

ASCEHB

TRANSACTIONS VOLUME 23 1998

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The Association was founded in 1968 by the then staff and students of the Diploma Course in Building Conservation at the Institute of Archaeology in London. The course was suspended in that year, and since then the Association has been actively concerned with the setting up of the various graduate courses now available in building conservation; it has close links with that being run at the Architectural Association.

The Association aims to keep its members informed on all aspects of building conservation by providing a forum for meetings, lectures and discussions, and by arranging visits to buildings, work in progress, and other places of interest such as quarries and workshops. Not less than five meetings are held annually in London at the Institute of Archaeology as well as visits in this country and study tours in this country or abroad. In addition, local meetings of the Association and other visits are organised by convenors in other parts of the country. The Association retains close connections with other organisations in the field and is represented on other bodies, including the Confederation on Training Architects in Conservation, SPAB, Upkeep, and the Standing Conference on Natural Stone. Members receive the regular *Newsletter* and annual volumes of the *Transactions* of the Association in which are published papers given at meetings, reports on visits, and articles submitted by members.

Membership, now some 500 strong, is by invitation and is open to those professionally engaged in work relating to the conservation of historic buildings. Individuals resident overseas and institutions and other bodies may subscribe to the Association and receive its regular publications. The annual membership fee or subscription is £20.

The Association's initials on the front cover have been prepared by Ian Bristow from lettering in Peake's edition of Serlio of 1611.

Association for Studies in the Conservation of Historic Buildings

TRANSACTIONS

Volume 23 1998

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EDITORIAL NOTES

As your new editors, we should start by congratulating the former editor, Stephen Marks, on his remarkable achievement in producing all but the first of the 22 volumes of *Transactions* to date. Stephen has established *Transactions* as a highly respected journal and we are proud – if also a little diffident – to be the inheritors of such a fine tradition. He has also agreed to continue for a while to carry out the production, printing and distribution of *Transactions*, for which we are extremely grateful.

We must apologise for the delay in production of this volume. The transition of editorship inevitably meant some loss of time as we got to grips with the task, and we certainly underestimated the time needed to take articles from initial suggestion to final proof text. However, we hope now to make amends by issuing a special volume 24 on the December 1999 ASCHB Whitehall Conference in the spring, with volume 25 to follow in late summer 2001. With this volume, we have also implemented Stephen's intention (see volume 21) to make *Transactions* a 'refereed journal'.

Our first article, on conservation in Northern Ireland, is drawn from the series of lectures to the Society on conservation in all regions of the UK which reflected on the great developments in the field since ASCHB's formation 30 years previously. It provides some interesting contrasts with the English scene and is delightfully illustrated by the author's own sketches. The case study of the Grandstand at Stamford provides an insight into a rare and specialised building type and illustrates the careful but innovative approach followed to rescue a building in great peril. There is growing concern for the wider fabric of the historic environment, beyond the individual listed building, and the article on unlisted buildings explores the ways in which the net might be spread wider. The account of the repair and restoration of Hill Hall deals both with the details of conservation techniques and the wider issues of conservation philosophy. Our last major article is a fine piece of primary research on the origins of gauged brickwork.

The new editorial team is keen to see a wide variety of material in *Transactions*, on all aspects of the historic environment. The journal provides a rare forum where conservation professionals can share knowledge and engage in debate. The format is flexible, and contributions are always welcome, whether long or short. Please do call or write to either of the editors to discuss any proposals. Guidance on the preferred methods of presentation is available on request.

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Editorial correspondence should be addressed to one of the Joint Editors:

Nick Hill, c/o English Heritage, 44 Derngate, Northampton, NN1 1UH
(tel 01604 735400; fax 01604 735401)

Linda Watson, Plymouth School of Architecture, University of Plymouth,
Notte Street, Plymouth, PL1 2AR (tel 01752 233600; fax 01752 233634)

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CONSERVATION IN NORTHERN IRELAND SINCE 1969

Marcus Patton

This paper is based on a lecture given to the Association on 10th November 1999, one of a series of lectures during the year which focussed on the development of conservation in the 30-year period since the foundation of ASCHB. The illustrations are all by the author, the date in the caption being the date of drawing.

TROUBLES

‘Great empires have been overturned. The whole map of Europe has been changed [in] the deluge of the world ... [but] as the [flood] subsides and the waters fall short we see the dreary steeples of Fermanagh and Tyrone emerging once again. The integrity of their quarrel is one of the few institutions that has been unaltered in the cataclysm which has swept the world’.

Thus Winston Churchill spoke to the House of Commons in 1922, after the Great War had altered the map

of Europe and only the intractable Irish Problem remained to be dealt with. The intractable problem is not solved yet, and sometimes a solution seems not a lot closer than it was in 1922. What has certainly changed is that some of the steeples of Fermanagh and Tyrone, dreary and otherwise – along with many of the town halls and banks and country houses and thatched cottages and modest houses and decent streetscapes of the six counties of Northern Ireland – have disappeared since then, and particularly during the last thirty years.

In selecting as your topic for this series of lectures the

Figure 1 The Ulster Club, Belfast (1980). Designed by Sir Charles Lanyon, who was probably the most celebrated Ulster architect of the 19th century, the Ulster Club was a Unionist bastion in the centre of the city. Although listed, it lay neglected for some years after bomb damage before being sold as a ‘prime development site’ in 1980. Ironically, the modern building which replaced it was occupied for some years by the Historic Monuments and Buildings Branch of the DoE.



subject of conservation in the United Kingdom during the last thirty years, I am sure you had nothing more in mind than the date of your association's establishment. But to people who have lived in Northern Ireland at any time during the last thirty years, the date of 1969 is significant in many ways that have on the face of it little to do with architecture.

In 1968 I was working in Oxford doing my 'year out' from architectural training, the year during which I found out that in real architect's offices they designed system buildings that leaked and rusted almost from the day they were built, and that modern buildings rarely fitted in with their older and usually more dignified surroundings. To distract myself from the awful reality of a career in architecture I got involved with *Isis*, the Oxford University magazine, to which I contributed weekly political cartoons about figures I frankly knew very little about. But in January 1969, a People's Democracy march from Belfast to Derry was attacked at Burntollet, and I found myself being asked to do cartoons about Northern Ireland. Northern Ireland? Surely nothing significant ever happened in Northern Ireland? I already knew from my architectural studies that we had no architecture, that mediaeval cathedrals only occurred in France or Italy, Wren churches happened in London, and that Georgian architecture came no closer than Dublin. Belfast was an industrial backwater that had built the Titanic sixty years earlier and was now only notable for shambolic marches of Orangemen every Twelfth of July, when men in bowler hats and Sunday suits would walk through the streets of our town waving at their pals in the admiring crowds on the pavement.

However, when I got back to Belfast in the summer of 1969 to continue my studies I found that Northern Ireland had changed, irreversibly and awfully. That August the police were battling people in the Bogside; six men were killed in Belfast, twelve factories destroyed, 400 houses wrecked or petrol-bombed and



Figure 2 Park Place, off the Ormeau Road, Belfast (1980). In the seventies, the national press frequently carried pictures of derelict houses like these, allegedly the result of the Troubles. More often they were the result of wholesale redevelopment – the Northern Ireland Housing Executive had designated nearly two-thirds of the residential inner city as redevelopment areas by 1985, while the proposed inner ring road of the seventies had blighted other streets.

1,800 families fled their homes. The Provisional IRA was on the streets by the summer of 1970.

In February 1971 the first British soldier to be killed in Ulster since 1922 was shot. Internment was introduced that August, with disastrously poor intelligence leading to many mistaken arrests, and 23 people were killed during the following two days. In 1972, thirteen people were killed in Derry on Bloody Sunday, and six weeks later two people were killed and 136 injured by the Abercorn bomb in the centre of Belfast. The 'Troubles' were under way.

In those comparatively civilised times, the terrorists operated an unofficial ceasefire on the Sabbath, and as students we would usually be chatting in our flat late on Sunday evenings and be able to check our watches against the midnight bomb going off to mark the beginning of another week. We treated it as a joke, but we knew that if you didn't laugh about the Troubles you would have to cry. In a province of less than one and a half million people, most already knew someone who had been killed or injured; everyone knew someone whose house or business had been damaged, and each time you went into town you would see another gap in the street that wasn't there the week before.

On Bloody Friday on 21 July 1972, 26 bombs went off in Belfast inside an hour, killing 11 people and injuring over 130, many severely. It was a beautiful afternoon and I could see the smoke rising into the blue sky in plumes from the centre of the city. My wife (as she now is) had crossed the city centre that afternoon on the back of a friend's motor bike to catch a train at York Street. She can't remember now whether the roof had been blown off the station before she got there, but when she had made her way through the debris, traffic jams and cordoned-off areas of the city it must have been an hour after the suitcase bomb left on the platform went off there at 2.23pm – and the trains were already running again. Fortunately she hadn't gone to the Oxford Street bus station, where a bomb shortly before 3 o'clock killed six poor souls whose scattered remains were scooped up in plastic bags.

The situation was desperate enough at times, but somehow it was never entirely serious.

Each attempt to arrive at a political solution, however well-intentioned, was greeted by one side or the other with howls of protest. Like the songwriter Percy French (who wrote 'The Mountains of Mourne' and 'Slattery's Mounted Fut'), who apparently 'stood firm against the finest education that money could buy', the people of Ulster contrived to ignore all the blandishments and aggravation that could be thrown at them. My friend David Evans who lectures in the architecture department at Queen's University, was talking to one of the technicians there about the Irish dimensions in the Anglo-Irish Agreement back in 1985. 'Surely,' said David, 'all the various rights of vetoes and so on make such dimensions perfectly acceptable and reasonable?' 'Yes,' said Bill, 'it's Perfectly Reasonable, but we won't Have Anything To Do With It.'

Strangely though, politics doesn't dominate life as rigidly as you might expect. When Sammy Wilson of the DUP (Ian Paisley's party) was inaugurated as Lord Mayor he went on a 'get to know the people' walk in the

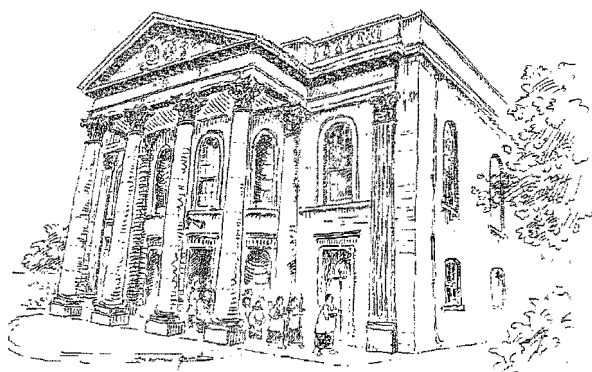


Figure 3 St George's Church, High Street, Belfast (1993). The earliest ecclesiastical site in Belfast is now graced by its third church, built in 1816 by George Bowden. It is one of only four churches in Ireland still with an all-male choir, and it provides excellent choral services in the Anglican tradition. It has recently undergone extensive stone restoration to make good the ravages of numerous nearby bombs in the last thirty years.

grounds of the city hall. Now Sammy is a school teacher and quite cool, he has longish hair and wears leather jackets and rides a motor-bike, and he went up to shake hands with a group of punks. Who the f*** are you? asked one. Sammy told them he was the new lord mayor, and the punk brightened up no end. He said 'Here, sign my jacket will you?' Sammy was about to sign it on the back when his mate said, 'Wait a minute Seamus, are

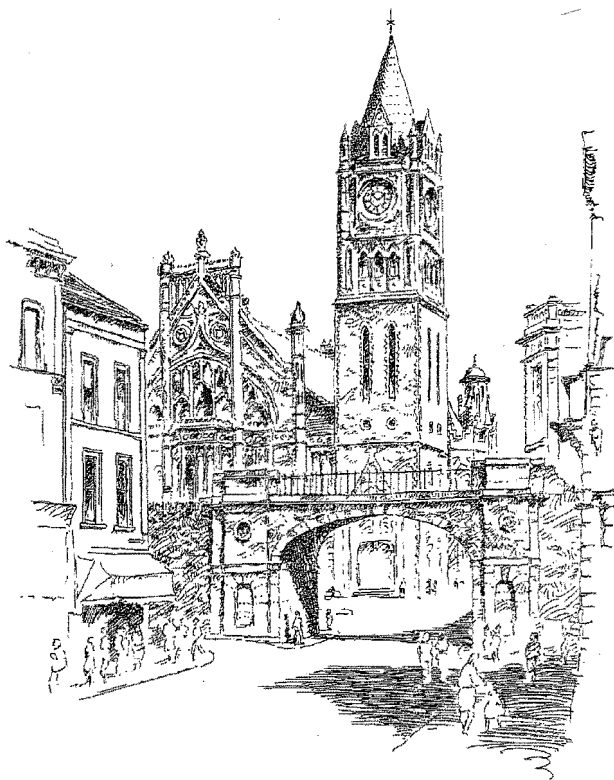


Figure 4 The Guildhall and Shipquay Gate, Londonderry (1984). The late Victorian Guildhall survived a serious fire soon after it was built and a serious bomb in the seventies. The historic walled city of Derry which it overlooks suffered extensive damage in the early Troubles, but more crucially about a quarter of its area was redeveloped as a shopping centre in the early eighties.

you sure about this?' The second punk than gave Seamus a brief rundown on the new lord mayor's politics. Seamus considered for a moment and then said 'Tell you what, could you sign it on the inside?'

Actually it has been pointed out that in Northern Ireland we don't vote for a politician, we vote against everyone else till we find the least unacceptable. In an election poll in 1997, one old man in Kircubbin said he would have voted Communist if one had been standing, but had to settle for Sinn Fein. 'I'm not a republican' he assured the reporter, 'I'm just being awkward'.

THE EFFECT OF THE TROUBLES ON CONSERVATION

Perhaps surprisingly, not many of our major historic buildings have been demolished as a result of the Troubles.

The national press regularly published ghastly pictures of whole streets that had been flattened, or of a few derelict buildings left standing in a wasteland. The implication was that these were areas whose inhabitants had been forced to flee the gunmen and bombers. There might have been some truth in it, but more often the streets had been cleared for road-widening or for housing renewal, exactly the same as in every other city.

Some very good buildings succumbed to plain commercial pressures in the sixties, but ironically many others survived because the troubles scared developers off – the money went down to Dublin, or back to England, and we were left with a great many run-down buildings surviving because no-one wanted them, even as sites.

On the other hand, there was very little conservation in the province during the seventies. If your premises were damaged by a bomb down the street, you shoved in a new shopfront, replaced the glass in the windows, put on a cheap asbestos roof and got back to business as



Figure 5 Patterson's Spade Mill, Templepatrick, Co Antrim (1992). Spades were an essential part of the rural economy of Ireland, and spade mills once a commonplace throughout the island. However when the Patterson family decided to give it up the National Trust took on the last working spade mill in its original location, and restored it to full working order in 1994 without altogether losing the ramshackle chaos of belts and pulleys it displayed when they took it over.

soon as possible. You could not get bomb-damage insurance and the official compensation would arrive a year or two later, with a deduction for any betterment. Even if you could afford to put things back properly the first time, you might be bombed again a year or two later. Many premises were bombed several times, and each time they were put back there was less money to do it, not to mention less original fabric to keep. By the early nineties the terrorists were producing regular block-buster bombs that created massive blast damage, but in the early days the much more frequent bombs often left the shell of a building comparatively unscathed. However I doubt that there is any crown glass left within a mile of Belfast city centre, and there are damn few original windows or doors or glazing bars. As the Troubles have gradually receded over the last decade, developers have moved back, cautiously at first, but now quite rapaciously, and our planners are so used to welcoming development of any kind – one environment minister notoriously said that he would pay anyone that was prepared to put brick on brick anywhere in Northern Ireland – that they are quite unprepared for the desperate damage that is now being inflicted on our towns and cities.

