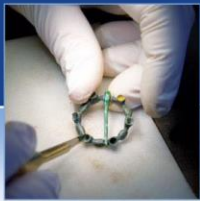


Falkland Palace; dendrochronological assessment

*Anne Crone
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ARCHAEOLOGY

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FALKLAND PALACE; DENDROCHRONOLOGICAL ASSESSMENT

On Mon 11th May 2015 the timberwork at various locations around Falkland Palace were assessed for their dendrochronological potential. The timberwork is briefly described and assessed, and a methodology proposed for their sampling.

The Chapel doors

There are 3 doors opening off the Chapel and 1 opening into the Sacristy, all of which appear to be of some antiquity. All are double-skinned doors with vertical oak boards on the external face lined with horizontal conifer boards on the inner face.

Door 1 - from Gallery into Chapel

This door is constructed of 6 vertical oak boards, the end-grains of which can be seen along the top of the door. However, the inner 2 boards lie under the stone lintel and are therefore inaccessible, while the 3rd board from the inside is somewhat decayed. The ring-patterns of the 3 outermost boards are slow-grown, clear and accessible.

There are 10 horizontal conifer boards, 6 of which display slow-grown ring-patterns. However, there are cracks across some of the patterns and they are all heavily patinated.

Door 2 – from Chapel to Drawing Room

This door is constructed of 4 vertical oak boards, the upper ends of which are all accessible and display clear slow-grown ring-patterns.

There are 9 horizontal conifer boards and 1 modern replacement at the top. All the ends are broken and decayed and are therefore not suitable for analysis.

Door 3 – from Sacristy to Chapel

This door is constructed of 6 vertical oak boards, the outermost of which is larger than the others so that a recess to contain the horizontal components could be cut into it. The inner 3 boards are not accessible because of the stone lintel but the outer 3 boards have clear slow-grown ring-patterns.

There are 10 horizontal conifer boards on the inner face. There is no access to the outer ends of the boards because they are recessed into the outermost oak board but the inner ends are chamfered and the ring-pattern is accessible. At least 5 of the boards appear to have slow-grown ring-patterns.

Door 4 – from Gallery into Sacristy

This door is constructed of 5 vertical oak boards in the same fashion as Door 3, the outermost board recessed to contain the horizontal components. The top of the door is capped by a modern moulding and consequently all the boards are inaccessible.

There are 8 horizontal pine components and 1 modern board. None of the ends of the boards are accessible.

Assessment

It would be possible to sample 3 oak boards on Doors 1, 2 and 3, and 5 conifer boards on Door 3. The reason for sampling the conifer boards would be to determine whether they are contemporary with the original construction of the door or whether they represent a later renovation.

It is unlikely that any of the boards will retain sapwood or the bark edge because they will have been fully trimmed so the analysis would provide a *terminus post quem* for their construction. However, analysis of the oak doors in Stirling Palace has demonstrated that if there is a clustering of end-dates among the boards it is possible to calculate a more precise felling range.

The doors would be sampled by finely sanding and paring the upper ends of the selected boards to make the ring-pattern as clean and visible as possible. The ring-pattern would then be 'captured' using FIMO, a modelling clay which leave little or no residue and which produces durable, measurable casts.

The Chapel screen

The screen is constructed entirely of oak but the end-grain of most of the components is not accessible. The only components where the end-grain is visible are the upper and lower rails of each of the doors. These 4 timbers have been fashioned from squared heart baulks and are relatively young, with a maximum of between 60 to 70 growth rings present.

Assessment

The shortness of the sequences available for the screen reduces the chances of successful dating and analysis would not be recommended on their own. However, as part of a larger assemblage, ie that from the South Range roof the chances of successful dating are much improved.

Sampling would be as for the doors, sanding and paring followed by the creation of FIMO casts.

The South Range roof

All the wood used throughout the roof over the South Range is oak. The structure consists of 45 frames with rafters supported directly on the wallhead. There are 9 double A-frames throughout which may be part of a later construction to support the purlins which support the ends of the sawn-off rafters over the James V dormer windows. There thus appears to be at least 2 phases of construction in the roof.

There are also 18 accessible floor joists, at least one of which displays evidence of re-use in the form of redundant pegholes. Thus, there may be evidence for a third phase of building activity in the roof which does not necessarily relate to the extant structure.

