PM St Maria Church in Sastamala, Finland 4 July 2023 - Mattias Hallgren, Traditionsbärarna

TRADITIONSBÄRARNA.se

ii -**ii ii ii**

ĩ

- material and the

The visit to St Maria church in Sastamala, Finland, was part of the ongoing research about medieval wooden constructions. I, Mattias Hallgren, am a carpenter and craftresearcher, I participate in several projects contributing with my carpenter's perspective.

Through our reconstruction of the Swedish Södra Råda medieval wooden church, dating 1310 and burned down in 2001, we have gained knowledge about working process, forestry, hewing timber with different methods and tools and also reconstructing a medieval building site while erecting the full scale building step by step.

In 2022 the Södra Råda church was completed. Now we continue our search in other projects focusing on collecting references discovered on the medieval attics and bell towers. As a craft researcher it is important to have a broad perspective, to be openminded and willing to change your mind about things you see. Therefore we search for references outside Sweden, trying to connect findings all over Europe to see patterns in working methods, techniques and tools.

My findings in St Maria church in Sastamala is important for our research, but more important for the history of Finland, because the reused medieval timber says a lot about the disappeared wooden churches.

It's possible to import all data about the reused timber into a computer were you can sort out all pieces, one by one, and turn them the "right way", in trying to rebuild the medieval wooden church. Later in this PM I have an example of this.





The timber is well preserved and gives the opportunity to find slender tool traces from the building process. You can even see a variation of individual carpentry, using axes, drills and scribing methods.

There is also paintings were some of the layout is scribed with a compass to give the lines for the motive. Orange, red, black and white paint. Other paintings are made with black contours on free hand and filled with paint.

The older lower roof construction and the St Maria church is also partly made from the medieval wooden church, even it's older rooftrusses. This in total gives a broad perspective which gives a unique opportunity to gain new knowledge about the art of Finnish medieval wooden churches.







Reusing timber from an older building is common in churches. A good example of this is in Hakarp church, Husqvarna, Sweden, where they used the old timber church as a scaffolding in 1694 when building a new stone church around the old one. Then the medieval timber was reused for the tower and the new roof construction.

We have seen this in several churches built in 1600-1800. It can be interesting to search for medieval timber in later built churches in Finland too. Even "new" built timber churches can partly be made of reused logs.

Through out the Södra Råda project, instead of copying the burned down church we have focused on reconstructing the working methods and tools. In St Maria, I see many interesting details similar to other timber buildings dating 1200-1400.

Hakarp church in Husqvarna, Sweden. Reused medieval wall timber in roof and tower built 1695.







Using medieval working processes and tools as part of the research work.

Constructive geometry

1:10 to 1:1

All timber were made in the forest





We found a few paintings, but there are probably more to find in St Maria.

Södra Råda was famous for its well preserved paintings from 1680's in the nave and 1324 in the chansel.























The wall timber is hewn to a box-shape, not like an ordinary timber building that is hewn on two sides only. Here, as in Swedish medieval churches, the timber is hewn flat on 4 sides, with slightly moss-groove on the bottom side. This is to get the pressure from the building out to the sides of the wall, tightening together for rain and wind. There are no traces from panel or shingles on the outside of the timber.



Trace from the upper log where the pressure has made a "line" in the upper side of this wall timber.

The timber in St Maria has traces of hewing with broadaxe forward, with the log lying on a workbench, not on the ground. The scratches on the edge of the axe have a different angle than the cuts from the axe. This indicates forward hewing. During the medieval period this method was related to continental craftsmen.

CHECKIN LET STOR

\$ 200

There is also wall timber with traces from another hewing method, sprätthuggning, which is the nordic method. In Sweden this disappears in the late 1400th century. After the Black Death era in 1350s, sprätthuggning method is outmaneuvered by guild craftsmen coming from the continent.

In Finland this tradition of sprätthuggning continues longer, though it is done more diagonally, and survives into modern time.

Some timber in the tower of the cathedral of Turku has posts where this hewing method is present. Whether it is medieval timber or made later, I do not know.