NATIONAL TRUST AND MUSEUMS

Perhaps the only body carrying out consistently fine restoration in Northern Ireland throughout the last thirty years has been the National Trust – founded in the province in 1937 with generous backing of the Stormont government via the Ulster Land Fund – which incidentally held its national AGM in Northern Ireland for the first time in 1999. As part of a national body it has applied the same standards to its work at Castle Ward or Castle Coole as to any English or Welsh properties. The refacing of stonework at Castle Coole was a particularly monumental task, but they have also carried out extensive work to the Temple of the Winds at Mount Stewart, the Mussenden Temple on the cliffs at Downhill, and to many smaller properties they own, like the Clough Williams-Ellis houses at Cushendun, and the tiny ice house on the recently acquired slopes of Slieve Donard in the Mourne Mountains. One of their more recent projects was the restoration of the last working spade mill in Ireland at Templepatrick, where a tiny water turbine drives an extraordinary array of hammers, drills and cutters by a series of belt drives (figure 5).

Perhaps the best collection of vernacular buildings is at the Ulster Folk Museum at Cultra just outside Belfast, where many buildings threatened with demolition have ended up (figure 6). It is an excellent and very popular educational establishment, but inevitably it does take buildings out of the real countryside and plant them in a sort of zoo.

When our historic buildings *in situ* are at a premium, relocating them to the folk museum has to be considered only as a last resort, and increasingly they are now building replicas, leaving the originals untouched.

BUILDINGS OF BELFAST

If I may go back two years before my official start date,

it was in 1967 that Sir Charles Brett's ground-breaking *Buildings of Belfast* first appeared, and the man who was probably to have the greatest influence on historic buildings in the province made his first notable appearance in print.

When his grandfather died, there was a vacancy on the National Trust committee in Northern Ireland, and the succession (for it was done in that way in those days) would have fallen to his father, who said however that he had a son of 26 recently back from France who was at rather a loose end and might find it interesting. Lord Antrim, the then Chairman, thought 26 rather young, but perhaps not so young as not to be worth trying out, so Charlie Brett came onto the committee and asked what books he should read on the subject. Books! spluttered Lord Antrim, my dear boy there are no books. In that case, thought Charlie, I'd better write one, and in 1959 he started on the *Buildings of Belfast*, with very little material to go on other than what he saw with his own eyes and noted in a small pocketbook. As I have suggested, the idea that there might be any architecture in grimy old Belfast was very novel at that time, but Charlie made a very convincing case, with much humour and a great deal of scholarship.

Charlie is a solicitor by profession, and consequently looked down on by many architects, who resent interference from amateurs, but he speaks on the subject with tremendous authority and aplomb.



Figure 6 Lismaecoskey Rectory, Ulster Folk and Transport Museum, Co Down (1989). This substantial thatched building is a focal point in the buildings collection at the Folk Museum.

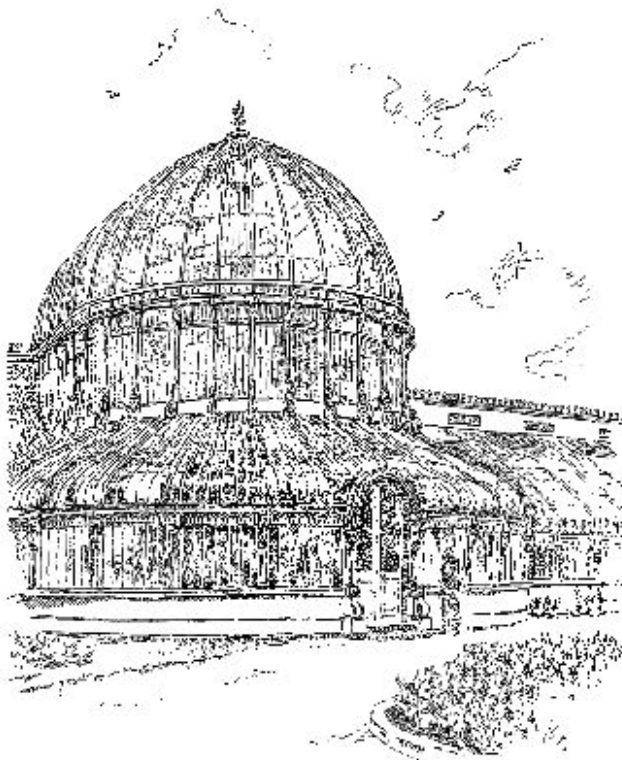


Figure 7 The Palm House, Botanic Gardens, Belfast (1986). Although the splendid central dome by Charles Lanyon is later, the side wings of the Palm House are the earliest surviving curvilinear glass and ironwork in Europe, and were made by Richard Turner, who went on to build the palm house at Kew.

ULSTER ARCHITECTURAL HERITAGE SOCIETY

It was in 1967 too that Charlie along with some other like-minded people brought the Ulster Architectural Heritage Society (UAHS) into being (following the demolition by Queens University in 1963 of the 1845 School for the Deaf and Dumb and in 1965 of a group of seven Dutch-gabled houses by Thomas Jackson), and it has had a wide influence on conservation in the province ever since. When it was set up – and the situation had not changed in 1969 – there was no statutory listing in the province, no Monuments Record, and practically no written material on our historic buildings apart from the Archaeological Survey of Co Down that had appeared in 1966 and considered everything built after 1800 (and most of what was built after 1700) as beyond the pale. If a building was unfit there was absolutely nothing to prevent its closure or demolition. Hence the urgency of a campaign such as that to save the Palm House in the Botanic Gardens (*figure 7*), at that time neglected and badly vandalised, or Frank Matcham's Grand Opera House (*figure 8*), which had closed following repeated bomb damage and

Figure 8 The Grand Opera House, Belfast (1983). Closed down early in the Troubles after some years as a cinema, Frank Matcham's 1895 Opera House lay derelict and totally neglected till its restoration by Robert McKinstry in 1980, since when it has become one of the city's favourite buildings. It has been seriously damaged by bombs twice since, the most recent bomb in 1993 leaving a gaping hole in the side, but each time was restored with admirable speed.



a virtually non-existent audience even for films and bingo – the city centre closed down at 6pm in those days and night life meant a take-away in front of the telly.

The first thing the Society did when it was established was to embark on a series of its own pre-statutory 'lists'. These were prepared as simple A4 reports, three or four often appearing in one year, designed to assist planners preparing development plans for various areas by identifying buildings that should be retained in any redevelopment, or that it would be desirable to retain, and giving basic historical information about them. As time went on, the lists became more detailed – Hugh Dixon, who now works with the National Trust in Northumbria, was a splendidly humorous and inspired writer of the middle-period lists – and in recent years they have become very detailed gazetteers of urban areas, street by street and often building by building. The UAHS has now published over fifty books, ranging from the lists up to monographs on specific buildings or architects, and a new county series of which Charlie Brett has written two volumes. In recent years, assisted by the DoE, it has also produced annual Buildings At Risk reports and occasional directories of traditional building skills. These have considerably heightened the profile of historic buildings and received much local press coverage.

BUILDING PRESERVATION TRUSTS

The UAHS comments routinely on planning applications affecting buildings across the province, but it was aware early on that it was open to the criticism 'if you want to keep that old building, why don't you do something about it instead of criticising me?' – and in 1972, again at Charlie Brett's instigation, the UAHS and National Trust came together to form a jointly managed organisation called Hearth.

Hearth was to be a building preservation trust, based on the National Trust for Scotland's Little Houses scheme. Unfortunately the early seventies were not a time to be setting up a BPT in Northern Ireland, and progress was slow at first. In 1978, following the 1976

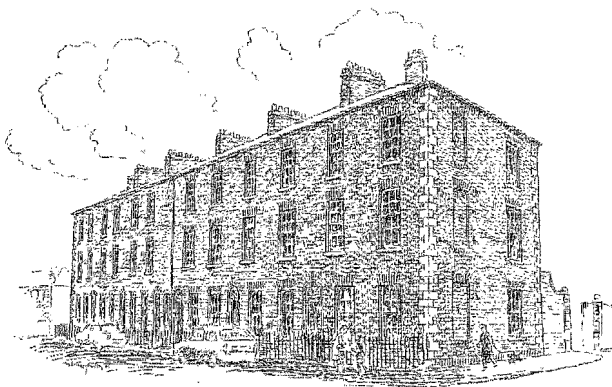


Figure 9 Hamilton Street, Belfast (1990). This terrace of late Georgian houses was virtually roofless and about to be demolished when it was acquired in 1988 by Hearth Revolving Fund, which restored it. It became pioneering owner-occupied property in an area which had been entirely vested for social housing, and is now one of the small number of early buildings left in the city.

Housing Order which established finance for housing associations in the province, Hearth set up a sister organisation, Hearth Housing Association, and with the ability to employ full-time staff Hearth began to work in earnest.

The two bodies – for which I work – share the same chairman, director and committee, and hold simultaneous meetings which can be difficult to disentangle for minuting purposes! Taken together they have restored some 120 houses across Northern Ireland at a cost of about £7.5m. You can consider it either as a very small housing association (even in Northern Ireland terms) or as a fairly large BPT – but it has carried out many difficult and innovative restorations and tries to set examples that will be imitated by others. In particular, we hope that by demonstrating what can be done with buildings everyone else has given up on, it will be less likely that the planners will permit the demolition or gross alteration of other buildings in less precarious condition.

I would be the first to concede however, that we have not carried out restoration to the fine standards you might expect in England. I still believe that our primary task is to keep buildings standing and get them back into use, in the hope that the next generation will refine things.

As well as Hearth some other housing associations have taken on listed buildings, including some that have been empty for a period, and in the last five years around half a dozen active BPTs have been set up in the province, of which the most ambitious is the Belfast BPT that recently restored the early-19th-century St

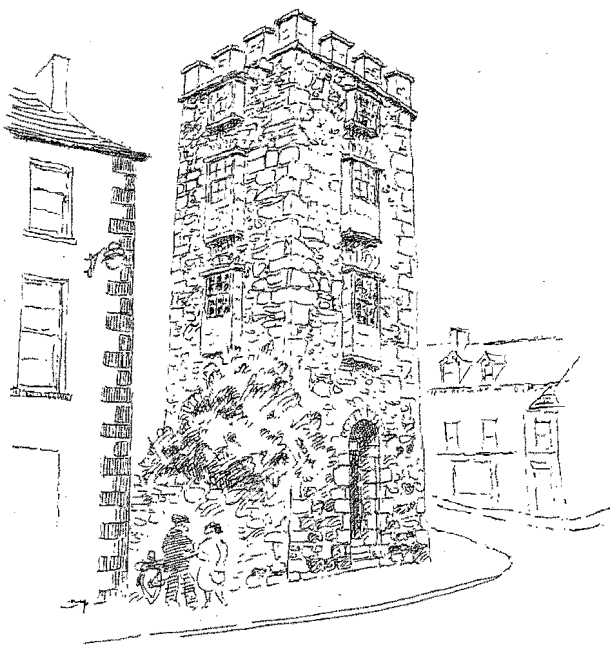


Figure 10 Curfew Tower, Cushendall, Co Antrim (1993). This folly was built about 1820 by Francis Turnly and contains a dungeon and four small rooms stacked above one another. It was supposed to be manned night and day by a man with a fourteen-foot long pike to repel invaders, and has spyholes beneath each window. After being vacant for some years it was restored by Hearth Revolving Fund, and is now used as a residency for artists.

Patrick's School following severe fire damage. The Irish Landmark Trust has just completed its first project in the north, a former gamekeeper's house of about 1840.

LEGISLATION

Those are the voluntary bodies involved in historic buildings; there are of course also statutory bodies.

In England you've been listing buildings since shortly after the war. Although we had protection for ancient monuments much earlier, our legislation for historic buildings came in as late as 1972, with the Historic Buildings Council set up two years later when the first statutory listings took place – just twenty-five years ago. Conservation areas came in about the same time, but until ten years ago there was only one in Belfast, and the city's most significant piece of Victorian town planning, Royal Avenue, was only included in a conservation area as recently as two years ago, by which time great gaps had appeared in its texture. In other cases even listing was not enough to save some significant buildings.

One consequence of the Troubles is that our local authorities have no planning powers, and the DoE is the sole planning authority. As a result of that a body called the Planning Appeals Commission (PAC) was brought into existence to act as a second court. Unlike many planning inspectorates in England, the PAC includes only one architect-planner, and even historic buildings cases are heard by commissioners with a background in law or economics rather than conservation. As a result, on the rare occasions when the planners do decide to take a conservationist decision, the PAC will often overturn it, on the grounds that (to take a typical example) there are plastic windows in a listed building down the street, so it is not fair to penalise the poor owner of the listed building under consideration who

has only put in a few low-maintenance windows of the same fine material.

Conservationists (and residents' groups) in the province have called for Third Party Appeals such as exist in the Republic of Ireland, as it seems against natural justice for the developer to have indefinite rights of appeal till he eventually gets his approval, while neighbours have no recourse against an inappropriate or damaging approval. At present 95% of planning applications are approved, and most of the remainder succeed on appeal or following presentation of slightly amended schemes. I know that there are no third party appeals in England either, but perhaps they would be worth pressing for.

The Monuments Record was set up by the DoE some five years ago, and while still in its infancy it is a useful mechanism to access the official records on listed buildings. It contains an excellent collection of industrial archaeology photographs, and a great deal of material on prehistoric monuments, although the buildings side has been underfunded to date.

It is often pointed out that Northern Ireland is no bigger than the county of Yorkshire. I'm not sure whether that is a comparison in geographical size or population size, but certainly it is a small place to have generated so many problems and controversies. However it has the advantage that when you want to talk to the person who makes decisions on anything you can simply pick up a phone and speak to him. You probably know him too. If you don't play golf with him (and I certainly don't), then you came across him when he was in a different part of the civil service five years earlier, and contacts can be very informal. This came home to me when I took a colleague from the National Trust in Wales to meet the principal of the Housing Associations Branch at Stormont so that he could discuss how a



Figure 11 Irish Street, Downpatrick, Co Down (1982). This charming group of early-18th-century houses at the heart of the county town of Down have become derelict since this drawing was made, but are now to be restored by the newly formed Downpatrick Property Trust.

Hearth-type housing association might be set up in there. The discussion was friendly and straightforward, and the final words of the official were along the lines of, 'Well I know that we're here to provide housing, but if we spend a little bit more in the process to save a historic building I think we're getting extra value – after all, historic buildings are the responsibility of another branch of the same DoE'. When Alwyn came out of the meeting he was flabbergasted: 'You wouldn't get anyone in Tai Cymri spending a penny on historic buildings!' So centralisation has its benefits in a small country.

CONTEXT AND LISTING

There is currently considerable friction between the voluntary sector and the Department of the Environment over their listing policy. This I think is because we regard listing as an essential planning tool, while the Environment and Heritage Service (EHS) seems to treat it as an academic exercise.

The first survey was a hasty but honest attempt to provide statutory protection to any building that it might be important to keep. It was not tremendously scholarly, being based on an external inspection and examination of the sequence of Ordnance Survey maps from 1833 on, and it was often carried out in very difficult circumstances, mostly by two architects who also had to deal with grant aid and the constant responses to bomb damage, and much of Belfast was only being listed for the first time in the late 1980s. At the beginning the listing criteria were broad enough to include buildings that had been altered but had some innate interest, but most of those were relegated to the

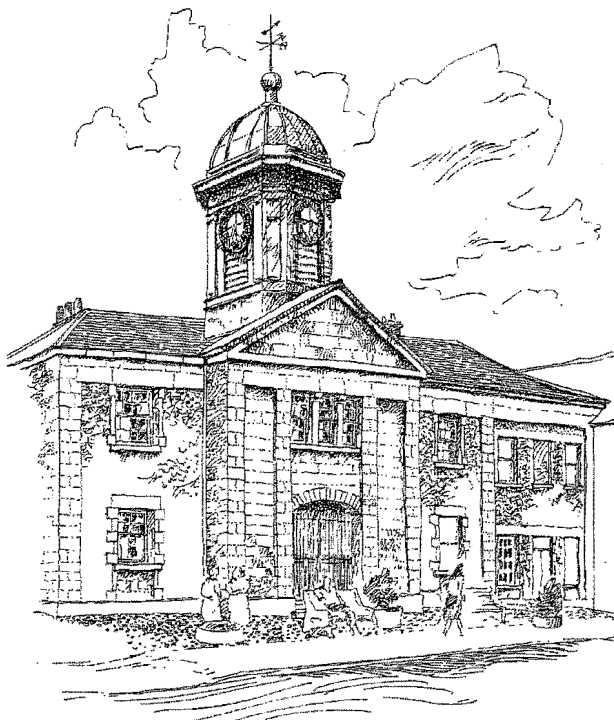


Figure 12 The Court House, Caledon, Co Tyrone (1985). Having been disused for many years, this dominant building in the Caledon conservation area is to be restored under the Townscape Heritage Initiative funded by the Heritage Lottery Fund.

