TIMBER DECAY AND REPAIR
The SPAB Experience

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In a sense you could argue that any country that has a document like the Burra Charter has already got its philosophy well sorted out. The Burra Charter was derived from the Venice Charter which was a direct descendant of the Society for Protection of Ancient Buildings (SPAB) Manifesto of 1877. Unlike the later Charters, the Manifesto was poetic rather than prescriptive, but the revolutionary ideas it contained changed the way many people looked at buildings. With the exception of a sentence about not re-using buildings (which we rather ignore), it remains the guiding principle of the SPAB to this day.

The SPAB philosophy of 'conservative repair' was initially little more than a statement of belief and outrage, produced by artists, writers and reformers, as a response to the way medieval churches were being butchered in the name of restoration. It soon matured into a general approach to buildings of every type and age. It was easy for the distinguished architects who led the restorers to ridicule the SPAB philosophy as a do-nothing approach which would condemn a building to disuse and decay, but the work of Philip Webb and other young architects, most of whom were part of the Arts and Crafts Movement, showed the sceptics how conservative repair could be achieved. We now have 110 years' worth of evidence to prove our point.

It is an approach based on a respect for traditional materials and craftsmanship, and a willingness by the architect involved in the repairs to subjugate his own ego. So many of the mistakes of the nineteenth century restorers derived from their fixed beliefs that they knew what was the 'correct' form of the original building they were tackling.

Organic growth

The SPAB by contrast encouraged people to recognise the aesthetic, cultural and historical value of the way that all buildings grow and change, to appreciate that such organic growth is a positive virtue to be welcomed rather than erased.

That is not to say that past mistakes can never be corrected; that poor quality or crass design has to be immortalized simply because it is part of the building's history. But every generation makes different judgments about what is poor design and inferior workmanship. Even the SPAB would happily condone the removal of a 1950s asbestos garage; yet we know that in fifty years or so we could be regarded as philistines.

An old building is interesting because of a subtle combination of elements - its design, its materials, its patina of age and the message of craftsmanship that the building conveys. When repairing a building you have to decide how many of these elements can be removed, or put back, while keeping the building looking old and maintaining its historical integrity. If a nineteenth century wooden building has weathered badly, for example, and important design elements such as glazing bars are missing, then the building has lost rather than gained from the passage of time. But if it is faithfully restored, and in the process loses other qualities that make it old - materials are replaced, structure changed - it changes from being an authentic survival into a mere symbol.

Facadism

Another common example of fakery is facadism - the demolition of all but the facade of the historic building to allow a modern block - usually offices or banks - to be built to the latest standards behind. Though it is usually masonry buildings that suffer, some wooden ones have as well. Indeed at a technical level, wooden ones are rather better suited to it because it is easier to tie the old facade into the new building. Except in rare cases, the SPAB opposes this most strongly. It is a gesture towards conservation of the most hollow sort. Old buildings should be old buildings. They are not something from a Hollywood film set, a piece
Miller's cottage, Britain. All the interest and variations in texture and surface that age had given have been savagely removed. The weatherboarding has been replaced with perfectly-sawn, even boards, the windows have been replaced with badly-detailed and poorly-made mullions, the front door is a cheap hardwood import, mass-produced to the wrong proportions. Only the bricks in the chimneys show that it is not a modern copy.

To some extent the SPAB judges its centuries and its building materials differently. It opposes the rebuilding of established ruins, though would certainly rebuild a fire-damaged and consequently roofless house. It also welcomes the mellowness of time-worn and battered stonework. But wooden buildings decay differently. Lovely old twisted hardwood structural timbers should certainly not be tampered with: but rotten wood, unlike much decayed stone, is usually ugly. The SPAB would certainly not replace timbers that are worn but still functional. But it can be difficult to carry out repairs without interfering to some extent with the sense of antiquity.

Conditions for decay

Wood, we must remember, is a vegetable, and all vegetables suffer from biological decay and attack by predators. But the control of the environment - the levels of moisture and temperature - can radically alter the longevity of any wooden object.