Cathedral of Turku, tower construction.

dating 1379

Diagonal sprätthuggning / hewing in swedish medieval churches.

Rättvik church Dating 1300-1400

Skönberga church Dating 1170

The dowels/pegs between the wall timber is mainly round, some adjusted to a more square shape with a chisel. The holes are marked with two scribed lines for the location on the bottom of the timber and over to the inside. The drilled holes don't go through the whole timber, only halfway through the lower and the upper log. We call it "dubbad".

Drilling with an ogar is more effective than you might think. In Södra Råda we have reconstructed ogars after tool traces found in the original burned logs that survived the flames.

In St Maria, the traces in the drilled holes are similar to ogars in S. Råda. You can see in the cleaved hole that it has taken 13 turns to drill 12cm / 5" into the logg.

St Maria

The ogar cuts with the sharp corner

13 turns with the ogar to reach 5" into the log.

1,5" wide

The joints in the wall timber are unusual. I have not seen anything like it before. It would be very interesting to find similar joints in other Finnish churches.

The low flat joints are sometimes placed with a cc of 135 cm, others are located single. There is also flat joints on both upper and lower sides of the same timber, but located diagonally. Is it maybe traces from the timber gable we see? Yellow arrows.

The large joint is probably a corner joint, but it has been cut off with a saw in the middle, so it is not complete. Hopefully there is another joint to find if you search all timbers in here.

The flat joints are similar to the corner joints in shape, but cut lower. Looking at all reused timber will perhaps help to understand the function and original location of the joints in the former church.

6 8

L

9

ICU 5 Huitefors 3

3 ((1 12)

Z

Another cut off corner joint with a tool trace from a cutting axe with 2,5" edge

The wall plates from the old stone church are still there in both north and south sides close to the west gable. They are in bad condition. You can see the open joints for the short dovetailed binder timber between the inner and outer plates.

The older roof construction is also made using reused timber from the medieval wooden church. There are interesting joints and even one "ritual burn-mark" for protecting the former wooden church from fire. "What is already burnt, will not catch fire". It has worked! There are also some diagonally sprätthugget timber in the roof.

Reused timber from the medieval wooden church. All the shorter parts of the construction is made from older timber.

There are some old, possibly medieval, roof boards in St Marias old roof. In the north west lower part, there are some preserved handmade roof boards. They can also be reused from the medieval church.

In Södra Råda chancel we cleaved and hewed all boards for the outer and inner roof 100% by hand, axe, mallet and wedges. This method was used before the sawmill was invented /used.

St Maria roof boards in the north west

Nails and old iron is underestimated in buildings. Studying them can give indications of dating and variation in the work of blacksmiths.

There are also carefully decorated heads on the pegs in the joints of the older roof construction.

B-shaped nail

https://www.diva-portal.org/smash/get/diva2:1682528/FULLTEXT01.pdf

I think the reused material in St Maria church is of international interest compared to similar buildings from this period and has a high historical value.

Specialists from Södra Råda project could participate in the future helping out with more details to be found and documented. I suggest a project with different specialists, together with students that can help collecting all measures and data from the massive amount of reused timber.

If the outside panel in the west gable could be partly removed, it would give even more possibilities to understand the unique material. Inside the wooden gable a temporary scaffolding + safety equipment could be arranged to reach all surfaces, in and outside.

I think the possibility of finding more medieval timber in other churches and bell towers in Finland is good. Craftsmen have always been reusing timber. In a bell tower project in Skara diocese we looked at 27 bell towers and discovered that 25% of them had medieval timber.

For more inspiration about Södra Råda and medieval carpentry, you can look here:

Box timber logs. https://www.youtube.com/watch?v=U8DD5NQ1L7c

Cleaving planks for the roof. https://www.youtube.com/watch?v=nz_d2E6xGCg

This PM was made by:

MATTIAS HALLGREN Carpentarius Ecclesiarum & Molendinum Timmerman, Hantverksforskare Member of ICOMOS International Wood Committee

Hallgren Hantverk AB www.Traditionsbararna.se Yrkesspecialister i samverkan hallgren@traditionsbararna.se 0046 704 22 43 77 Forsvik – Sweden