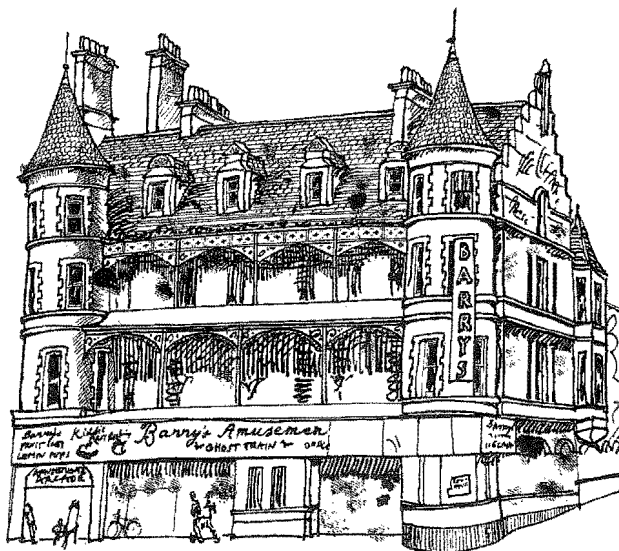


Figure 13 The Grand Hotel, Bangor, Co Down (1981). This splendid late Victorian seaside hotel had a comparatively short life before becoming an amusement arcade that closed in the seventies. An attempt to spot-list it failed when the Council failed to support it, and it was demolished in 1984. However it provided a turning point in public opinion regarding historic buildings in the town.

non-statutory list in the seventies, and few survive. Of the listed buildings we do have, a worrying number are being de-listed in the current Second Survey that is going on. Where a building was formerly listed but has been altered (either illegally or sometimes with the agreement of the Planning Service), it may well be de-listed. This is an incredibly short-sighted policy, as it devalues the whole concept of listing, and means that developers need only alter or neglect their buildings to find they have a developable site. Needless to say, our Historic Buildings Council is strongly opposed to much of the de-listing. Many good Victorian buildings were not included in the first Survey, and attempts to fill in the gaps later were not always successful. Two examples from Bangor, Co Down, show how attitudes have changed. The former Grand Hotel in the town (figure 13) was recommended for spot listing in 1984 but when the local council was consulted it voted against the listing (by a majority of one) and the listing was not implemented: the building was demolished the following week. Fifteen years on, the same council and a very vocal group of local people were calling for the listing of another building, one of the earliest from the town's heyday as a Victorian seaside resort, but this time the new-look DoE decided it did not meet their now very selective criteria for listing, and it was demolished earlier this year.

We are in danger of ending up with some fine buildings but absolutely no context for them, because there is nothing between the scholarship of the EHS and the rubber-stamping bureaucracy of the Planning Service. As time goes on, I become more and more aware of the importance of the minor buildings that provide the setting for important ones, but the evidence is that our DoE pays no attention to what happens around listed buildings, and it sometimes seems precious little to what happens to the listed buildings either. They have never

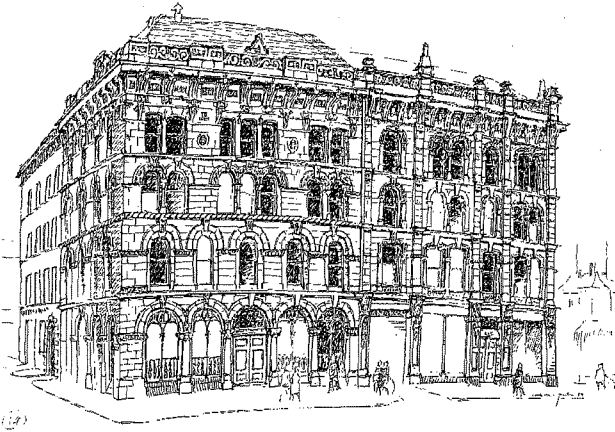


Figure 14 McCausland's warehouse, Victoria Street, Belfast (1984). Actually two buildings built for rival seed merchants in 1873 by the eccentric architect William Hastings, this stone warehouse is a riot of inventive sculpture. After listing, it lay derelict for some twenty years till it was converted into a hotel in 1999.

served a repairs notice, or compulsorily acquired a historic building in order to preserve it. No one has been prosecuted for demolishing a listed building, and there have been few enough prosecutions for alterations to buildings despite some blatant examples.

Figure 15 Head Post Office, Royal Avenue, Belfast (1985). The finest piece of town planning in the city, Royal Avenue was laid out by the city fathers in the 1880s and was largely intact till a vast redevelopment scheme was approved a hundred years later which resulted in the demolition of the Grand Central Hotel and Head Post Office which occupy most of this sketch; a steel and glass shopping centre was built on the site in 1986.



In a current case which the UAHS is fighting, the local council applied to demolish one of its former town halls, a very important landmark in a coastal town. They had assumed that they would have to repair it because it was listed, but knew it was going to be expensive as they had neglected it for so long. They were surprised when the historic buildings architect asked if they had considered demolishing it, but immediately knew that was what they wanted, and applied accordingly to build a replica in its place. Their architect has said that he could not guarantee any repairs to the old building, and of course a new building would not incur VAT. The council has been told by the planners that listed building consent to demolish has been recommended, not only by the planners but also apparently by the Environment and Heritage Service, but it has not yet been issued as Lord Dubs, the environment minister, is convinced by the alternative views of the UAHS that the building is capable of restoration. However it is an uphill struggle when the building owner and the planners have decided a building can go, and it is by no means certain that consent will not be granted in the next few months.*

Even when a building remains listed there is no guarantee of its survival as a listed building: for many years the DoE had refused demolition of the grade B+ Donegall Square Methodist Church in its very valuable city centre location, and they even commissioned studies into its re-use. However when the Ulster Bank wanted to put a £24m prestigious headquarters on the

* One of Lord Dubs' final acts before he was made redundant by the setting up of the new Northern Ireland Assembly at the end of 1999 was to refuse listed building consent.

site, permission was granted for demolition of all but the facade, which is left stuck on to an incongruous new building.

When Queen's University wanted to build new speculative offices on the site of a listed building in the main conservation area of the city, they pointed out that despite being occupied, it was actually very dangerous because some of the floor joists were rotten near the back wall; they were duly granted listed building consent for demolition.

A replica is not as good as a historic building, but there is a good case for it in a conservation area where a building has been lost. In the Queen's area many buildings have been damaged by bombs, some even demolished, and replication seems perfectly acceptable to retain the grain of the townscape, particularly where the buildings were finished in stucco as many of the Queen's buildings are.

ENFORCEMENT

In a case in 1998, two buildings at the end of a listed terrace in Newtownards were demolished; it may have been coincidental that they were in the line of an entrance to a new Sainsburys store opening up. Despite having identified the owner and the driver of the bulldozer, the DoE decided to retrospectively de-list the houses rather than pursue prosecution. It was only thanks to concerted pressure from conservationists, residents and the local council that for the first time a case was taken for demolition of buildings in a conservation area in 1997. Unfortunately because the case was taken in the magistrate's court rather than the high court the maximum fine for demolishing one side of a street of 18th-century houses in Armagh was £5,000, and since the DoE spokesman said that the buildings were very derelict and he would probably have given approval anyhow if it had been requested, the fine levied was only £4,000. In the Republic, new legislation has come in during 1999 with a maximum fine of £1m.

VERNACULAR BUILDINGS

There is great concern about the loss of vernacular buildings in our countryside. Traditional Irish cottages, thatched and built of mud or stone, nestling into the rolling countryside, are virtually a thing of the past on both sides of the border. In Northern Ireland in 1950 there were some 30,000 thatched cottages, particularly in Cos. Fermanagh, Armagh and Tyrone. According to a recent survey, the number is now about a hundred, and not all of them are listed or habitable. Even plain slated cottages are quite rare, many having been demolished to make way for replacement haciendas. The planners' answer to the control of bungalows is to ensure that they can only go up when an old cottage comes down. As in 'The Planning Service has determined that approval shall be granted for the new dwelling, on condition that the old cottage is demolished. This condition is attached to prevent a proliferation of structures, in the interests of preserving the amenity of the Slieve Gullion Area of Outstanding Natural Beauty'.

The UAHS held a very successful conference on the topic last year – Bliss or Blitz? – which has caused the

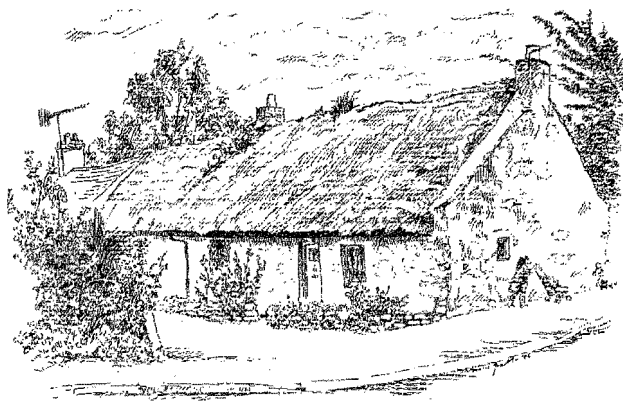


Figure 16 Thatched cottage at Sunningdale Park, Belfast (1986). Not many people were aware of the existence of this last thatched cottage in Belfast, until it was demolished without authorisation in 1987. It had been occupied and reasonably well cared for up till a year previously, yet the new owner was not prosecuted for his actions.

Housing Executive to pause in its policy of grant-aiding replacement dwellings. In the course of that conference, the environment correspondent of the *Irish Times*, Frank McDonald, spoke passionately about what he called the 'Country and Western School' of neo-thatch and other 'serious vulgarity', particularly the rash of tightly-packed holiday homes being thrown up in otherwise unspoilt areas of Ireland, and the remarkable marketing ploy that had succeeded in persuading people who live in suburban houses all the year round to pay good money to spend their holidays in suburban houses. People tend to destroy the thing they love, he said – they want to live in the countryside, but by doing so they wreck it. It is now rare to find a country road in any part of Ireland that does not have a new bungalow with a suburban lawn every hundred yards.

EDUCATION

On the matter of conservation education, we have been poorly served till recently, with only a short conservation option open to architectural students at Queen's



Figure 17 Houses in Killough, Co Down (1980). Ulster towns were once full of modest single- and two-storey 19th-century houses like this, with their first floor windows squeezed under the eaves. Most have been cleared in the last thirty years as part of housing improvement schemes.

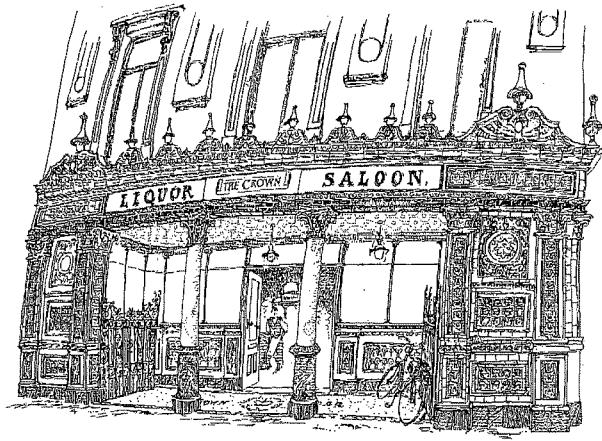


Figure 18 The Crown Bar, Great Victoria Street, Belfast (1982). The most celebrated pub in Belfast has survived miraculously despite its location opposite 'the most-bombed building in Belfast', the Europa Hotel. The glass has been completely replaced several times, but thanks to its acquisition by the National Trust, its interior is still thoroughly Victorian.

University, but a few years ago the Royal Society of Ulster Architects, after many years of antagonism towards conservation, established a conservation committee, and it in its turn has set up a part-time conservation course at the University for architects in practice. Next year with the help of Lottery funding the UAHs will be taking on an education officer to work in schools.

Another recent initiative has been the introduction of the Heritage Open Days to Northern Ireland, where they have been run since 1997 through the initiative of Primrose Wilson, Chairman of the Historic Buildings Council for Northern Ireland.

TOO MUCH MONEY?

Conservation is often an expensive option in terms of short-term finance, but it does not respond readily to having money thrown at it. It depends on the careful assembly of projects, and skilled workers who take time getting their work right. When conservation area grant was made available some years ago there was great pressure to spend the money quickly, and it was too difficult to bring building projects forward – the easiest way was to replace all the old-fashioned streetscape with proper new paviers and conservation-area-style lamp-posts – to show that they were conservation areas. In recent years, initiatives like the International Fund for Ireland (IFI) have thrown money at sometimes misguided community-led schemes, perhaps damaging irreplaceable old buildings in the process. In the Republic the IFI schemes were vetted by Paddy Shaffrey, an architect with a great deal of conservation experience, and some excellent schemes resulted there, but in the North expediency has been the main criterion – I was told on several occasions that my projects would not qualify for grant as they were not economically viable – I had naïvely thought that that was the reason the grant might be available in the first place.

Since the early nineties, and particularly since the ceasefires were announced, Belfast property values have

risen dramatically, and developers are stalking the country with increasing rapacity. It used to be that you couldn't afford to restore an old building because its value on completion would be less than its restoration cost. Now the problem is that they have more value as sites than they would as restored buildings. Money is flooding up from Dublin where the Celtic tiger has resulted in even small houses becoming quite unaffordable to many people. Thackeray wrote of Belfast in the 1840s that it 'looks hearty, thriving and prosperous, as if it had money in its pockets, and roast beef for dinner ... The houses are as handsome as at Dublin, with this advantage, that the people seem to live in them'. Sadly in recent years the Centre Point syndrome, of buildings that are erected for investment rather than occupation, has arrived in Belfast for the first time, and many of the new apartment blocks sprouting up on the Laganside are sold instantly but remain empty. Monopoly money may be good for the stock market but it is very depressing to see it arrive in your home town.

FRIENDS AND STRANGERS

I did some statutory listing myself in the mid eighties, mostly in the border area of Fermanagh and South Tyrone, and apart from the excitement of recording buildings there for the first time, it was an education in

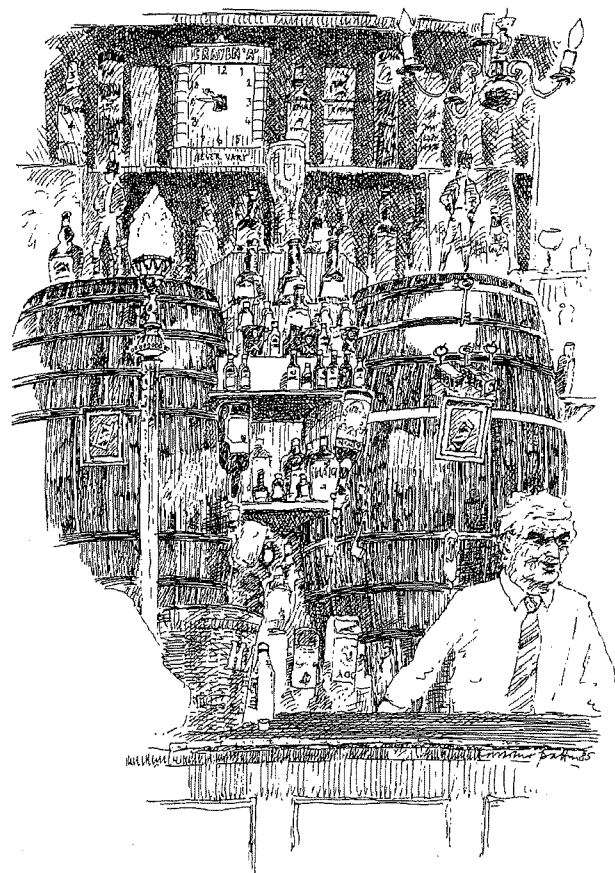


Figure 19 Blake's Bar, Enniskillen, Co Fermanagh (1985). One of the most charming small pubs in the province, with an intricate array of drinking souvenirs behind the bar, Blake's character is threatened by a recent large extension that will make it the back door of a super-pub.



