

# Hooke Park

## As a New AA Initiative in Education

Architectural education is passing another milestone. Whilst the reverberation of the 20th-century avant-garde can still be registered, a barrage of questions and choices are facing the next generation of graduates and their educators.

Mark Prizeman argues a case to nourish designing by making as a passionate, cultural, intellectual and human activity. Through making, he concludes, three stages of building a confident architecture are found.

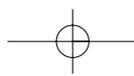


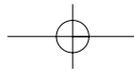
The intellectual superiority that architects forged over being master builders was the act of observational drawing. Robert Adam built his career on the publication of *Ruins of the Palace of the Emperor Diocletian at Spalato in Dalmatia* in 1764. A condensed version of his 'Grand tour', which followed five weeks' intense study on site, Adam produced a book that he touted around London in a carriage drawn by 'two of the finest greys' he could lay his hands on. This thesis is much expanded upon in Baynes and Pugh's 1981 *Art of the Engineer*, which chronicles the development of production drafting and the airs taken by boat builders, amongst others, in conquering the mysteries of constructed perspective.

'Design with Beauty, Build in Truth,' the motto of London's Architectural Association (AA) School of Architecture, positions the architect's contribution to society at the level of a moral obligation rather than as mere compliance to an agenda. The AA was established in 1847 by a group of independently minded architectural assistants who wished to further their education by inviting particular intelligences of their choice to lecture them. It still attempts to fulfil these liberal desires for the furtherance of architectural education.

The Forestry School at Hooke Park, set deep in rural Dorset, was established in the 1980s by the furniture maker John Makepeace with the particular vision and agenda of giving an economic future to sustainable forestry by adding the value of design to timber. Furniture students were trained in a strong mixture of business studies along with their design development. The school was established as an addition to the furniture school at Parnham, and was intended to encapsulate a completely new way of thinking about the means of producing timber-based products from furniture to buildings. Set in a restored plantation of varied stands of commercial timber, it also generated an income from forestry. Since John Makepeace's retirement, the facilities at Hooke Park have now become part of the AA.

The Hooke thesis began in looking at how the materials for making furniture were produced, and questioning the use of exotic imports. This introduced students to the realities of the woodland industries – over 50 per cent of the trade deficit is timber for the construction industry, whilst domestic woodland is left to decay as being uneconomic to harvest, one useful cash crop in the UK being charcoal for barbecues. It was realised that, in the process of growing a crop of timber, there is an enormous wastage of material in the thinning process. Trees are planted close together to make them grow straight, with some being thinned after 10 to 15 years to allow the best specimens to reach maturity unobstructed. These thinnings – trees of between 50 millimetres and 150 millimetres in





diameter – are a worthless material that cannot even be sold as firewood. The objective of giving an added 'value' to waste wood by 'design', thus providing a commercial return for forest thinnings, would create a commercial incentive to manage woodland, improve the remaining timber resource and reduce carbon dioxide production from burn-off.

It was this byproduct of the timber industry that inspired the School of Forestry at Hooke Park, which not only uses this forgotten resource of the coppice, but also uses timber in the most efficient way structurally. The buildings erected use timber in tension and in compression. They include a prototype house built like a tent, a large arched workshop with studio space, and an accommodation block using a lattice mesh for the roof. Designed variously by the architects Richard Burton of ABK and Edward Cullinan in close collaboration with the engineering skills of Buro Happold and Frei Otto, they are unique experimental exemplars of a vision of how to make buildings in a manner that potentially could solve many problems. Compared with building the same structure in laminated timber, the thinnings method uses less than 20 per cent of the forest and far less synthetic resin glue.

Technology transfer is about taking a particular way of making things and applying it to an apparently completely incompatible environment. The Mosquito aircraft was the fastest production aircraft for the first half of the Second World War; known as the 'wooden wonder', it was conceived as a way of bringing the underused industry of furniture makers into the war effort. Made of plywood and balsa, it was regarded with deep suspicion until, on its maiden flight, it managed twice the expected speed. Another unexpected benefit was the resilience to structural damage and the ease of repair by mechanics of average skill.

