

Dendrochronology at Parham

Although Parham appears to be built of stone, great quantities of timber were used in the original construction – for the roof, as beams and joists to support floors, and for walls between several of the rooms. Even early floorboards survive in the upstairs rooms. This has made it possible to work out when the main structure of the house was completed by using dendrochronology, in conjunction with documents and other physical evidence.

Dendrochronology is the science of dating timber by close examination of the rings produced as the tree expanded in girth with each growing season before it was felled. Trees grow at different rates according to the climate. To date a sample, it is compared with data from trees of the same species from the same region. Oak, the tree most commonly used in timber-framed buildings, is the best documented species in all the databases that are available. Results for individual buildings are collected and regularly published by organisations such as the Vernacular Architecture Group. The process involves a 'core' of timber being drilled at a precise angle through the rings. When it has been extracted this sample looks like a thick, horizontally-striped pencil. If a sample has enough rings (at least 50), the felling date of the tree can be determined, often to the year and sometimes even

the season, spring or autumn. Such accuracy can be achieved only if a sample includes the heartwood of the tree and either the sapwood under the bark or, better still, the bark itself.

The Parham survey

The dendrochronological survey took place in autumn 2006. The aim was to date each part of the massive roof and so reveal the completion date for each section of the building. Rafters and purlins are much easier to date by this method than joists and floorboards, which are generally too small in section to produce satisfactory sample cores and are more likely than roof timbers to have been repaired or replaced.

The programme of sampling was very fruitful. Dendrochronologist Andy Moir (below) took 19 usable samples from timbers throughout the roof. One gave a felling date of spring 1736, and another the winter of 1735–6. Both were later identified as belonging to a repair to the original roof structure. All the other samples gave felling dates between 1577 and 1580, consistent with the known start of building at Parham in January 1578. In other words, all the roofs were newly constructed for the Elizabethan house and have survived remarkably intact, though patched up where necessary.

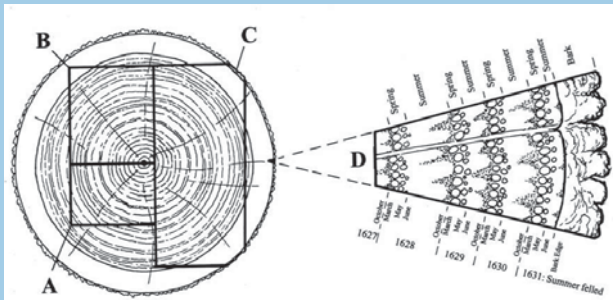


Figure A (above left): Tree section, showing how different ways of converting the tree to timber give different information. Area A will show that felling was after a particular date; B will give a felling date-range; and C a precise year. Area D (enlarged) shows the outermost rings of the sapwood, which can give the exact felling season (e.g. summer 1631). Drawing by Dan Miles



Figure B: Andy Moir taking samples from Parham's roof. Figure C: A core of timber.