Figure 20 Blake's Cottage, near Newtownbutler, Co Fermanagh (1982). Thatched cottages are now very rare, and unaltered interiors rarer still. Rosie Blake had a modern settee but kept the old turf fire and crane. When she died shortly after this drawing was done the cottage was abandoned and is now ruinous.

the way people were living under the stress of the Troubles. On one occasion I was listing right on the border, finding my way using the six-inch map that becomes white paper as soon as you leave the county you are studying; and in that area the road meanders in and out of the Republic every fifty yards. Anyway I had spotted a charming thatched cottage across a lough and couldn't work out how to get to it, so I stopped at another cottage that had an unusual roof detail and got talking to the old man there. After chatting about his house for a while he started talking about the difficulty of living in the area and of several of his friends that were part time soldiers in the UDR, that had been lined up in the garage they ran in the village and shot by the IRA. Eventually I got round to asking my directions to the thatched cottage, and he became even more serious and told me I'd have to be very careful there, as they were Black Catholics, implying that they were heavily involved in terrorism. Now he had no idea who I was, or what my religion or politics might be, but had welcomed me as a stranger into his house without any hesitation. But he didn't trust his next door neighbour. I went up the road, and down a half mile track to find the cottage, dreading what sort of gangsters I was going to find holed up in this apparently innocuous cottage, and when I got over the hill top and found it in front of me it was every bit as charming as I had hoped, with immaculate thatch and fresh whitewash. I went up and knocked gingerly on the front door. It was answered by a little old lady called Rosie Blake who welcomed me in, made me at home at her fireside and showed me round it and even

where her daughter dried their clothes on the thorn bush at the back. Like her neighbour, she was absolutely trusting of me as a stranger, yet within those communities the Troubles have bred up terrifying insecurities.

I hope that the growing familiarity of people in Northern Ireland with their historic buildings will be a way of preserving them for the future. Historic buildings are an essential tool in raising people's pride in the place they live, and from that we hope will grow a desire to share that pride and the realisation that our built heritage is common to the two traditions. There are certainly some buildings that have come from the Protestant side or from the Catholic side, but once they are part of the streetscape they are common. That pride of place is growing every year, and the continuing loss of buildings makes people realise all the more the value of what is left. Buildings like the Palm House and the Opera House, which were so nearly demolished twenty years ago, are now popular symbols of Belfast, and other towns are discovering their heritage too. I mentioned the spot listing case we lost in Bangor fifteen years ago; I was back at that council recently and they unanimously supported our plea to them to protest to Environment and Heritage Service about the de-listing that is going on in their borough.

Those of us in the conservation movement in Northern Ireland feel a bit like the brass band supporter whose band won a national competition and had become suddenly prominent. 'They've allus been famous', he said. 'Its just that nobody'd ever 'eard of them.'



Figure 21 A boney at Ballynaveigh (1982). At various times of the year, but particularly on the 11th of July, there are ritual bonfires (or 'bonies') in Ulster, with piles of wood raked up against the gable ends of derelict houses, as here in south Belfast.

Marcus Patton OBE BSc DipArch RIBA trained as an architect in Belfast and has been Director of Hearth Housing Association since 1978.

THE GRANDSTAND AT STAMFORD: ITS HISTORY, REPAIR AND RE-USE

Jennifer M Freeman

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This article describes the rescue, repair and adaptation, to residential use, of one of the very few extant eighteenth-century grandstands in England. The project was informed by extensive research into the history of the building type and an archaeological analysis by Donald Mackreth. The architect to the scheme was Brian Austin acting for the developer, Freeman Historic Properties Ltd. The scheme was grant-aided by English Heritage, Cambridgeshire County Council and Peterborough City Council, with F H P Ltd providing the balance of funding.

Stamford Grandstand is located south of the town, near Wothorpe village, west of the A1. It is situated on land which forms part of the Burghley Estate with Burghley House and Park, the historic seat of the Cecil family, standing to the east. The Cecils, later Earls then Marquesses of Exeter, were patrons of the course and presented the main prize, the Stamford Gold Cup. The grandstand was erected in 1766, altered in 1818–20 and fell into disuse when racing ceased in 1873.

RACING HISTORY

Racing in England almost certainly dates back to the early sixteenth century but its attraction grew during the seventeenth century when regular meetings were estab-



Figure 1 Lodge Park, Sherborne, Gloucestershire (c.1634), stand for viewing deer coursing. (Author)

lished along with attendant opportunities for gambling and other entertainments.

The organisation of racing bore points of comparison with the older sport of deer coursing which had in turn developed as an alternative to the chase or deerhunt,¹ but was clearly suited to more restricted locations. Deer coursing involved gathering deer in pens whence they were released onto a track or course, which was fenced or walled, on each side. The deer were pursued and eventually brought down by hounds. A viewing stand frequently overlooked the finishing line, the term grandstand first coming into use in 1615 (Oxford English Dictionary).

Some stands were purpose-built but others may have had dual purposes as garden and entertainment venues.² Royal patronage from the time of Charles I assured the status of racing with Newmarket³ as its centre. Queen Anne established the meeting at Ascot in 1711. By then deer coursing was out of fashion.

The earliest viewing stand known to the author is at Lodge Park, Sherborne, Gloucestershire, currently being repaired by the National Trust under architect Jeffrey Howarth (*figure 1*). The stand has been dated to about 1634 and may be the work of Nicholas Stone, John Webb or another contemporary of Inigo Jones.⁴ All the elements of later grandstands are present in the design and layout of the building, which is arranged on three floors with a viewing platform on the roof. It is five bays wide. A hall or reception area is formed at ground floor level with the first floor occupied by a near double cube banqueting room 40 ft long. There was a stone-flagged kitchen with a fireplace in the basement. The banqueting hall also had a fireplace. A grand staircase led to it and a second gave access to the roof. Large windows opened on to the course at all levels. A distinctive and prestigious building type had emerged.

By the mid-eighteenth century, following legislation⁵ passed in 1740 to restrict the number of race meetings, racing consolidated. Meetings took place on race days organised and patronised by the gentry, or at least the better-off, and were usually held on great country estates or common land close to market towns that offered accommodation and other services. Races followed the rules formulated by the Jockey Club established in the 1750s. Several famous courses were conveniently sited along the Great North Road, for example at Stamford, Doncaster, York and Richmond. Race meetings were great social occasions accompanied by grand balls held in newly built Assembly Rooms, supper parties, concerts and bumper feasts known as 'ordinaries'. Travelling theatre shows, prize fighting and cock fighting provided additional entertainment on or near the course. At Langton Wold⁶ near Malton in Yorkshire, for

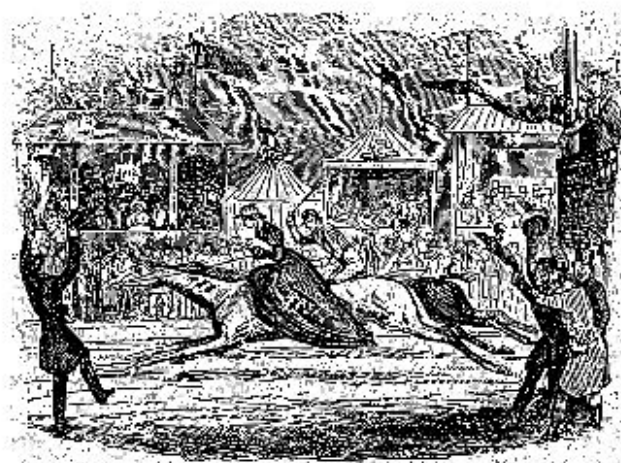


Figure 2 Stands on the Knavesmire course at York, (1804). (Tyrrel, 81)

example, foot races, fireworks, sack races, bell races, competitive pipe smoking and wrestling are all known to have accompanied race meetings. Above all there were extensive opportunities for betting, gaming and gambling of all kinds.

All social classes and both men and women attended the races. Early on the gentry watched from their carriages while humbler folk stood out in the open, under canvas tents or perhaps on simple wooden sheds ('scaffolds') raised on platforms (figure 2). By the second half of the eighteenth century the concept of the grandstand had caught on. The stand's construction would usually be financed privately or by an issue of shares to wealthy townspeople and gentry. Entry to the grandstand was assured by taking out a subscription that provided an additional element of social prestige.⁷

Eighteenth-century Grandstands

John Carr of York (1723–1807) was the designer of the first and most famous of these eighteenth-century grandstands. It dated from 1751–5, and stood on the course at Knavesmire at York (figure 3).⁸ The remaining vestiges now function as a champagne bar. An early important commission for Carr, clearly he had in mind the prototype stand at Lodge Park when he designed this and later grandstands. These included one at Nottingham of 1777 and, largest and most elegant of all, the stand at Doncaster of 1777–81. There was a stand by Carr at Kelso in Scotland of 1778. The grandstand at Beverley,⁹ dating from 1767, was demolished in the 1920s; that at Richmond, probably designed by John Foss, a pupil of Carr, of 1775, is in a ruinous though



Figure 3 1890 view of Carr's grandstand at York. Note the rear wing and chimney; the tiered seating was added in the 19th century. (Tyrrel, 85)

reusable state. The subject of this article, the grandstand on the Burghley estate near Stamford, which dates from 1766, is arguably the second oldest (figures 4, 5, 6).

Newspaper accounts of the time describe grandstands as being 'commodious and elegant' (Richmond),¹⁰ 'proper and commodious' (Beverley),¹¹ 'elegant and well contrived' (Stamford).¹² All were provided with extensive facilities for eating, drinking, and access to betting. Socialising was as much a feature of grandstand life as watching the track.

Typically, grandstands were enclosed, generally arranged on two floors with kitchen facilities in the basement and a viewing stand on the roof. Offices and refreshments were available at ground floor level; there was a grand reception room above with the viewing platform on the roof. Floors were flat, charring loose and occasional. There might be two flights of stairs, one for servants carrying orders for the racegoers and the other for subscribers. At York,¹³ Richmond and Stamford a rear service wing housed the staircases and basement kitchen areas. The York grandstand, which cost £2,637, was seven bays wide and patrons watched the race from the first floor 'great room'.¹⁴ At Richmond the grandstand, built of ashlar stone, had an elegant central stair leading up to the well-proportioned grand salon where five large windows gave a wide view of the racecourse. A rear stair reached the flat roof. At Stamford the first floor is known to have been reserved for the gentry and there the Stamford Gold Cup was proudly displayed on race days during June.¹⁵



Figure 4 Stamford Grandstand from the west, March 1966. (RCHME)

Those standing on the roof were not necessarily exposed to the elements. The Stamford grandstand was covered (*figure 14*) and 'railed around the top'. Malcolm Airs suggests that the early stand at Kelso may have had a paper roof.¹⁶ Illustrations of the stand at Beverley show that this too was roofed. These roofs may have been constructed of timber covered in canvas, copper or paper.

Grandstands were not used exclusively for watching racing. They doubled as venues for card parties, musical entertainment and for watching cricket and military parades. Tea parties, whist drives and cricket parties are recorded at Stamford. The grandstand achieved some local fame in 1772 when the Royal Regiment of Horse Guards was reviewed by General Pitt on the racecourse.

At Hereford the cricket pitch still occupies the middle of the course with the grandstand doubling up as a pavilion. Grandstands are shown on cricket grounds at Lords in 1814 and at Ramsgate in the 1830s.

Nineteenth-century Grandstands

During the early part of the nineteenth century grandstands were built on the pattern of earlier ones but they responded to changing architectural fashions. Soon many became too small for the burgeoning wealth and aspirations of a growing population and were frequently extended, as at Doncaster and York, by the building of loggias, balconies and verandas and by providing tiered seating on the roofs. New grandstands arose. In 1820 John Nash provided a magnificent two-storey grandstand for the course at Ascot. This was built close to the earlier stand designed by George Slingsby in 1793 which had been commissioned by King George III and held 1,650 people. At Goodwood in 1830 a vast stand was built to hold 3,000 people with refreshment rooms, retiring rooms, betting rooms and a saloon with large sash windows. In 1837 it was enlarged by the addition of a balcony. Similarly at Epsom in 1830 a large and handsome grandstand was constructed, with tiered seating on the roof and double height balconies. Describing the grandstand at York in 1842 the *New Sporting Magazine* captures the flavour of the mid-nineteenth-century at its zenith:

On the grand floor are convenient offices and rooms for the entertainment of the company; above which, on the second floor, is a large room

for all the company to meet in, which is surrounded by a projecting veranda, upwards of 200 ft in length, supported by a rusticated arcade 15 ft high above the ground, from which veranda the company can command a prospect of the whole race course.¹⁷

Sadly most of these nineteenth-century stands have, like their earlier counterparts, been demolished.

Later, greater openness became a standard feature of grandstand accommodation along with a large increase in fixed seating. Eating, drinking and betting were relegated to the rear of stands or to other buildings. This trend showed itself in Edwardian grandstands and continued well into the 1950s and '60s when stands were reduced to utilitarian coverings over serried ranks of seats arranged on raked or stepped floors. More recently, for example at Lord's Cricket Ground in London, at Towcester racecourse¹⁸ and elsewhere, there has been a return in the design of grandstands to the earlier concept of combining spectating with hospitality. The loose chairs, the generous provisioning and extensive socialising are once again features of grandstand life.

Racing at Stamford

Racing is known to have taken place on Wittering Heath on the Burghley estate south of Stamford, in the early part of the seventeenth century when there were 'running stables' at Burghley House. The Stamford Gold Cup was first contested in 1619. A new oval course was laid out further north near Wothorpe village about 1717 and an annual meeting lasting three days during June was established. This became a major event on the social calendar. Early in the eighteenth century races were held on the Tuesday, Wednesday and Thursday of the second week in June.

By 1785 the week had changed to the last in June or the first in July. After 1839 two days towards the end of July were considered sufficient. The Gold Cup was always contested on the last day. About 1818 the oval course was extended west to provide a fashionable 'straight mile', the site of which can still just be discerned among the fields and hedges south of Racecourse Road.¹⁹ The 2nd Marquess also railed around the greater part of the course, which had formerly been enclosed by ropes, formed a new entrance



Figure 5 Stamford Grandstand from the south-west, June 1981. (RCHME)



Figure 6 Stamford Grandstand from the north-east, June 1981. (RCHME)

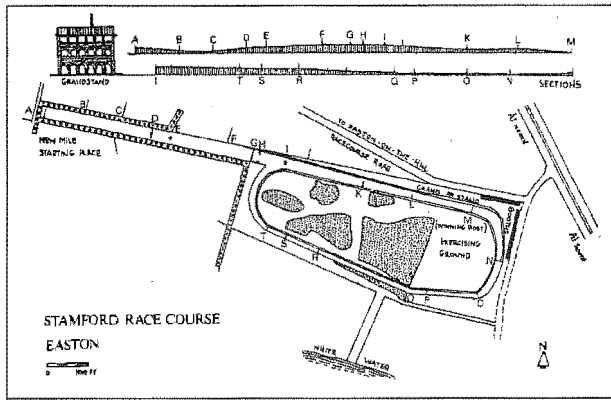


Figure 7 A print of Stamford Racecourse, c.1820. Note the inaccurate depiction of the grandstand arcading by W Kemp.

and carried out other improvements (figure 7). The *Stamford Mercury* of June 26th, 1818 records that 'it is proposed to have a hundred guinea stake run for over the new course, which is a mile in length'. The popularity of racing was enhanced by the arrival of the railway at Stamford in 1846 bringing spectators to within a mile and a quarter of the racecourse. Racing continued until 1873 when the famous jockey, Fred Archer (1857–1886) won the last race of the last meeting on 22nd July. By this time the popularity of racing had been in decline for many years. The demise of the course was hastened by the death of Brownlow, Marquess of Exeter, in January 1867. The racecourse had been ploughed over by 1875.