Wood can be damaged directly by heat, cold, moisture and drying - but frequently the elements have their most serious effects indirectly, by creating favourable conditions for insect and fungal attack. In Britain the most common insects attacking wood are the furniture and deathwatch beetles - the latter the more frightening because it attacks heartwood and is much more difficult to eradicate. There is a huge industry offering chemical spray and injection treatments, many of them offering
2. The Old Curiosity Shop in London draws vast numbers of tourists to see the place immortalised by Charles Dickens. In fact the shop was only given the name by an astute proprietor many years after the book became a world-wide best seller. However, this had unexpected value. It is now the only small sixteenth-century timber frame house left in central London, saved by its bogus reputation.

Highly questionable services. The chemicals are toxic, and there is a growing trend to use rather safer alternatives. But more importantly some entomologists now question whether this chemical treatment is effective or necessary, suggesting that careful environmental control - particularly of moisture - is sufficient to make the wood unattractive to most types of wood-boring insects. I suspect this is too extreme and impractical a view, even in Britain, let alone Australia.

However, the same approach is further developed in the treatment of dry rot. The precise conditions that favour its spread - dampness and warmth - are often not diagnosed until it is too late. The established treatment has always been drastic surgery: the removal and burning of all infected wood, stripped back to anything up to 2 metres from the last sign of attack, followed by dousing with chemicals. So, even a small outbreak can cause devastating loss of historic fabric. The chemicals used are also highly dangerous to humans.

Regular maintenance

The reason most wooden buildings disappear is that they become neglected and this allows all the natural agents of destruction to get a hold. But if a building is continuously occupied and the owner constantly ensures that it remains watertight, and that the first signs of insect attack are dealt with, the scope for extending the life of the building becomes almost infinite. Regular and relentless maintenance is one of the most difficult messages to get across. It is at the heart of the SPAB approach. Large numbers of tiny interventions on a regular basis are so much less harmful than long
periods of letting things go, followed by massive and destructive restorations. And there are particular circumstances such as an outbreak of dry rot, where instant action at the first sign of trouble is essential. Even a few days delay can extend the damage several times over. William Morris urged us to:

Stave off decay by daily care, to prop a perilous wall or mend a leaky roof by such means as are obviously meant for support and covering, and show no pretence of other art, and otherwise to restrict all tampering with either the fabric or ornament of the building as it stands.

Conservative repair

Conservative repair as an idea depends on using exactly the right intervention in the right place at the right time - no less but certainly no more. Careful study and observation before a single nail is removed should be the first step. The great temptation with wooden buildings is to start taking them to pieces first to see what the problems are, and less forgivably, what evidence there is of earlier features.

Of course there is always some stripping out, but the idea of ripping wooden buildings apart to find out more about them is anathema to the SPAB. This is where we fall out with some distinguished British experts on timber buildings. They view the frame of the building as being of supreme importance and, in their enthusiasm for investigating the sophisticated joints, they are quite happy to sacrifice everything else - all the elements that make a building a building rather than an abstract construction - the cladding, the infill panels, the floors, ceilings, joinery. All these are at risk of being stripped out in order to give access to the frame, which in turn may be dismantled in order to permit repairs. The building then ceases to exist. With luck, but by no means always, the repaired frame is reassembled, and new materials used throughout to recreate the rest of the building into something like its former shape and plan. The single skin of the Queensland house, of course, makes inspection fairly easy.

Science and technology

Science has come to the aid of the architect by providing various non-destructive surveying techniques, which will no doubt be refined and improved in the future. Some of them, like thermography and X-rays, are still in their infancy. The most useful instruments are those borrowed from medicine - fibroscopes and their relations - which allow an observer to insert a small illuminated probe through a pre-drilled hole in joinery, panelling, or other surface to examine what is happening behind. The results can be difficult to interpret; nevertheless, they enable quite a thorough examination for insect or fungal attack, damp penetration or internal faults, while causing minimum damage.

In dealing with nineteenth century buildings in particular, you are constantly likely to encounter the unexpected. The Victorians were great experimenters and innovators. Every technological change was adopted with gusto. All sorts of strange patent mixtures, compositions, treatments, structural devices and new methods were tried out. Many of them were unrecorded, even where a trade name was known. Many remain mysterious to this day. As such they are often worth preserving in their own right, as evidence of technical inventiveness. However, this can prove tricky, particularly if there are inadequate opportunities for really expert scientific analysis in specialist laboratories. These are far more readily accessible to conservation architects in America than Britain for example.

