

THE RETENTION OF HISTORIC EVIDENCE DURING

THE REPAIR PROCESS

Patrick D. Faulkner

The principal reason for which we consider historic buildings worthy of preservation is that they are primary sources of our knowledge of the era in which they were built. They are, if we have the wit and skill to read them, documents from which we may gather our knowledge of almost every aspect of the culture that produced them. There can be no doubt that the higher forms of culture are expressed in what we normally refer to as great works of art whether they be in literary form as a sonnet or a novel in graphic form as in the great paintings or drawings such as those by Leonardo da Vinci, or work of the sculpture as Bernini or in great buildings exemplified by works such as Sta. Sophia in Istanbul and others too numerous to mention. These are all media for the deepest philosophical expression that display civilization at its most sophisticated using pen, paint brush or chisel or drawing board as the means of communication, only rarely the saw or the plane or the adze and it is there, Mr Chairman, that we are here gathered together to consider. I will not for a moment suggest that great works of art have never been produced by a carpenter, my own country, England can bear witness to this for we possess many works of great architecture merit produced in timber. Hugh Herland's splendid roof at Westminster must surely fall into this class.

Nevertheless, such works of pure art as Velazquez' Immaculate conception, though expressing the spirit of the period, tell us little of the life of the ordinary people of Spain during the 17th century. For this we must look to lesser works, to the houses in which they lived, for instance, and the evidence these houses contain of their daily lives, how they lived and in what style.

Whether houses or churches, built in stone or timber of international or local significance all historic buildings are documents whose value lies in the information they contain as to the habits and skills and standard of living of the generality of the people.

It is an essential part of the skill of the preserver that he should be able to read these documents, evaluate their significance and so preserve or stabilize them as to retain that significance.

In both stone and timber buildings, but more particularly the latter, the significance expresses two aspects of the building, historically of equal importance. These are, first its function or why it was built and why it assumed the shape it did and, indeed, why any individual part did so, and secondly its construction or how it was built, what kind of skills were deployed and what kind of technology was achieved and how far that technology limited the functions or to what extent the functions dictated the technology. Even with the evidence of the actual structure either as a result of our own personal limitations or because the scholarship of today is not yet equipped to do so.

This very doubt makes it ever more important that we should preserve all the evidence contained in the structure whether we understand it or not. It is, in fact, more important to preserve evidence we do not understand than that which we do, so that future scholars can interpret that which is beyond our present understanding.

In general therefore, there is a simple rule in the repair or stabilization of buildings constructed of timber; that we should only replace if absolutely structurally essential and that if replacement is in this manner necessary then it should be in the material and manner in which the building was originally constructed.

In dealing with timber buildings, most of which are framed buildings, we are faced with a special set of circumstances because of the properties of timber as a structural element it is generally true to say that each element is "Live", that is, it performs a structural purpose essential to the stability of the whole. In speaking of a masonry building it would be difficult to say that the removal of any individual stone would necessarily endanger the entire structure; not so with timber. Though this is a material that is incredibly long-suffering, a framed timber structure essentially consists of elements that are mutually self supporting and the removal or weakening of any one will weaken or even endanger the whole. I will return to this but first let us look at an example of how small features can reveal the detailed way in which a building performed its function (as it were, phrases from the document).

In this case, a shop: we know much about the planning and general architectural arrangements of such buildings as relatively common in a town centre in the middle ages as they are to-day, but how exactly did the shopkeeper display his wares? Written evidence, generally in leases or lawsuits, makes frequent mention of stalls or seldae that projected onto the highway but from such sources we do not learn precisely how these were constructed. For this the only document is the building itself. In all countries, the common elements are a door opening into an open shop space that is divided from the street by open arches into which fit the board or platform which forms the equivalent of the modern counter acting both as a sales and a display area, a method of selling still to be seen in many a modern market place. Only a close examination of the building itself and comparative structures gives us the clue which is found in the recess into which are fitted the horizontal supports that held the flat stall board or counter in position and in others the rebate into which this board was accommodated in a vertical position to close and lock the shop when not in use. This is a small feature, a mere recess in the timber which tells us so much about the function of the building and, indeed, about the whole physical aspect of retail trade.

My point in dwelling on this minor aspect is to emphasize the importance of the preservation of structural detail if we are to preserve the significance of the building as a documentary record of its function in society.