STAMFORD GRANDSTAND

The grandstand was built on the north side of the course at its eastern end, very close to the finishing post (figure 7). It is one and a half miles south of the town of

Stamford, within the Burghley estate. Burghley Park lies to the east. Although its builder/mason is unknown²⁰ the structure is architecturally ambitious and this suggests that the mason had almost certainly studied earlier precedents, such as Carr's stand at York. It can be precisely dated to 1766 when a lease was granted to a Stamford innkeeper, John Terremont, who doubtless received the concession for provisioning the grandstand.²¹ During the 1995–6 repair works the original datestone of 1766 was retrieved and later reinstated in the building. Drakard records that:

The great stand was built in the year 1766 and is an elegant and well contrived edifice. It measures 40ft. by 18ft. on the outside, has three floors and is railed round on top, from whence there is a commanding view over the whole of the race ground.²²

Terremont's lease was for 99 years. It stated that he could set 'posts and rails around the said building at 7 feet and 4 inches from the said stand' and that coaches and carriages might be allowed on to the Heath to set spectators down. A full repairing lease was enforced on 'the said new erected building' which included provision for regular 'scouring'. The latter may refer to the obliteration of graffiti, many of which can nevertheless still be deciphered.

In 1995–6 Donald Mackreth carried out an archaeological survey (figure 8) of the grandstand for Freeman Historic Properties Ltd, following a report by William Dodd for English Heritage of October, 1993. Supplemented by information about other eighteenth-century grandstands it has been possible to build up a clear picture of Stamford Grandstand as both originally constructed in 1766 and, as it appeared following alterations of 1818–20.

Figure 8 Anatomy of Stamford Grandstand. (Archaeological record drawings prepared by Donald Mackreth)

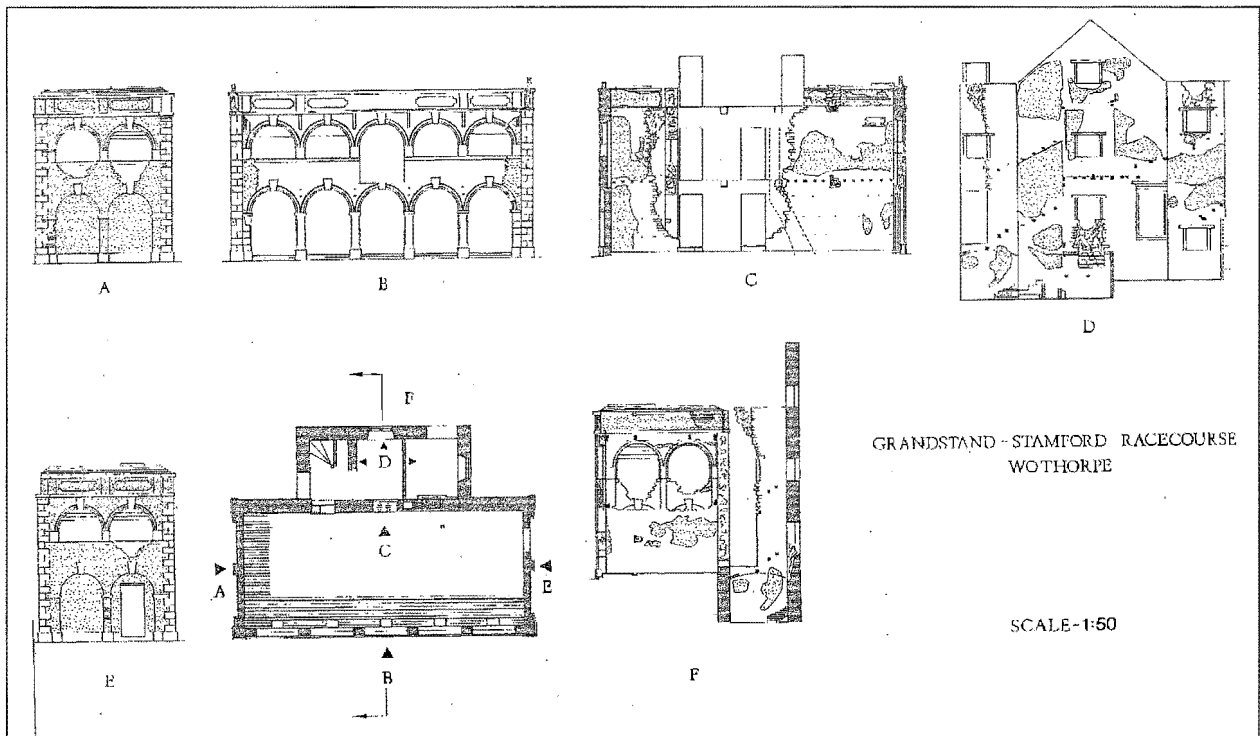




Figure 9 Stamford Grandstand, 1953, showing central arcade of upper storey lowered to form access to balcony of 1818–20. (Stewart Rodgers)



Figure 10 Stamford Grandstand, April 1995. Note patches of historic plaster; casement windows of 1766 and fallen remains of 1820 rendered parapet. (Author)

Main Block

The stand consisted of an oblong main block with a smaller service and staircase wing at the rear backing onto Racecourse Road. The main south façade looking over the racecourse had two floors of arched openings, the ground floor arches resting on stone piers. There were two bays in the end walls with blind arcades at the lower level. The arcading was repeated at first floor level on the south side and carried as an open structure round the end walls as well. The south, west and east walls were constructed of rendered red brick with Kelton limestone ashlar dressings (figure 11). The lower storey was two bricks thick and the walls reduced to one and a half bricks in thickness at the first floor. This brickwork was plastered internally.

The front and side walls were provided with ashlar quoins, which are laid alternately long side/short side at each corner but forming a proper pilaster at each end of the south front. The only external division between the ground and first floor is the square string, which is the continuous outer edge of the sill of the first floor openings (figure 20). The openings were almost certainly never glazed and were probably shuttered when not in use (hence the surviving angle irons). The brick walling was mainly of Flemish bond. There is evidence for a reddish wash over the brickwork of the front façade and pointing plus a thin coat of limewash which

would have given the building a uniform appearance from 1766, ie before it was rendered over, probably at the same time as the course 'improvements' of 1818–20.

Service 'Wing'

The north wall of the oblong block, in common with the service wing, was built of squared coursed limestone rubble, plastered inside. This service wing measures about 22 feet east to west and about 9 feet north to south. In thickness the rubble is similar to the brickwork of the main block. The corners have stone quoins alternating long and short sides (figure 16). The openings have timber lintels and casement windows. There is a door in the east wall (an insertion of 1818) and two internal doors communicating into the main block. Below floor level a basement was excavated comprising a cellar to the centre and west and to the east a kitchen lit by a window at the east end. In the south wall of the kitchen a chimney breast was found with a fireplace and the remains of a cast iron grate set in brick cheeks (figure 12). The flue from the fire sloped west up to the top of the building and escaped through a central opening. The floor of the cellar was of pitched stone set in sandy yellow clay. It is clear that the cellar had been used for storage because sockets for racking and shelving were discovered along the south wall. At ground level and above large areas of plaster and a little paint survived clinging to the walls, particularly where the eastern stairs had been and on the west side of the service area (figure 12). The remains of five turning steps were found in the north-west corner. These stairs to the east turned continuously around a newel ascending from the cellar while those on the west side, giving access to the second floor level, had a more gradual rise and a handrail. They too turned around a central newel. Donald Mackreth concluded that, 'The western stairs connect the cellar with all three levels and are ideal for pot boys, who would never have had access to mix with the gentry



Figure 11 Close-up of ashlar dressings in north arch and render on parapet of west face of main block. (Donald Mackreth)

other than to deliver orders'. The eastern staircase was evidently for the exclusive use of the Quality.

Brick Floor

The floor of the grandstand was built of brick quarries, which had survived relatively undisturbed along with the padstones of the ground floor piers. In the middle of each arch was a stone which may have been introduced to prevent wear and tear. One interesting discovery was a slot running the length of the floor from east to west containing a very decayed piece of timber packed with Colleyweston chips. This slot may well have housed a partition for a counter (figure 13). Iron fittings in the



Figure 12 Remains of fireplace and flue. Note grooves in plaster where staircase handrail was fixed. (Author)



Figure 13 Brick paving revealed in view looking west of padstones of south arcade; slot in brick floor may have held partition for counter; stones set between arches possibly reduced by wear. (Donald Mackreth)

back faces of the piers and responds suggest that the ground floor arcades were shuttered when the meeting was over.

Changes in the early nineteenth century

Records reveal that the grandstand was damaged by 'volunteers' in 1803. This may account for some curious areas of patching in the walling. The graffiti, which date from the 1770s seem to cease in 1813, perhaps suggesting that the grandstand was fenced to prevent access by the unruly. During the period 1818–20 alterations to the structure and style of the grandstand were carried out. A doorway was cut in the north bay of the east wall. This was a careful insertion with the aim, it can be surmised, of separating the gentry from the rest of the populace who would have patronised the refreshment area (and betting facilities) on the other side of the partition facing the racecourse. All the render, which had been once confined to the side walls, was extended over the main façades, covering the fine colour-washed brick exterior, which has been previously described. The render was then limewashed to produce an umber colour.

This later appearance of the grandstand is suggested by a small elevation drawing by W Kemp dating from about 1820, although the number of bays illustrated is inaccurate and the depiction of the roof treatment uncertain (figure 7). What is clearly shown is that ornamental panels on the three principal faces of the grandstand at parapet level and a decorative device in the middle of the south front (likely to have been the armorial bearings of the Marquis) were constructed around this time. The parapet was of brickwork faced in render (figures 10, 11). The brickwork of the panels has been analysed as a buff red made from estuarine clay, first exploited at Stamford in the early nineteenth century. This gives credence to the date of 1818–20 for the improvement works. A balcony was also inserted at first floor level and it is possible that a new floor was run out onto the balcony, with floorboards now running north-south rather than east-west as had been previously probably the case. The photograph (figure 9) of 1953, taken before the front façade collapsed, indicates holes where a balcony was attached to the building. The balcony was cantilevered out, canopied over and possibly supported on posts. At this time the keystones at the top of the ground floor arches were cut back to receive the balcony floor. A flagstaff may have also been affixed at the east end of the south façade.

Very little documentary evidence survives for the appearance and construction of the grandstand in either 1766 or 1818–20. There are occasional references in the *Stamford Mercury* but otherwise the record of the lease to John Terrement, Drakard's comments and the Kemp illustration are all that are available. The photograph of 1953 came to light during the repair works and there is a useful series of photographs taken for the RCHME (figures 4, 5, 6) during 1966 and 1981, before the whole of the top storey and virtually all of the interior had disappeared. By 1996 all the floors and ceilings had collapsed and the slate roof, constructed in 1873 after racing ceased, had begun to fall.

One small but significant piece of evidence remained for the structure of the early-nineteenth-century roof

over the top storey. Wooden posts remained embedded in the structure of both south quoins resting on a stone string under the parapet (*figure 14*). It would appear that the roof structure was permanent, with upright posts probably comprising a three or four truss system with no ties. Nothing remained of the floors of the grandstand although the position of some of the remaining timberwork suggests that the ground floor ceiling may have had its beams and joists fully exposed. Some of the shutters partially survived but a number of important features including the south-east keystone of the lower arcade of the east wall had been robbed from the site.

THE REPAIR AND RE-USE OF THE GRANDSTAND

Freeman Historic Properties Ltd. specialises in the repair and resale of listed buildings 'at risk'. All projects are carefully assessed to achieve an economically viable future for a listed building without compromise to its historic character and setting while conserving and reinstating as much historic fabric as possible.

The grandstand was approaching ruination when it caught the author's attention in 1991 as a building that might, despite its dilapidated state, be worthy of restoration. Sufficient remained to make its repair and conversion a viable and worthwhile prospect but this was possible only with substantial English Heritage grant support. English Heritage regarded the grandstand as of outstanding interest and it was formally upgraded to II* status in 1994.



Figure 14 Wizenod timber is all that remains of the second floor roof structure, November 1995. (Author)

Grant aid was used to bridge the gap between the market value of the repaired building and the expenditure involved in putting the grandstand into a marketable condition, taking into account all development costs. Peterborough City Council and Cambridgeshire County Council offered small grants for repairs to the historic fabric and for Donald Mackreth's archaeological report. Particular difficulties were presented by the grandstand's long distance from the nearest electricity supply and the absence of a water supply on the site. The balance of funding was provided by Freeman Historic Properties Ltd.

A 300-year lease at a nominal rent was successfully negotiated with the freeholder, Burghley House Preservation Trust, with the object of repairing and converting the grandstand into a residence, there being no realistic possibility of re-using the building as a viewing stand. The building lent itself for conversion to a house because new services, bathrooms and staircases could be conveniently inserted into the rear service wing and large, flexible rooms provided at ground, first and top floor levels. The location offered splendid views over the field occupying the site of the former racecourse. Much of the plant was stowed in the basement and cellar area. An electricity supply was introduced and a borehole sunk to supply water.

Brian Austin of Kettering, an architect experienced in the repair of historic buildings, was the commissioned architect. Early on the decision was taken to ensure that the conclusions of Donald Mackreth's archaeological report should inform the design, form, layout and materials of any reinstatement and new building and that future generations should be able to distinguish the surviving historic fabric and inspect it where possible. Paul Reading, the engineer, determined the existing structure sound enough to allow the superstructure to be reinstated on the existing piers and walls. There had been remarkably little movement in the foundations.

Method and approach

The site was first cleared of debris, all timber being first examined by the archaeologist and fallen stone and brick being set aside for reinstatement and re-use (*figure 10*). Patches of eighteenth-century plaster with at-

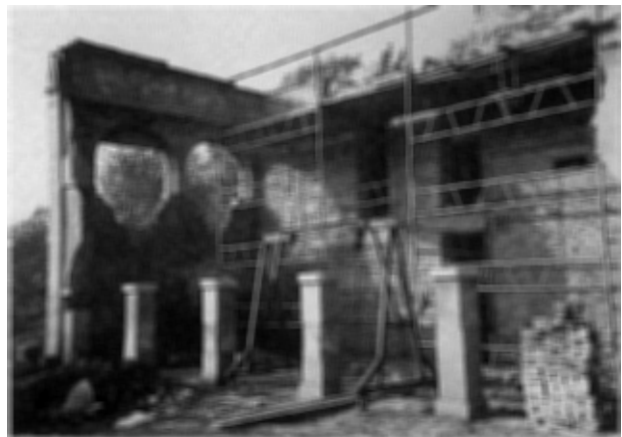


Figure 15 Rebuilding south façade, integrating old stone with new, October 1995. (Author)

tached paint, all undamaged timber, brickwork and stonework were examined and conserved where possible. Only rotten timber was discarded. Lost areas of stone walling were reinstated with new stone of the same type, coursed and pointed in the same way (figures 15, 16).

The south façade of the main block was rebuilt using fallen stone with additional new stone and brickwork. Coleford brick was chosen for the new brickwork of the south façade where the historic bricks had been lost from the site (figure 17). Graffiti were retained. The arcades were re-created following the dimensions of those that remained. The precise composition of the render was analysed by Hirst Conservation,²³ reconstituted, and, along with the umber limewash, patched in where required (figures 18, 19). New floors were inserted using the original sockets in the masonry and riven laths were used behind the ground floor ceiling prior to coating with lime plaster. Thus there were several instances where fidelity to the original method of construction was followed although the work will remain unseen by those visiting the building.