Wood remaining in the 'round' – that is, not being sawn down which severs the fibres that give timber its strength and its resistance to decay – gives a far higher strength-to-weight ratio. Traditional splitting and cleaving have the same benefits. And in certain situations, timber can be stronger than steel. For instance, take a match and try to pull it apart – you can't. If you then try to break it by pressing hard on both ends, you might. But if you simply snap it in half by holding either end, then you have discovered why conventional methods of timber construction use the material in its weakest form.

The use of 'green' and 'round wood' are ancient techniques. The novelty of the Hooke Park buildings lies in a 'worthless' material being jointed with technologically advanced joints; resin splices and stainless-steel rods with fibreglass bandages stopping the material from fraying, all carefully tested and worked out. Green wood is the art of working wood whilst it still has a high sap content, and is

The concrete jig used to make the De Havilland Mosquito. Sections of wood held in the grooves are then skinned in a sandwich of aero-ply and balsa wood.

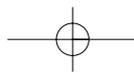
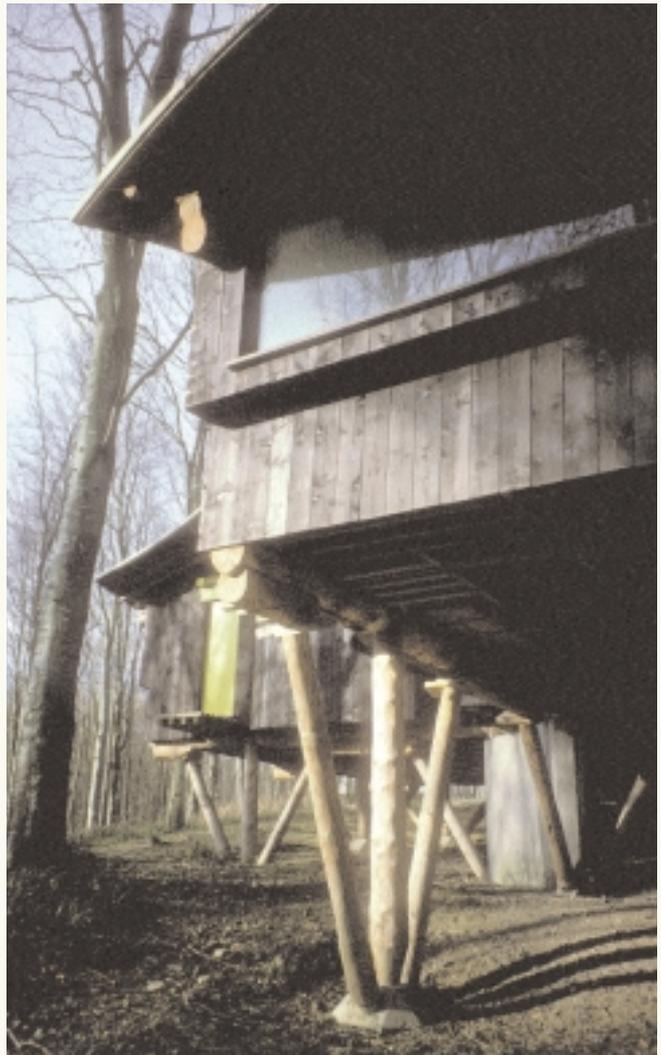


relatively much easier to split and fashion using the adze or saw; the important factor here is that less energy (animal) is used and blade life is conserved. The timber then dries in situ and locks the structure together. Roundwood is used in this fashion to make baskets, a technique that a cursory study of Egyptian architecture reveals to be the first building method used by mankind.

These days, the culture of making is very 'undernourished', our postindustrial consumer culture does not educate its children for a career in making things as of yore. Schools first disposed of their workshop equipment and then their playing fields. Yet as architects we are still expected to know how to control a group of people in the articulate task of making a building. How does one reinvent a passion for making within tertiary education?