Equally, it is of importance to note and understand and preserve the manner of building - the technological understanding which forms the other half of our picture of the whole cultural achievement of any particular age. Again let stress the point by reference to an almost unconsidered trifle. These rafter ends are to be seen in a medieval building in Evesham, in the west of England. These others occur on a Manor House in the north of England. They both assume the same form.

It is reasonable to suppose that this form is not purely decorative but the result of deliberate calculation or accumulated experience. So it proves to be. The object here is to present the minimum area of end grain possible on which water may collect, thus protecting from rot the vulnerable rafter end. Again a small matter but one that gives an insight into the capabilities of the carpenter and his knowledge of his material.

It is, thus, these indications of function or technical skill that it is so important to preserve if we are to do justice to the craftsmen of former days for they enshrine the knowledge of their day and bring us face to face with the creators of the heritage we are pledged to preserve.

We can, in general terms, set out guide lines for the preserver to follow if he is to achieve this object in the preservation of timber buildings. They are first of all to retain the building as a working structural entity and secondly, to avoid, whenever possible the introduction of alien structural elements or, to put it another way to repair timber in timber and in such a way that each individual member performs the structural function for which it was originally designed. In practice this calls for an assessment of the structural and historical significance of each portion of the building and its treatment within these limits according to that assessment.

A simple rafter, for instance, may be repaired by scarfing on a new end (where, as in this instance the original end had been cut away) so that the whole performs the function for which it was designed in the way in which it was designed. This principal need by no means be confined to the modest example shown, the same methods must be applied to larger and more elaborate structures. The roof of the Great Hall of Eltham Palace suffered war damage. The object of repair was not to reinforce it or to replace its timber with another material. Each member was examined and repaired, as was this brace in such as to perform its design function.

One of the most significant aspects of timber construction is the manner by which one member is joined to another. Here again, the same principal should be applied, to ensure that the joint can be repaired in a manner that allows it to perform its designed function while at the same time retaining the maximum amount of original material to maintain the validity of the work as an historic structure. In this joint at Kenilworth Castle only the decayed parts of the joint have been repaired sufficiently to enable the mortice and tenon again to function as designed. A further example is the repair of the head joint of the rafter of a scissor truss at a church at Gloucester where by adding timber to replace that decayed the original joint is being reformed incorporating sufficient of the original timber to prove validity.

The repair of individual joints or members in this manner may well be difficult, if not impossible, to carry out in situ. In such cases it is often necessary and, in fact, sounder from an historical point of view to dismantle the roof (or even whole building) and re-erect it after the repair of individual members and joints on the bench as a working entity, truly preserved without the addition of extraneous material such as steel, etc. It will be seen from this example at Bolsover Castle that it is possible to remove a roof truss by truss and repair the joints before replacing as a sound structure that is wholly original. It is a process that requires much care and careful marking of the timbers in situ before removal.

The repair of joints requires particular care, for the form taken by the joint is a measure of the carpenter's understanding of the behaviour of his material as this notched lap joint designed to withstand the tension in the tie of a sciss or truss will show.

With the best will in the world there must times when recourse must be had to reinforcement. This should always be as discreet as possible and take due note of the position of the timber under repair, ie whether visible or not. Here is a flitched repair in a floor structure that will be covered above with boarding and below by plaster.

I can make no attempt to give a full account of the methods that are available for the repair of timber. In this short account I can only stress the importance of repair of timber buildings in such a way as to maintain their historic validity.

RESUME

LA PRESERVATION DES STRUCTURES HISTORIQUES AU COURS DE LA REPARATION

La préservation des monuments historiques est nécessaire parce qu'ils sont sources de culture et de civilisation. Il est essentiel pour le conservateur de pouvoir en retirer la signification : connaître la fonction du monument et les techniques de sa construction.

C'est pourquoi, il est important de préserver tous les éléments contenus dans la structure, que nous la comprenions ou non. Une simple règle doit prévaloir dans la réparation des constructions en bois : le remplacement, si besoin est, d'un élément par le même procédé et avec le même élément.

Comparées aux édifices en pierre, les constructions en bois présentent des conditions particulières, puisque la caractéristique du bois est d'être vivant.

Le conservateur des constructions en bois doit d'une part, considérer le monument comme une entité structurelle, et, d'autre part, éviter d'y ajouter des éléments nouveaux.