It was decided to plasterboard the interior on a modern frame, thereby leaving the eighteenth-century walling and plaster behind intact and accessible for future investigation. The brick floor was left *in situ*. A

damp proof membrane was inserted over it followed by a concrete screed with a small area left free for display of the historic brick paving. Once it became clear that the grandstand never had glazed fenestration it was decided to reflect this construction by inserting a non-reflective glazed screen at ground floor level set well behind the rebuilt open arcades. The other openings received glazing which followed patterns typically found in Stamford (figure 20).

The top storey posed more of a problem in conservation terms because so little evidence remained for its appearance either in 1766 or in 1820, save for the fragments of timber supports already mentioned (figure 14). It was decided to recreate the top storey in a sympathetic modern idiom using a swept copper roof which would bear lightly over the surviving historic fabric, yet respect the panache of the original design (figure 18). The new second storey comprises a steel frame holding glazed sliding doors. The roof is of timber with shaped eaves, covered in copper. A viewing platform was created and a railing set on the parapet as



Figure 16 Stonework at rear of stand under repair, Winter 1995; timber lintel of door opening and case windows are of 1766. (Author)

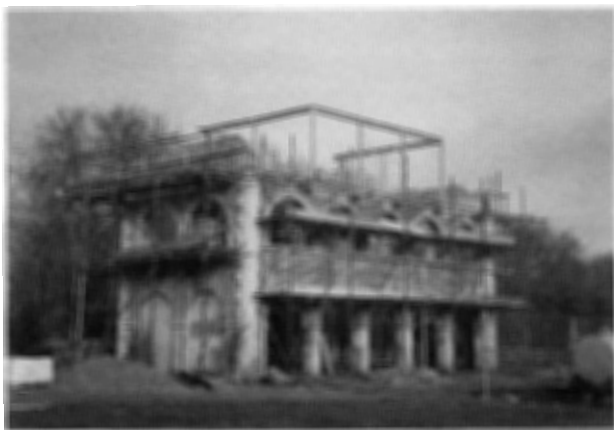


Figure 17 Upper storey under repair, Spring 1996. Steel frame for new second storey in place. (Author)



Figure 18 Coleford bricks instated in south façade being rendered; parapet being reinstated; new top storey with glazed openings in steel frame and swept copper roof constructed over timber frame, June 1996. (Author)



Figure 19 The render has been limewashed based on an analysis of the original ingredients, which included coppers; the newly glazed windows follow a traditional Stamford pattern; the chimney echoes a design of 1769. (Author)

a gesture to Drakard's description. The stone chimney copies a drawing of a chimney of 1769 illustrated in Nathaniel Lloyd's *History of the English House*²⁴ and closely resembles one shown in a rare illustration of the rear of the York grandstand. In the service wing a new staircase was inserted where the eastern of the two historic staircases had formerly been placed.

All the newbuild has been designed in a manner which can theoretically be reversed and which allows maximum inspection of the remaining historic fabric. A datestone marking the completion of the repair and

conversion works was placed in the rear wall in 1996 close to the reinstated datestone of 1766. This latter datestone, it may be assumed, was once in the middle of the south façade but was removed when the façade was rendered, doubtless to be replaced by the long vanished arms of the Marquis of Exeter. Sale of the converted grandstand to two private owners was completed in January 1997 (*figure 20*).

The whole venture proved immensely rewarding, viable with grant support, and represented a successful exercise in recycling a rare building from a derelict state.



Figure 20 The Grandstand ready for sale; a recessed glazed screen at ground floor level allows the arcade to remain open. (Jackson Stops and Staff)

BIBLIOGRAPHY

- Borsay, Peter, 'Town and Turf: the Development of Racing in England c 1680-1760', in *Life in the Georgian Town* (Georgian Group, 1985).
 Dodd, William, *The Grandstand, former Stamford Racecourse, Wothorpe, Cambridgeshire*, Architect's Report to English Heritage.
 Drakard, John, *The History of Stamford*, 1822.
 Fairfax-Blakeborough, J, *Northern Turf History* (J A Allen & Co, 1951) vols 1-3.
 Hance, Frank, *Stamford Theatre and Stamford Racecourse* (Stamford Development Committee, 1970).
 Gill, J, *Racecourses of Great Britain* (Barrie & Jenkins, 1975).
 Mackreth, Donald, *Stamford Racecourse Grandstand, Archaeological report*, 1996.
 Pyper, Alice, *Langton Wold Grandstand, An Archaeological*

- Study* (Unpublished thesis, University of York, 1997).
 Stevens, John, *Knavesmire: York's Great Racecourse and its Stories* (Pelham Books, 1984).
 Tyrrel, John, *Racecourses on the Flat* (Crowood Press, 1989).
The Town of Stamford, Royal Commission on the Historical Monuments of England (HMSO, 1977).

NOTES

- 1 Hunting towers and lodges associated with the chase were rather different, erected so spectators could follow the action from afar. The Cage at Lyme Park in Cheshire is an example, as is Robert Smythson's Wothorpe Tower also on the Burghley Estate, near Stamford grandstand. Paul Stamper is studying the building type. Lodges such as The Queen's House at Greenwich were built for viewing the chase and also for overnight accommodation and entertainment.

2 The Tower House, Blickling Hall, 1773, is an example of a decorative building used for watching racing and serving refreshments.

3 The 2nd Marquess of Exeter, owner of Burghley House and the Stamford racecourse, had a stud farm and training stable in Newmarket in the eighteenth century.

4 I am grateful to Lisa Etheridge for providing much information. See Nicholas Kingsley, *The Country Houses of Gloucestershire*, I, 155–8 and Henry Russell, 'Lodge Park', *RICS Building Conservation Journal*, Spring 1998, 15.

5 13 Geo II c 19, 'An Act to restrain and prevent the excessive increase of horse races'.

6 Alice Pyper, *Langton Wold Grandstand: An Archaeological Study* (Unpublished thesis, University of York, 1997).

7 John Tyrrel in *Racecourses on the Flat* describes the genesis of many historic grandstands.

8 Pyper, *op cit*. Flat, enclosed, uncultivated land such as at Knavesmire was a prerequisite for the establishment of a racecourse.

9 Erected at a cost of £1,000 raised by an issue of life member badges. Carr designed Beverley's Assembly Room (1761–3), with which grandstands share some design features.

10 Information supplied by Vivat Trust from document organising public subscription, 1776.

11 *Beverley Guardian*, January 3rd 1925, quoting record of inaugural meeting, 1767.

12 J Drakard, *The Town of Stamford*, 1822.

13 Tessa Gibson, 'The Design for the Knavesmire Grandstand', *Georgian Group Journal* VIII (1998), 76–87, discusses York and Richmond grandstands.

14 Tyrrel, *op cit*.

15 Frank Hance, *Stamford Theatre and Stamford Racecourse*, 1970.

16 Malcolm Airs, 'The Strange History of Paper Roofs', *Transactions of Ancient Monuments Society* 42 (1998), 41.

17 Only one contemporary illustration of the interior of a historic grandstand has been identified by the author – that of the Royal Party in the Queen's Stand at Ascot in 1868 – showing the typical flat floors, loose chairs and large openings in an otherwise enclosed stand (figure 7).

18 The new stand, of 1996, was designed by Francis Roberts.

19 'In 1818 the Marquis of Exeter, to whom the course

belongs, among other improvements, railed round the greater part of it, hitherto enclosed by ropes; he also formed a straight mile course, made a new entrance to the ground, and otherwise ornamented it, so that it is now allowed to be one of the most beautiful and picturesque in the kingdom.' Drakard, *op cit*.

20 Martin Smith suggests that Thomas Lumby, William Daniel Legg or George Portwood might have been involved. (Letter to author, 21 April 1995.)

21 MSS 85/14, Burghley House archives.

22 Drakard, *op cit*. Dimensions are similar to those of Lodge Park.

23 Copperas proved to be the ingredient which gave a brownish pigment to the limewash. Hydrated ferrous sulphate was frequently used as a colouring agent in brickwork and for dyeing and tanning.

24 Nathaniel Lloyd, *History of the English House* (Architectural Press, republished 1975), 350, figure 576.

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Dr Jenny Freeman BA(Hons) GradDiplCons(AA) IHBC is an architectural writer and Director of the Historic Chapels Trust. She runs her own small company which repairs listed buildings at risk.

HOW WE SELECT WHAT TO CONSERVE: UNLISTED BUILDINGS WITHIN CONSERVATION AREAS

Deborah Pope & Linda Watson

Stand in the centre of any historic settlement in England and you will probably be located in the middle of a conservation area. There are now over 9000 conservation areas, defined as 'areas of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance'.¹

Conservation areas are designated by Local Authorities. The criteria for selection are based upon a regional assessment of 'specialness'. Conservation area legislation implies that the special character of an area can be identified, measured and recorded. Indeed, the legislation can only be effective if the qualities which led to designation, and therefore have been deemed worth preserving and enhancing, can be established.

In England, conservation area appraisals are the principal instrument used by Local Authorities to evaluate and confirm the characteristics that make conservation areas special in their district, and to guide conservation management and planning. Guidelines, published in March 1997, by English Heritage, provide a checklist of thirteen items suggesting features that relate to the character of any given place.² This paper looks at one of the thirteen aspects of the appraisal process as outlined by English Heritage: 'the contribution made by key unlisted buildings'.³

Planning legislation controls on all buildings within a conservation area are currently only differentiated by the additional controls attached to listed buildings. This paper suggests that the evaluation and selection of key unlisted buildings that occurs within the appraisal process, introduces a hierarchy on all buildings within a conservation area. This process places buildings on a graded scale from the highly valued (listed), those contributing positively to the character of a conservation area (key unlisted), neutral buildings (neither enhancing nor detracting from the character of an area) and those detracting from the character of an area. If adopted as supplementary guidance in the Local Plan, the documentation of the selection process will constitute material consideration and effectively determine those buildings to be conserved and those that 'could suitably be replaced'.

The Selection Process

The question of what to conserve and what to replace within the field of conservation has evolved through techniques of evaluation. English Heritage suggests that, with regard to conservation areas, 'the evaluation of special architectural or historic interest should be based on a careful analysis of the area, which should be as factual and objective as possible'.⁴ However, the

guidelines on the nature of the contribution of buildings to the character of the area and the process through which these buildings may be selected on objective criteria, are particularly unclear. The following extract is taken from the aforementioned checklist.

It will often be helpful to identify those key unlisted buildings that make a particularly important contribution to a conservation area as well as those which clearly detract from it and could suitably be replaced.⁵

A listed building appears on the list compiled by the Secretary of State for the Environment. It is included in the list for its special architectural or historic interest defined by nationally agreed criteria, selected by a recognised 'expert' who has a special knowledge of, and interest in, such buildings. An unlisted building is one which does not appear on this list. The addition of the adjective 'key' is significant. Meaning 'essential; of vital importance',⁶ this adjective suggests a selection process, determining 'key' unlisted from those unlisted buildings that are, by implication, not essential to a conservation area. The wording in the guidance suggests it is the positive contribution to the character of a conservation area to which the key unlisted buildings are referring. To summarise, a key unlisted building is one that is not listed, but makes an essential positive contribution to the character of a conservation area.

The extract implies that there are other buildings within a conservation area which should be identified as detracting from the existing character, that could be replaced. This is important, as it begins to suggest the weight that the selection process carries. It also implies that there are three categories of unlisted buildings: those buildings essential to the character of a conservation area (key unlisted buildings); those detracting from the character; and those unlisted buildings not selected. If unselected buildings are neither important to the character nor detract from it, they fall into category thirteen on the checklist as 'neutral areas':

those areas which neither enhance nor detract from the character or appearance of the conservation area, but where there might be some potential for enhancement, should be recognised.⁷

The reference to 'potential for enhancement' is significant as it implies that neutral areas might be potential candidates for change. The question of whether a building is selected, as a key unlisted building, or not is therefore a significant one. Practical guidance on conservation area management, introduced in 1998 by the English Historic Towns Forum, has dropped the adjective 'key' from their literature. Within the docu-

ment, unlisted buildings are still addressed as important within a street-scene, both individually and as groups.⁸ It also refers to the need to identify non-listed buildings of townscape value for inclusion in a Local List, indicating that the majority of such lists are drawn up as part of a conservation area assessment.⁹ We may speculate that it is this very grading of buildings that has been identified as the essential practical task, and may be responsible for dropping the term 'key'.

The character of a conservation area built mainly in one architectural style, like Bath, may be easy to identify, and reference to an architectural style or period may be all that is required to justify the selection. In other areas, where diversity is important and architectural styles are less easy to categorise, like Dartmouth, selection is more problematic. It is important to discuss how an appraiser would apply the English Heritage guidelines to understand the selection process.

For any conservation area, it is necessary to record the location of those unlisted buildings which will feature in the appraisal selection process. A listed building is identifiable by its postal address and is also located on Ordnance Survey maps held by each Local Authority. It is possible to transfer this information to a central map, revealing how many unlisted buildings there may potentially be in any designated area. For example, 71% of all the buildings in the Dartmouth conservation area are unlisted. This compares to 69% in Dittisham, a much smaller village nearby and a designated conservation area. Whilst the figures are not intended to be representative of conservation areas, they do illustrate the potential size of the task and the human resources required to accomplish the appraisal.

The appraisal process initially appears very simple. First, one has to record on a map the listed buildings. In practice, this process is easier to perform if one invents a colour code (the majority of appraisals studied use red for listed buildings, and orange for the key unlisted). Then one has to walk around the boundaries with a map at hand, and select those unlisted buildings which contribute in a positive way (this will be returned to later) and colour the map (in orange). It is immediately apparent that one should distinguish between those buildings which contribute to the character in a positive way, and those which contribute in a negative way (coloured yellow). Those not coloured in red, orange or yellow are the neutral buildings.

Unlike listed building legislation (which is generally evaluated and applied to the individual building and its immediate context), conservation area designation centres upon the quality and interest of areas. This focus makes the evaluation process complex as each building has to be looked at and assessed within each context, and a decision taken as to both its group contribution to its immediate neighbourhood and its individual attributes. The group value of buildings is of particular importance within the appraisal process.

In an attempt to offer more guidance on the selection of key unlisted buildings, English Heritage proposes a series of questions to help assess whether or not a building makes a positive contribution to the architectural or historic interest of a conservation area.¹⁰ These questions are intended to serve as the criteria upon which key unlisted buildings are selected. It is interest-

ing to note that these questions are designed to establish if the unlisted building makes a positive contribution to the character of a conservation area; there are no questions to help decide whether a building detracts from that character. This issue is just as important; identifying such buildings may well be even more contentious, especially if the building is in private ownership. Indeed, identification of what constitutes a negative contribution could be helpful in establishing the nature and characteristics of what constitutes a positive contribution to a settlement.

Whilst it is acknowledged that every selection process involves subjectivity, it is possible to argue that some of the English Heritage questions used as a basis for selection allow less room for a variation in interpretation when applied in the field. For example, it is relatively easy to identify those buildings designed by a particular architect of local or national acclaim. Research on the historic development of the street layout of the settlement highlights any important association with earlier settlements or periods of growth, although this information is not always readily available. Similarly, historical associations with local people or past events or a designed landscape could have been recorded and found in local archives. The landmark qualities of a building are determined by its physical presence within a space, and are usually evident in photographs of the building in context. Putting to one side the discussion of the relative importance of each of these attributes, the selection process for buildings satisfying such criteria may be regarded as being dependent on purely factual evidence and, therefore, as being objective. This is important because objective criteria help to validate the selection process, a decision which may be defensible in court should the selection be challenged.