The addition of the workshop, accommodation units and working woodland at Hooke Park to the AA's current facilities provides a unique opportunity to develop a fresh agenda for the teaching of architecture through the medium of making. It is a consideration of the possibilities engendered by the space, distant location, local resources and the discipline of the agenda inherited from the Hooke Park Trust that make a re-evaluation of the role of

The Cullinan-designed accommodation block. Adjacent are the footings for a fourth building that will be used to erect the first of the AA-commissioned structures.





The simple structure shielding the circular saw at Hooke Park. Designed by students from the furniture school, it uses the material agenda of green roundwood with intelligent simple joints to make a small, exemplary, useful building.

The interior of the workshop at Hooke park, a structure based on a concept by Frei Otto and engineered by Buro Happold. The basket-like arches are composed of three sections of roundwood, resin spliced and bent into position whilst still 'green'. A concrete ring beam constrains the structure and variations in form at skylight level.



learning to design by making so opportune. By working at one-to-one, the appreciation of scale and the limits of material manipulation become decisive aids to furthering architecture beyond the mere discussion of form and intellectual process. Making things allows the imagination to observe the possible improvements and future development of the idea.

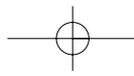
Good design is, like drawing, a question of how hard one looks at something. The act of drawing an object makes one understand it better; army snipers are trained by sketching tracts of woodland to locate carefully concealed squaddies, so increasing their powers of observation. Designing by making takes observation to a greater emotional and intellectual involvement with the developing product of one's musing than the distancing of a drafting process. It is part of the reason why models are so important in the design of buildings, as they bring in to play various other faculties of judgement and involve binocular vision. Assessing a physical model is totally different to assessing a 3-D electronic model for the simple reason of us having two eyes. Beyond any discussion as to the validity of the theories, aesthetics and economics that have informed the design process, one is still left with the reality that

the thing has to be made. As master builders we should have an ingrained passion for putting stuff together to realise whatever ideas we wish to satisfy. The more you make the better you get, or does practice not make perfect?

Recently, what an architectural student gets taught in order to fulfil whatever role society sees fit to give him or her has shifted from providing a creative working knowledge of the Classical orders with a foundation in building details, to the stylistic exercises of Modernism with its opportunities to build on a scale never seen before or since. Further on, through the advent of 'paper architecture' during the recent cycles of building recession, one now finds the architect is intellectually divorced from the contemporary mass provision of buildings worldwide. Now we are embroiled in 'art school'-like debates about the ephemeral, philosophical nature of building, and seem quite happy to let someone spend five years never designing a building only to emerge with the dubious CAD skills that will allow them to slip unobserved into a corporate firm to do competitions like a battery chicken. This may give the external examiners some titbits of modern culture to mull over dinner, or allow invited jurors to keep the work firmly under their conceptual control, but is the pain really justifiable? The ambition for realising a structure, an evaluation of material behaviour and the search for a way to make it within one's limited means involves the disciplines of physical observation and a personal goal.

Conventional instruction in basic building construction does not now take place in architectural education, as the subject is too vast. It is rather by learning how to learn that technology is transferred into the realm of detailing a proposal. Students are taught about construction primarily through the preparation of case studies, an onerous research task that as a teacher one wonders whether it has really been understood. Reading and writing about how things are made means precisely nothing if the author has not physically worked with them directly to understand the possibilities and limitations of a material – any material. It is perhaps also in the realm of giving materials and methods a value, within an agreed hierarchy or morality, concepts such as 'sustainability' are unravelled. These are used as a label and not as a quality, as in heavy or light, loud or quiet. Yet it is only by evaluating the full consequences of using a material or construction system that one can build with responsibility. Asbestos, PVC and concrete all do their jobs admirably, but from certain perspectives are catastrophic.

Models have their limitations, and it is only at full size that a model can begin to operate fully, as the history of the Morris Minor, produced from 1948 until 1972, shows. All of the drawings for the pressings had been done; one drawing for the inner face of a pressed piece of steel, and one for the outer. curves with a difference of the thickness of the steel sheet. After testing, the designer, Alec Issigonis, decided the prototype was too narrow: 'So I went to the shop one evening and I told my mechanics to cut the car in half. Then I went in the morning and we moved it apart – ah, too; ah; too little – no a bit more that way - that's it!'