The roof space was viewed in poor light with a torch but there appears to be plenty of timbers with surviving bark edge. A brief count of the ring-patterns on the ends of the sawn-off rafters revealed some fast-grown sequences but more with sequences of between 60 and 90 rings.

Assessment

There is so much timber throughout the roof space that it should be possible to select enough samples of suitable length and with bark edge or sapwood for analysis. There may be as many as 3 phases of building activity and it is therefore recommended that 10-12 oak timbers per phase are sampled. However, selection of the timbers should wait until the building recording has been undertaken and should be done in collaboration with the architectural historian so that the dendro analysis focuses on the key questions that the building recording has identified.

Sampling of the roof structure would be undertaken by coring.

The Gatehouse Turret roof

All the timberwork in this roof is machine-cut oak and is therefore probably part of the early 20th century renovations.

The Stable roof

The stable roof was viewed from the ground some 6 m below the timber framework so details such as the presence of bark edge and sapwood was difficult to determine. Nonetheless, it is clear that amongst the early 20th century renovations there is a great deal of original oak timberwork surviving and that some appears to retain the waney edge. The roof structure consists of 45 A-frames with double collars, and every 5th frame is a double A-frame. Only 3 of the lower collars survive but many of the upper collars survive, as do many of the rafter pairs. Apart from the 20th century renovation there is no obvious evidence from the ground of more than 1 phase of construction.

Assessment

On the premise that there is only 1 phase of construction it is recommended that 10-12 timbers are sampled. However, as with the South Range roof, selection of samples should wait until the building recording has been undertaken.

The logistics of sampling in the roof space will be addressed with the use of a self-propelled scissor lift with an electric motor that can be used inside. The lift is small enough to fit within the stable entrance (2.5 m high x 2.6 m max width) and has a maximum working height of 7.8 m which will give easy access to the roof, the lower collar of which lies 6 m above the ground. The floor of the stables would need to be cleared to allow access for the scissor lift.

Sampling will be by coring.

Summary

The assessment has indicated that the roofs over the South Range and the Stable have great potential for dendrochronological analysis, as do the doors and the screen in and around the Chapel. The GatehouseTurret roof is modern.

Although it is known that James IV and James V transformed Falkland into a Renaissance Palace it is not known with any certainty what elements they were responsible for. The dendro analysis of the doors, screen and South Range roof will be able to disentangle some of the chronological relationships and ascribe ownership to one or other of the kings.

Few doors of this early date survive in Scotland; the only other doors which have been examined are those in Stirling Palace where dendro analysis has demonstrated that they were part of the mid-16th century development of the palace and that the oak boards had been brought from the eastern Baltic (Crone 2008). Analysis of the Falkland Palace doors will add to our knowledge and understanding of door construction of this period and also the resourcing of the Royal palaces.

Similarly, analysis of the South Range roof timbers will enable us to identify the source of the timber; did the Royal builders use local resources from the Royal Forest or did they also have to go abroad for their timber supplies? Indirectly, this will also provide information about the state of the native woodland resource around Falkland at that time.

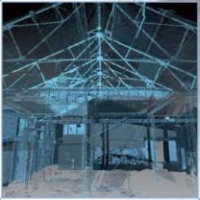
Very little is known about the Stable; there are records of stable buildings being built and repaired in the 15th, 16th and 17th centuries but it is not clear whether they are referring to the extant building. The roof as it survives now looks like a single build (apart from the modern renovation) so it is possible that the entire roof

is a late addition. If the roof proves to be 17th century in date it will be a significant addition to a very limited dataset of 17th century buildings in Scotland with surviving roofs of oak timber (Crone & Mills 2012, 353). Dendro analysis will be able to resolve the date of the surviving roof, if not the stone structure, and again, it will be possible to identify the source of the timber used in the Stable roof, whether it was native-grown or imported, and chart the changes in resourcing by the Royal Palace.

References

Crone, B A 2008 'Dendrochronological analysis of the oak and pine timbers', *Stirling Castle Palace. Archaeological and historical research*. <http://sparc.scran.ac.uk>

Crone, B A & Mills, CM 2012 'Timber in Scottish buildings, 1450 - 1800; a dendrochronological perspective', *Proc Soc Antiq Scot* 142, 329-69.



AOC Archaeology Group, Edgefield Industrial Estate, Edgefield Road, Loanhead EH20 9SY
tel: 0131 440 3593 | fax: 0131 440 3422 | e-mail: edinburgh@aocarchaeology.com

www.aocarchaeology.com