities in the cutting edge of the instrument”. The angle with splinter mark allows to better identify the type of axe used and the type of work.



Traces left by an axe during the low work. Saint-Jacques, Liège (B).



Low work. P. Růžicka.



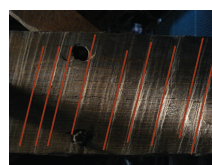
Traces left by an adze during the high work.



High work.

### Sawing by a frame saw

The trace of movement of a saw “shows the trajectory of the cut – the movement of the tooth in relation to the material”. The traces left by a frame saw are parallel, slanted relative to the horizontal axis of the cut face and irregular. Some of them are *deeper*, namely traces of the resumption of sawing after the sawyers had stopped to rest or reposition. For dividing longer beams, the saw was generally directed from both ends. In the middle, when the two parts of the log fall under their own weight, a thick triangular trace appears: the *split-off*.



Traces left by a frame saw.



Split-off. Notre-Dame de la Paix-Dieu, Amay (B).

Of course, other traces and marks can be observed on historic roof structures and can be related to one of the steps of the carpenter’s work such as: traces of transport, application of cut lines, assembly, lifting...

<sup>1</sup> HOFFSUMMER P. & EECKHOUT J. (eds), *Matériaux de l'architecture et toits de l'Europe. Mise en œuvre d'une méthodologie partagée - Materials of Architecture Heritage and historical Roofs of Europe*, Les dossiers de l'IPW n°6, Namur, 2008, 256 p.