In several countries science and technology play a dominant part not only in establishing what the problems are but in providing solutions. I am pleased to say that in Britain they are treated with a certain degree of healthy scepticism and I apologise to the scientists here today. This is not because of some ignorant hostility by architects who see themselves as artists (though this can creep in): but because there have been too many cases of new miracle chemical treatments, supported by admirable scientific data, which have been widely used, found to be ineffective or actively harmful, and then discovered to be irreversible. These wonder-cures have been produced in a laboratory with only limited testing on real buildings. It may take fifty years or more for damaging effects to become apparent.
Not surprisingly, we always urge caution - for which we are often criticised. If there is a choice between a traditional solution and a modern untried one, we always opt for the one we know. And if the element of the building is not in immediate danger we would rather it remained untreated than be subjected to some well-promoted but uncertain modern remedy which could do untold damage. It is also important to know who is giving the conservation advice, because there can be a conflict between the museum-based conservator, who knows and understands all the quirks of old buildings - the real menace is the engineer who will be unhappy unless he can measure things precisely. There are plenty of buildings in Britain which defied the laws of physics when they were put up hundreds of years ago, and still do. Bring in a structural engineer who has been trained to look after concrete and steel office blocks and he will recommend all sorts of unnecessary and damaging works. We have a case at this very moment where a highly distinguished firm of engineers has recommenced the virtual gutting of a building followed by extensive rebuilding, where our own advisory engineer has been able to show that something much simpler and less destructive is appropriate. He believes that too many of his colleagues recommend open heart surgery when they should be recommending sticking plaster. He will even recommend, only half-jokingly, that sometimes putting on an extra layer of wallpaper may be quite enough.

Engineering advice

An over-commitment to measurement and scientific discipline is specially dangerous in the field of structural engineering. Conservation definitely needs a breed of engineer who really knows and understands all the quirks of old buildings - the real menace is the engineer who will be unhappy unless he can measure things precisely. There are plenty of buildings in Britain which defied the laws of physics when they were put up hundreds of years ago, and still do. Bring in a structural engineer who has been trained to look after concrete and steel office blocks and he will recommend all sorts of unnecessary and damaging works. We have a case at this very moment where a highly distinguished firm of engineers has recommenced the virtual gutting of a building followed by extensive rebuilding, where our own advisory engineer has been able to show that something much simpler and less destructive is appropriate. He believes that too many of his colleagues recommend open heart surgery when they should be recommending sticking plaster. He will even recommend, only half-jokingly, that sometimes putting on an extra layer of wallpaper may be quite enough.

It really is important that you have structural engineers who understand the aging properties of the different Australian timbers and who are prepared to give the benefit of the doubt to the building. Of course, there may be good institutional reasons encouraging your engineer to play safe and condemn something that is perfectly savable.

In Britain, the engineer will be faced with building regulations and the increasingly serious handicap of professional liability. Thanks largely to the Americans' appetite for litigation, more and more professionals, including all those involved in conservation work, are having to face the prospect of court action over possible mistakes. It takes a very experienced and very brave man to back his judgment in favour of a less intrusive solution for a building than the belt and braces approach of his colleagues.

Good engineering advice can have direct aesthetic and historical benefits. For instance - wherever possible avoid straightening old wooden buildings, unless they are on the point of collapse. Look for the engineer or architect who will tell you how - perhaps by a little strap here or a tie there - you can arrest the movements but retain that crooked effect. This is part of its legitimate history and identity which should not be erased. Also, it is normally far easier to try to repair the new form the building has adopted rather than force it back to what it started out as. I was fascinated to see how successfully Miles Lewis was able to get Gairdner's farmhouse to revert to its former shape.

Use of resins

On the face of it science has come to the aid of conservative repair in providing epoxy and other resins. These are increasingly used in repairs to timber - filling holes, making up missing pieces, bonding, consolidating, all without the need to dismantle. But the SPAB has reservations. Though the precise formulation of the resin, and consequently its properties, varies considerably, it remains fundamentally different in character from the wood to which it joins. Wood and resin expand and contract differently: there is an interface between the two at which condensation, and hence decay, frequently occurs.

A resin in a joint also has the effect of locking it up. Old wooden buildings move. Even the best made joint has a certain flexibility which permits the various stresses in the building to adjust themselves through the structure. This happens throughout the life of the building as new uses weight the building differently. Lock up one joint and the whole system comes to a halt with obvious results.
Resins also have the disadvantage of being ugly, irreversible, expensive and inclined to form unsightly leaks during application. They also deteriorate in ultra violet light, making them unsuitable for external use unless concealed.