A mobile home following the attentions of a tornado in Alabama, us. The loss of life and property from the use of unsuitable and unsustainable timber structures is endemic. The economic calculations involved in making houses in the cheapest and fastest manner using the minimum of labour and materials are formidable. It is difficult to redirect this economic leviathan towards another way to produce human habitation.



The abstract sculptor Henry Moore (1898-1986) used this reliquary of forms and objects to inform and inspire his work. The translation of hand-to-eye coordination in the production of his sculptures relied emphatically on physical assessment in three dimensions

The right proportion left a 4-inch gap that was filled with a flat insertion to the pressing drawings. This strip can be best seen on the bonnet of the production vehicle.

Typically, the full-size model for an architectural student has been a 'tent' structure or prototype shelter, perhaps a full-size detail of the student's own design or as a case study – in musical terms a cover version. This at best gives a balance between time, resources and ambition that can produce interesting results. Installation and model making really only represent things, and never are themselves for the sake of themselves. The disciples of Detmar Blow followed the Arts and Crafts tradition of being true to their product by physically involving themselves in the building of their own buildings, Blow having done an apprenticeship in stone working. The architect Geoffrey Lupton, working at Bedales School in Hampshire, with the furniture maker Ernest Gimson, personally split the green-oak beams for the library and hall.

Working with materials at full size is one thing; working with studying the effects of the elements and time quite another. The inventive technical preoccupations of the Architectural Association allow an independent and not prescriptive exploration of the realisation of built form and programme. It is one capable of becoming an advanced research facility into the making of buildings. The addition of an 'artificial sky', a wind tunnel and a climate chamber with exemplary experiments would allow the inventive lateral thinking so advocated by the agenda of Hooke. The aircraft designer Donald W Douglas Senior was renowned for his use of a cigarette in the wind tunnel, developing the

An analogue model of the entire Mississippi basin made by German POWs (mostly generals from the Afrika Korps) at a scale of 1 foot:1 mile horizontally, 1:800 vertically and 5 minutes for a day. It was used until computers took over in the early 1990s to simulate storm bursts as they happened and thus predict the priority of relief provision.



streamlined bc3, an aircraft that made commercial aviation viable. Simulation programs never quite capture the simple nuances of real air, yet this combination of digital control and measurement with physical investigation would be unique for students of architecture.

The material agenda of the Forestry School at Hooke Park was particular and, whilst firmly placing itself in the furniture industry world of design awards and commissions from clients, it also positioned itself away from the rural bodger and his contemporary successors. By allowing an architectural student to observe the unfamiliar world of woodland crafts, many clues for the current architectural obsessions will be found. Traditionally, until the 1960s, woodland crafts supplied a vast array of everyday objects in all shapes and sizes. A revival of interest in this area of human endeavour has yet to be taken to the full implications of building, and many ecological, conservation and environmental answers lie waiting to be discovered.

The potential resource that Hooke Park could give the AA as a hands-on laboratory is yet to be realised. The AA was founded by a group of artiled pupils who wished to arrange their own education. Facilitating the birth of the inner skills of a student is the fragile responsibility of a teacher, not by the imposition of a preconceived prescriptive regime, but by a mutually negotiated positioning. Ultimately, it is the responsibility of students to educate themselves by putting themselves in situations that best facilitate this. How will the desires of the international student body for an informed position within the architectural arcana be helped by inviting an informed body of little-known technical skills into their education?

Many of the original Hooke Park graduates now work from former agricultural buildings in the region; one can imagine a dialogue that will develop a vibrant local culture that can then export its ideas. How does one teach this flavour? First by engaging the designer to produce pleasing designs which, thanks to the innovations inherent within the techniques used, cannot rely on pastiche as a shortfall. So producing a range of thoughts on building types and their architectural/social relationships as poignant as the three exemplary buildings. It is by looking by making that the potential of these first ideas will generate a culture. The three stages in building a confidence in making are first providing a problem to be solved, then a comprehensible range of techniques and, finally, the chance to test it to destruction. ▢