The remaining criteria can only be considered objective if the analysis of the qualities of the area (which is part of the appraisal process) can evaluate the historic and architectural significance of buildings within a conservation area. If the evaluation process is not rigorous, the criteria allow for subjectivity in their interpretation. Such criteria include: 'qualities of age, style, materials or any other characteristics which reflect those of at least a substantial number of buildings'; 'relate by age, materials or in any other historically significant way to adjacent buildings'; 'serve as a reminder of the gradual development of the settlement'.¹¹

The concept of appraisal has not evolved in isolation, but in connection with a variety of planning and conservation agencies. These include the District Planning Officers' Society (landscape appraisal: DPOS, 1993), English Nature (wildlife surveys: Nature Conservancy Council, 1987) and the Countryside Commission (Village appraisal and countryside/landscape assessment: Countryside Commission, 1991a, 1993a, 1994b).¹² All bodies advocate the importance of consultation with members of the public as part of the appraisal process. In conservation area appraisals, English Heritage recommend 'promoting a public debate that draws together local people, amenity groups, businesses, and other community organisations in a discussion on issues facing the area'.¹³ In recognition of the importance of public participation in the appraisal process, resi-

dents of Dartmouth were invited to make their selection of key unlisted buildings using English Heritage guidelines. Launched at a public exhibition, 100% of questionnaire respondents thought this was a good idea and 95% agreed to take part in the survey. However, only four out of seventy-seven surveys were returned on time, and after chasing this grew to twelve. This rate of return is disappointing, and indicates that more work needs to be put into a means of facilitating public participation in this field. Feedback from two pilot schemes suggested that the residents found the task more difficult than they had anticipated.¹⁴ Comments on the English Heritage checklist included that the guidance was too 'vague', 'confusing' and 'needed an expert'.

It would appear that it is only through an analysis of the characteristics of the conservation area that the appraiser may begin to get a sense of those elements common, unusual, unique or specific to an area. The group value lies in this commonality, finding the qualities that typify this commonality are essential. What conforms to the norm is the typical, not the extraordinary. This commonality is important because it is not the qualities of the individual building that the legislation hopes to embrace, but the quality of the area.

Implications of Selection

Having established that the practical process of selecting key unlisted buildings is more complex than first imagined, due to the necessity of grading buildings and establishing the characteristics of buildings in each context, it is necessary to consider the implications of selection. Conservation area legislation introduces a general control over the demolition of most buildings under section 74 of the 1990 Planning (Listed Buildings and Conservation Areas) Act.¹⁵ This Act emphasises the need to preserve or enhance all aspects of the characteristics that define an area's special interest. Listed buildings automatically have a presumption in favour of retention, backed by legislation.¹⁶ If it can be shown that an unlisted building makes a positive contribution to the character of a conservation area it is assessed against the same broad criteria as proposals to demolish listed buildings.¹⁷ This raises the issue of whether a key unlisted building holds the same legal status as a listed building when dealing with demolition. The Shimizu case is interesting here, the argument centring upon the definition of demolition.¹⁸ Protection over the demolition of a listed building extends to the interior. Following Shimizu, destruction of part of the fabric of a listed building (formerly classed as demolition) will now fall into the category of alterations and will require consent only if they affect the building's character as a building of special architectural or historic interest.¹⁹ Does this interpretation of the definition of demolition in the Shimizu case remove the additional protection that listed buildings formerly enjoyed over key unlisted buildings?

The establishment of a selection procedure is, therefore, one of the most significant outcomes of the appraisal process. If documented and adopted as material consideration, applications for the demolition of those unlisted buildings left white or coloured yellow (neutral or detracting) within the appraisal document

will be looked upon with favour compared to those coloured in orange (identified as contributing positively or as key unlisted buildings). It may, therefore, be argued that the appraisal process plays an important role in the future management and shaping of the conservation area. As material consideration, the documentation of the evaluation and selection process effectively determines those buildings which will be conserved, and those which may be replaced.

In conservation areas where Local Authorities have not carried out appraisals developers are more likely to successfully challenge the nature of the contribution made by an unlisted building, and therefore influence planning decisions. In those areas where an appraisal has been carried out, if the English Heritage guidelines have been followed, developers will have an indication of where future development might occur.

The non-selection of buildings, following the appraisal process, may also have implications for the character of the conservation area. Buildings are not isolated entities; they have a substantial impact on the streetscape, skyline and material qualities of the settlement. They enclose public space, line roads and provide the urban grain which guides the growth of a settlement. There may be severe implications on the character of an area through the removal of buildings which have not been selected within the appraisal process. For example, time pressures and access restrictions often mean that buildings are frequently selected upon criteria applied to their front elevations, features and mass. The rear of properties is sometimes as important as the front, providing the private living accommodation that offers flexibility and space to expand and adapt to changes in the social structure of the household. This may well hide the intricate social network that occurs in the private rear, and may be essential to the sense of community by accommodating a mix of residents, from the aged to the young, that may constitute an essential characteristic of the area. A failure to detect this characteristic could result in buildings not being selected, open to demolition and replacement by buildings which do not allow for such flexibility, and the rich mix of social community may be lost.

Conclusion

The selection of key unlisted buildings which contribute to the character of a conservation area appears to be a simple task – a matter of picking individual buildings or groups of buildings whilst taking a stroll around the conservation area. This paper has put the emphasis on the complexity of the task which should not be underestimated. The legal and other implications of the selection process have been noted. It has not attempted to discuss the specific guidelines for the selection process, but merely the process of selection following English Heritage guidelines.

The selection process implies a three or even four tier hierarchy: conservation areas are viewed as consisting of buildings essential to the character of an area; those which contribute to the character of the area in a positive fashion; those which contribute in a negative fashion; and neutral buildings which neither contribute nor detract from the existing character. This labelling of buildings has planning control implications. If adopted

as material consideration in the Local Plan, the appraisal conveys a degree of protection upon key unlisted buildings, which is assessed upon the same criteria as that of a listed building when it comes, for example, to decisions regarding demolition. This represents a large number of buildings which may currently be at risk, should an application for demolition be made. Whether a building, or group of buildings, are selected as key or not, is therefore important.

Within a conservation area, the benefits/ consequences of a selection process which effectively labels buildings under different headings, requires further investigation. It is also evident that clear and objective evaluation criteria should be established, ie that the subjectivity of each criterion should be assessed.

The crucial element in the selection process is the reliance upon a thorough analysis to 'judge' the selection of one building over another. How do we establish the nature of the contribution of unlisted buildings to the character of a conservation area: we look at groups of buildings; we evaluate to find the typical features which represent the norm; we look to objective criteria to establish a hierarchy; we evaluate the extent to which the buildings conform with this norm; we grade the buildings as essential, neutral or detracting. The group value determines not only whether a building is selected, but also justifies the implications of selection and supports the decision to conserve or to 'suitably replace'.

NOTES

- 1 Planning (Listed Buildings and Conservation Areas) Act 1990, Section 69(1)(a).
- 2 English Heritage, *Conservation Area Appraisals: Defining the Special Architectural or Historic Interest of Conservation Areas* (London: English Heritage, 1997).

- 3 *Ibid*, 5.
- 4 *Ibid*, 3.
- 5 *Ibid*, 5.
- 6 The Concise Oxford Dictionary (Oxford: Clarendon Press, 9th ed. 1995), 743.
- 7 English Heritage, *op cit*, 9.
- 8 English Historic Towns Forum, *Conservation Area Management – A Practical Guide* (London: EHTF, 1998), 17.
- 9 *Ibid*, 24.
- 10 English Heritage, *Conservation Area Practice* (London: English Heritage, 1995).
- 11 *Ibid*, s4.4.
- 12 J Punter & M Carmona, *The Design Dimension of Planning* (London: E & FN Spon, 1997), 118.
- 13 English Heritage, *Conservation Area Appraisals*, 10.
- 14 Dartmouth Public Exhibition, Oct 1999; Dittisham Public Exhibition, Dec 1999.
- 15 Department of Environment and Department of National Heritage, *Planning Policy Guidance: Planning and the Historic Environment*, PPG 15 (London: HMSO, 1994), s 4.25.
- 16 PPG15 s4.27.
- 17 *Ibid*.
- 18 The decision in the Shimizu case (*Shimizu(UK)Ltd v Westminster City Council 1997 JPL 523*) regarding the definition of 'demolition' will apply both to listed and unlisted buildings that contribute positively to the character of a Conservation Area.
- 19 PPG 15 s4.28.

Deborah Pope BA DipArchitecture with Landscape Design PgDip Architectural Conservation is a research assistant at the University of Plymouth, School of Architecture.

Linda Watson BSc BArch DipArchConservation is a registered architect who co-ordinates the postgraduate courses and research in architectural conservation at University of Plymouth, School of Architecture.

HILL HALL, ESSEX: THE POST-FIRE RESTORATION

Nick Hill

This paper is a revised and extended account based on a lecture given to the Association on 12th May 1999.

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INTRODUCTION

Hill Hall is a major late-sixteenth-century country house, located three miles south-east of Epping in Essex, on a hilltop which now overlooks the M25. It was built by Sir Thomas Smith, Queen Elizabeth I's ambassador to France and is notable in particular for its early classical architecture and contemporary wallpaintings. Hill Hall was purchased by the government after the Second World War, but in 1969 the whole historic core of the building was gutted by a disastrous fire. After many years of decay, partial repairs and false starts, English Heritage undertook the comprehensive repair and restoration of the external shell in 1993-8, with the objective of returning the building to beneficial use.

HISTORICAL BACKGROUND

Architectural historians had for long puzzled over Hill Hall's precocious classical features, and the extensive archaeological investigations carried out in the early 1980s, as the precursor to this project, succeeded in piecing together the intricate sequence of its development and establishing it as one of the most significant classical buildings to survive from the Tudor period in England, an intriguing mixture of classical designs overlying Tudor tradition.

Thomas Smith was born in Essex of relatively humble parents. A classical scholar at Cambridge of outstanding ability, he quickly became Regius Professor of Civil Law, studying in Paris, Orleans and Padua. Turning

from academic life to politics, he became Secretary of State in 1547, but was forced to retire from public life in 1553 with the accession of the Catholic Queen Mary. On marrying his second wife in 1554, he acquired the Hill Hall estate and began a preliminary building there in 1557-8. Smith's fortunes revived in 1558 with accession of the Protestant Elizabeth I, and he now travelled to France as Elizabeth's ambassador, where he would have seen buildings of the new classical style which had been spreading into France from Italy since the earlier sixteenth century. Returning to England in 1567, he began to reconstruct his earlier building at Hill Hall 'more strongly and splendidly' as he noted in his diary. Turning his powerful intellect to the study of buildings, his interest in architecture developed rapidly in this period, with a further spell as French ambassador in 1571-2 and a growing collection of treatises on classical architecture in his library. By his death in 1577, the house was completed except for the service wing, and remains very much the creation of this great, multi-talented 'Renaissance Man'.

The building has a typical Elizabethan plan, with four ranges surrounding a central courtyard, and also a service wing projecting to the northwest (figures 1, 2). Smith built the main block in two phases, starting with the west and north ranges in 1567-8, followed by the east and south ranges, completing the courtyard, in

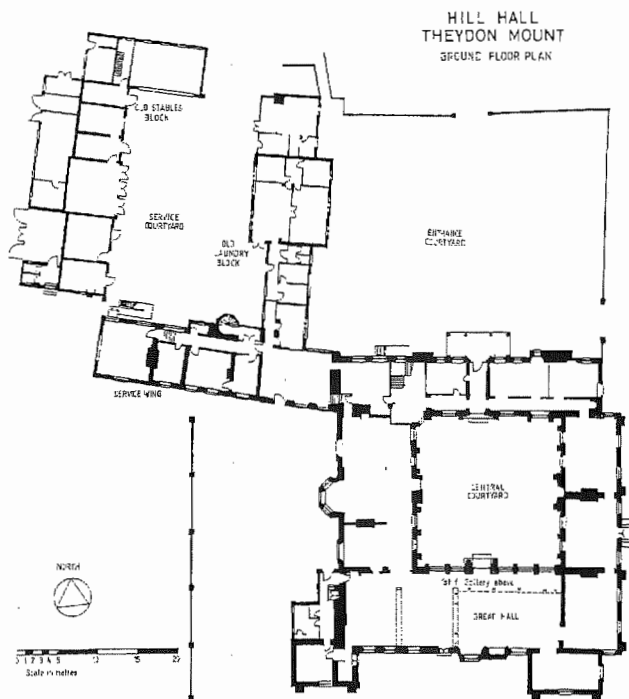


Figure 1 Ground floor plan.



Figure 2 Aerial view from the east in 1998.

1572–3. His use of the classical style became increasingly sophisticated in the second phase of his work. The courtyard elevations now showed a fully developed use of the orders, with the Doric and Ionic superimposed by Corinthian aediculed dormer windows of distinctively French inspiration (*figure 3*).

Externally, the elevations are less symmetrically composed, but the south front shows the exceptional use of 'giant' order columns, rising through two storeys, the first occurrence of this classical feature in England (see *figure 22*). The whole of this classical architectural detail was constructed of moulded brick and terracotta covered with thin lime plaster to simulate stone, there being no local good source of building stone. The intricacy of this method, both in its constructional detail and its ornament, is exceptional for the period and was probably produced with the assistance of continental workmen brought over by Smith for the purpose.¹

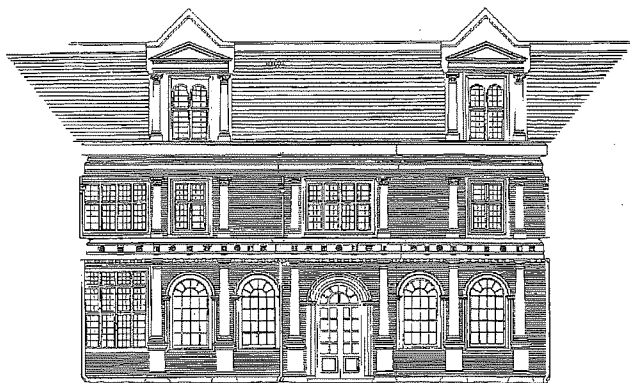


Figure 3 The South Courtyard Elevation, as restored.

Not only was the architecture of the building unusually ambitious, so also was its decoration. The north and west ranges were decorated about 1570 with a very extensive series of wallpaintings.² Most of the wallpaintings were subsequently covered over and not rediscovered until the twentieth century. Extensive fragmentary survivals indicate the ambitious nature of the overall scheme, but despite the fire, two whole rooms survive very much intact, and are probably the most important domestic wallpaintings of the period in England. The principal series of paintings depicts the classical legend of Cupid and Psyche, and is based very closely on a set of Italian engravings by Agostino Veneziano and the so-called 'Master of the Die', which research has shown were held in Thomas Smith's library. A separate series, grouped in a single room (possibly Smith's study), shows scenes from the life of the Old Testament King Hezekiah (see *figure 27*). It, too, is based on woodcuts by the Flemish engraver Salomon, but here the artistic treatment is far more sophisticated, with the figure drawing particularly fine; recent analysis during conservation confirmed that this series is based with much more artistic freedom over its charcoal underdrawing, and is probably by the hand of the master painter himself.

Like most country houses, Hill Hall has seen a complex sequence of alterations in successive centuries. Around 1714, the east front was rebuilt in English Baroque style, reusing Sir Thomas' 'giant' columns in a more regular fashion, adding a central pediment with a vigorous plaster cartouche, and creating an enfilade suite of three new rooms inside. The open loggia of the south courtyard elevation was also filled in with sash windows at this time. In 1791, Humphry Repton produced one of his Red Books recommending



Figure 4 The North Front in the 1930s, with former clocktower.

improvements to both the house and grounds. Landscaping of the park dates from this period, while in the house corridors were introduced and the courtyard elevations were heavily remodelled in Roman cement. In 1844 the west front was rebuilt and much of the range behind remodelled, creating a new dining room. The Smith family continued to live in the house until the late nineteenth century, when it was let to a succession of tenants. One of these, Mrs Charles Hunter, employed the architect Reginald Blomfield in 1909–12 to carry out the last major alterations to the house, with considerable interior remodelling and extensions to the service buildings. A fine series of historic photographs show Hill Hall in its final Edwardian splendour (figure 4). Hill Hall's use as a country house came to an end with World War II, and in 1952 it was converted to a women's open prison. In 1969, the disastrous fire gutted the whole of the four principal ranges around the courtyard, though the service courtyards survived.