In general, the SPAB is only happy with the use of resins as bonding agents used with stainless steel rods or fibreglass pencils. For filling voids in highly inaccessible or delicate positions, and for very limited consolidation in specific circumstances, we feel resins can be justified.

**Materials for repair**

The SPAB has always preferred repair to replacement, not just of highly visible and decorative features such as fine internal joinery, but also the less conspicuous elements that make a building what it is.

As a general principle, the wood used for repairs should be carefully chosen so that its properties match the original as closely as possible. The direction and tightness of the grain can be fairly easy to match: the seasoning is inevitably an unknown. The aim, of course, is to repair with physical properties - of movement and moisture absorption and evaporation - as near identical as possible to the damaged original.

Respect for original materials is an essential element of conservative repair. This underlines a more general point. By insisting on the use of traditional materials, which are often expensive and hard to get, you aid the survival, or sometimes the revival, of traditional crafts and industries. In so doing you help increase the supply and depress the price. So often the excuse for poor substitutes is that the original is unobtainable - and it will continue to be until conservation architects take a firm line.

Architectural salvage is one way of providing missing items for conservation projects. But the SPAB remains luke-warm about it, partly because we prefer to help sustain the continued production of traditional materials, partly because genuine articles from one building inserted in another can inextricably confuse the building's history, but mainly because in Britain the market for salvage is so good that there has been a huge rise in thefts of items such as chimney-pieces from old buildings. Sometimes salvage is unavoidable. Sometimes a replacement material has already established itself in its own right. I suspect that had the SPAB been around in Australia in the early nineteenth century we would have deplored the gradual replacement of shingle roofs with corrugated iron. But this has unquestionably earned its own place as a traditional vernacular material here, and to a lesser extent, in Britain. Do we recognise that there are specific cases where modern materials like steel and concrete serve a valuable purpose. The SPAB has generally supported the use of steel to give structural strength to severely weakened timbers, where a carpentry repair is difficult or inadequate. Better a crutch than an amputation, said Ruskin, one of the founder members of the SPAB. A steel fitch plate can be inserted through the centre of the beam (using a chain saw). Steel can also be used for straps, for plating, and for elaborate support systems.

How much should you try to make the repairs blend in with the old work? Should you try to 'age' the new wood, or colour it so that it matches the original? I hope we would agree that the process known in the antique trade as 'distressing' - bruising mouldings with hammers and so on - should be avoided at all costs. Colouring is more difficult. On the whole the SPAB does not like it. One distinguished committee member, responsible for major timber frame buildings, believes in leaving the repairs to weather naturally. He actively welcomes the fact that there is no deceit, and that future generations will not be misled. However, for the first few years it can look rather odd.

**Fire damage**

Fire is of course one of the greatest enemies of all historic buildings, but of wood in particular. However, following recent fires at York, Hampton Court, and the wooden stand at Bradford City football ground, which killed more than fifty spectators, there has been a certain amount of rethinking about containing the rapid spread of fire (such as vertical smoke venting through compartmentalised roofs).

It is also most important that a severely fire damaged building is not instantly abandoned the day after. If you get in there quickly, get props in, perhaps a temporary roof, a very badly damaged building can still be saved. Make sure that fire brigades are familiar with their local historic buildings, and work out procedures with them.
A paradox

One of the great paradoxes of the historic buildings world is that neglect, ignorance and above all poverty have often done more unwittingly to preserve the past than misdirected enthusiasm and too much money.

In Britain tens of thousands of wonderful traditional buildings have been permanently ruined in the last twenty years. Not by property developers, road builders, or any of the other enemies of the architectural heritage, but by people who sincerely believe they are its friends. They have poured love, commitment, hours of time and much too much money, into restoring their treasured old houses; and the tragedy is that in many cases the result has been a travesty. Houses that have taken hundreds of years to evolve a unique character have been so drastically over-restored that they end up at best indistinguishable from a modern replica, at worst something so bogus that it makes you want to cry. And wooden buildings and wooden joinery have been the first victims.

My concern is that Australia avoids some of the problems of success we are now suffering in the United Kingdom - problems of over-restoration, of inappropriate uses, pressure on public buildings from tourism, and the natural desire of even the most enlightened of us to impose our own view of the past on what survives.