AFTER THE FIRE: 1969–93

The fire of 1969 quickly swept through the roofs of the

four ranges around the central courtyard, and was only just stopped from spreading into the service wing (figure 5). Almost the whole of the historic core had been gutted, leaving a shell full of charred timber – a sight made tragically familiar in recent years by the disastrous fires at Hampton Court, Uppark and Windsor. In each of these more recent disasters, a huge post-fire salvage operation was immediately mounted, and increasingly sophisticated techniques have been employed to secure the survival, against the odds, of many historic features. But at Hill Hall, over two decades earlier, neither the techniques for such an approach nor the necessary commitment were to be found. Although its architectural importance had been recognised by a few academics, its status as a prison obviously made it little known or valued. As a government-owned building, it fell into the familiar trap of having no insurance funding to pay for its rescue. And so it was abandoned, with only clearance and elementary measures to prevent collapse. It is easy, from the vantage point of today's more exacting standards, to criticise the treatment of Hill Hall at this time; but it should be remembered that in the preceding post-war years, country houses were being purposefully demolished at a regular and alarming rate. In 1952, even Coleshill, a country house of enormous and widely recognised significance in English architectural history, was entirely demolished after a fire.

Remarkably, the two principal wallpainting rooms survived the fire relatively intact, and a temporary roof served to protect them for some years. In the late 1970s, the Department of the Environment's Directorate of Ancient Monuments and Historic Buildings (DAMHB), who had taken on responsibility for the building, started the first determined attempt to repair Hill Hall, completing the re-roofing of the north range and replacing the temporary roof in 1981. This was a workmanlike job, a plain new roof which gave effective protection to the wallpaintings, but made no attempt to restore the lost architectural features of the cornice,

Figure 5 The morning after the 1969 fire.



pediment, dormers and clock tower.

An intensive programme of archaeological recording and analysis now got underway, led by Paul Drury, then of the Chelmsford Archaeological Trust. Excavations revealed the immediate predecessor of the present house and its medieval antecedents, but more significant was the analysis of the upstanding building fabric. This was one of the first large-scale applications of rigorous, archaeological method to a standing domestic building. The fire-gutted shell provided a rare opportunity to examine every detail of the structure of a major early country house. Each of the internal wall faces was scaffolded, gridded up with a framework of string lines and meticulously recorded, identifying the complex sequence of alterations to the building. Most fascinating was the discovery of all the original sixteenth-century details of the classical inner courtyard elevations, underneath much later remodelling in Roman cement – information which was to have a profound effect on the conservation programme. An interim report which elucidated the complex development sequence was published in 1983,³ but, most regrettably, funding for completion of the building analysis was not secured until the closing stages of the repair project. A full English Heritage monograph on Hill Hall is now in preparation by Paul Drury with the Wessex Archaeological Trust and should be published soon.

Over the next decade, various attempts to create a viable future for Hill Hall came to nothing, and the building became an embarrassment to its new owners (from 1984) English Heritage, as a leading 'building at risk' in its own care. An outline scheme was drawn up in 1984 for re-roofing, but this was not progressed. In 1985, a decision was taken instead to consolidate it as a ruin, but no funding was allocated and the condition of the building continued to deteriorate. Recognising the high costs and great difficulties associated with making Hill Hall a normal English Heritage historic property open to the public, it was decided instead to pursue leasing to a developer for a suitable beneficial use. A scheme for a nursing home was approved in principle in 1987, but the developer withdrew in 1989 as the property market went into recession and the complexities and costs of the necessary building work became apparent.

Concurrent with these development proposals, an extraordinary programme of repair and restoration work was begun. The archaeological analysis had revealed the details of the original early classical façades in the central courtyard, which had been later heavily remodelled in Roman cement, with various other alterations. These elevations reached their most sophisticated stage on the south and east sides of the courtyard, representing Thomas Smith's last and most advanced phase of work in 1572–3, with use of the three superimposed orders in a more rigorous, symmetrical design and an open loggia. The construction techniques had also advanced from the earlier phase on the west and north elevations, where poor quality Reigate stone was used for the classical details. Instead, the whole of the classical orders were constructed in neatly detailed terracotta or cut brickwork. The archaeologists had assembled full details of the original design, including

the crowning Corinthian dormers, lost before the fire. All this analysis prepared the ground for a very bold decision: to restore the south and east courtyard elevations to present the key features of the original 1572–3 design. The detail of this work is described below. Unfortunately, the restoration plans proved over-ambitious at the time, and as costs of the work rose and the developer who had planned to take over the building withdrew, the restoration programme on the two façades was abandoned, half-finished, in 1989.

Hill Hall stood once again decaying and unloved. Then, in 1992, another developer was found who put forward proposals for conversion to a country house hotel, with an adjoining golf course. Although the scheme looked promising at first, it soon emerged that viability as a hotel meant major alterations and extension to the service courtyards, to accommodate the necessary bedrooms – 91 in number – and leisure facilities. While English Heritage remained anxious to secure a viable future for the building, the hotel solution increasingly appeared far from ideal. The transfer of responsibility for Hill Hall to English Heritage's new Midlands Historic Properties office in April 1993 brought the opportunity for a comprehensive review of the building's future. A new initiative now emerged, driven forward by the Midlands Director Jeff West, to rescue the building from its sorry decline.

THE NEW INITIATIVE OF 1993

I joined English Heritage on 1st July 1993 and the very next day found myself amongst the party on our first reconnaissance of the building for which we had become responsible. I little thought how the building was to dominate the whole of my professional life for the next five years! Hill Hall at that time presented an impressive but depressing sight. The roofless walls stared out over a desolate landscape, with blank plywood panels instead of windows. An enormous scaffold raking shore – erected after the collapse of the great chimneystack on the south front in the gales of 1987 – rose out of the former Great Hall, propping up the leaning end gable wall (*figure 6*). Inside, vegetation was rapidly taking hold and the courtyard elevations stood half-restored under temporary cappings, abandoned since 1989. Outside, the gardens had disappeared under a sea of grass and undergrowth. The grim atmosphere was topped off by an encircling array of security guard dogs, chained on running wires.

With the help of a hired hydraulic platform, I coordinated a rapid condition survey to familiarise ourselves with the building and assess repair needs. The survey, together with reflection on the false starts and failures of preceding decades, fed into a comprehensive analysis of the way forward. The fast deteriorating condition of the building, with major fabric loss continuing, meant we were compelled to act. The vulnerable nature of the soft brick fabric with the wall core laid in earth (not lime) mortar, the need for lateral bracing from missing floor and roof structures, and the survival of large areas of roofed service buildings, meant that preservation as a ruin was not practicable. We also realised that despite its architectural importance, the great extent of the building and the almost complete loss of its interior and

contents meant that its display simply as a historic property open to the visiting public would not be viable. The objective agreed was therefore to return the building to beneficial use. English Heritage was to act in an unusual and innovative way, as a direct catalyst, undertaking the comprehensive repair and restoration of the external envelope of the building, and then to seek a developer to take it over and fit out for a suitable beneficial use.

The Project Team to take the whole project forward emerged gradually during the initial stages. I acted as Project Manager, reporting first to the Midlands Regional Team and from mid-1995 to Alasdair Glass of English Heritage Major Projects Team. Normally, on any large English Heritage Historic Properties project, the architect's role is carried out by an external consultant, but in this case, through a combination of determination and good fortune, I managed to retain the role myself throughout. I was assisted by an Architectural Technician, first Chris Boddy and subsequently Gurdev Singh, who was able to take on increasing responsibility in the later stages. The English Heritage Inspector was Anthony Fleming, who was closely involved with all the key decisions. Keith Blair of Crosher and James was consultant Quantity Surveyor, and engineering advice, particularly on the design of the roof steelwork, was provided by Arthur McCallum of English Heritage Conservation Engineers.

Over the ensuing months, we carried out emergency holding repairs, clearance work, and formulated the



Figure 6 View over the West Range in 1993, with scaffold shoring to gable end wall of South Range.

outline design approach. Besides the obvious need to rescue and repair the external envelope, a clear strategy emerged. If we were to be successful in attracting a developer to create a viable future for Hill Hall, we had to systematically set out to reduce the risks and uncertainties which any developer would face, while leaving as much flexibility as possible for whatever use might be selected. Previously, prospective developers had either been discouraged by the huge and complex restoration programme needed, with its dangerously unpredictable costs; or they had underestimated the problems, and wasted a good deal of everyone's time before pulling out. A carefully defined set of objectives was now agreed, to target our expenditure where it would count most. The whole of the building was to be made structurally sound and the external envelope restored in all its details. Inside, however, work was strictly limited to what was necessary for structural stability, since no useful start could be made here until the new use for the spaces was determined. The only exceptions made in restricting expenditure inside to structural repair were the key surviving interior Tudor features, the wallpaintings and Great Hall chimneypiece, where intensive and specialist conservation of a high order was necessary. An outline budget estimate was produced of £1.8m – surprisingly close, as it turned out, to the final cost of £2m, despite various later additions to the extent of the work.

As to the restoration approach, the main exterior of the house was to be restored to its appearance when last a country house, before World War II, retaining all the existing fabric of earlier periods (except for the minor unsympathetic prison conversion works of 1950–52). We were very fortunate that a wealth of historic photographs provided ample evidence for reconstruction of all the lost features. For the south and east elevations of the courtyard, however, we decided the only sensible approach was to complete the restoration of the façades to their essentially Tudor appearance, following the bold initiative begun in the 1980s and left half-finished.

Such was the approach which we formulated by the end of 1993, but its implementation was to be far from straightforward. There is a tendency, when looking back at the end of any long or complex project, to see the outcome as an inevitable and logical progression, and to forget the many vicissitudes and uncertainties along the way, and the different avenues which might have been taken. The first problem was to gain commitment to the project, and allocation of the necessary budget. This was no easy task, as the trail of false starts over preceding decades had created an atmosphere of deep scepticism. Hill Hall – or 'Hell Hole' in its unfortunate nickname – was often viewed as a potential bottomless pit, into which funds could be poured with little prospect of a successful outcome. It was not until mid-1995 that full commitment was made to the first major phase of the work, and even then the budget allocation had to be stoutly defended in each following year.

RESTORATION OF THE SOUTH AND EAST COURTYARD ELEVATIONS

Some initial funding was allocated to Hill Hall for 1994–5, before the commitment was made to the full scheme.

It was decided to use this to complete the two courtyard elevations, abandoned half-finished in 1989. As described above, a bold restoration scheme had been embarked upon here, to restore the key Tudor features of these two elevations as far as possible, based on very detailed archaeological analysis. The earliest date for which reliable and complete evidence for the appearance of these elevations could be reconstructed was around 1714, so this was the date selected for restoration rather than a more conjectural restoration to the original 1572–3 appearance. Although this meant the inclusion of some early-eighteenth-century features, it would allow the restoration of all the key components of the original Tudor early classical design.

The whole of the early-nineteenth-century Roman cement, which masked the original intricate detail, had been removed and extensive repairs to the Tudor moulded brick and terracotta had got underway, with large quantities of purpose made new material in store on site, ready for fitting. A sample bay at the end of the east elevation had been completed with plaster and limewash finishes, to indicate the intended final result. While there were many who had their reservations about such a radical approach, our new team saw little alternative but to finish the job, given the extent of work already completed. And conservation philosophy aside, the reconstruction of these elevations remains one of the most complex and technically demanding pieces of conservation work with which I have ever been involved.

The impact of the completed restoration work in terms of the overall architectural design can be seen in comparing before and after photos (*figures 7, 8*) of the South Elevation, where the most radical changes were made. The great windows at ground and first floor level, which originally lit the dais at the high end of the Great Hall, had been replaced by an arched opening and a blank section of brickwork in the nineteenth century, to give a more regular appearance. It has been reinstated, bringing back to this elevation the extraordinary mixture of classical architecture and traditional Gothic, so characteristic of England's early, tentative steps into the Renaissance. The main composition is a neatly balanced tripartite design, breaking forward around the central doorway; but the medieval hall window now once again appears at one side, completely at odds with the symmetrical ambition. The whole of the Doric and

Ionic orders, with their columns and entablatures, have been reinstated to their original details. Finally, two Corinthian dormer windows—lost well before the fire—have been reinstated, recovering the full effect of the three correctly superimposed orders. By a combination of dedicated archaeological analysis of surviving fabric, study of historic photographs, and a good measure of luck, we were able to assemble convincing evidence for the authentic reconstruction of all this work in every detail.

Originally, the Tudor design would have had a larger central dormer on the South Elevation and further dormers on the East Elevation, but these had gone by 1714. On the ground floor, the original design had an open loggia with low brick walls, which was infilled with large sash windows around 1714. The sashes were reinstated, but painting the new windows in a dark colour has diminished their visual impact, allowing the loggia design to be read clearly. On the East Elevation, the eighteenth-century niche was also retained, as it had replaced the original central doorway when the East Range was reconstructed with a new cross wall here in 1714.

The building materials and techniques which went to make up this design are extraordinary. As there was no good local building stone, brick had long been used in this part of the country, with lime plaster often applied to simulate stone dressings. Hill Hall draws on this local technique, but takes it well beyond its traditional Gothic roots to create the sophisticated details of classical architecture. Over 100 different designs of moulded or cut brickwork and terracotta were used in intricate combinations around the building. There is a fine gradation of design: the plainer shapes in cut or moulded brickwork, as used for outer window surrounds or columns; the profiled shapes in finer clay for neatly moulded elements such as column bases, window mullions or cornices; and the finest decorative elements, with designs of ox skulls (*bucrania*), lion masks or heraldry (*figures 9, 10*). Such highly skilled production of terracotta is without parallel in England at this date, the nearest comparables being the use of terracotta on a handful of houses (Layr Marney, Sutton House and Hampton Court) in the first wave of enthusiasm for Renaissance ornament fifty years earlier, under Henry VIII. After Hill Hall, terracotta disappears from Eng-



Figure 7
The South Courtyard Elevation before restoration.



Figure 8 The South Courtyard Elevation after restoration, with new Corinthian dormers and dais window.

lish buildings until the introduction of Coade stone in the late eighteenth century. It seems Thomas Smith must have imported skilled craftsmen from the Continent to produce the terracotta at Hill Hall.

A high proportion of terracotta had been badly damaged, mainly due to the heavy application of Roman cement, which had often involved hacking or removing the terracotta profile. To re-create the original elevations, it was necessary to reproduce large quantities of new terracotta and shaped bricks. Our predecessors in the 1980s had already done a splendid job on this – most of the terracotta for the two elevations was already installed or stockpiled on site. All the designs had been carefully manufactured to match by

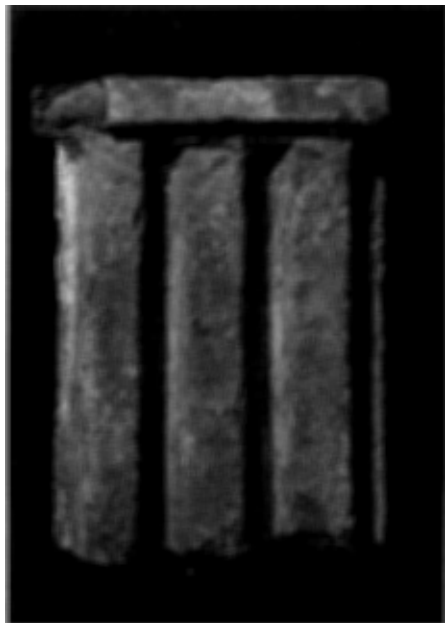


Figure 9 Terracotta triglyph of the 1570s.



Figure 10 Finely moulded terracotta cornice block with lion mask, discovered by archaeologists. This block gave the design for the restoration of the cornice of the Corinthian dormers.

Ibstock Hathernware, based on reconstruction from original undamaged sections or fragments. It is interesting that, despite the vastly improved techniques of production and firing, Ibstock had to use all their skill to approach the quality of finish achieved by Smith's craftsmen. We were fortunate, too, that the new terracotta was to be covered by plaster or limewash, so its machine-age finish and uniform colour were matters which we could overlook.

Our contract for the courtyard elevations, negotiated with Historic Property Restoration, got underway in May 1994. We had to figure out the half-finished jigsaw puzzle of intricate building elements left by our predecessors, and – literally – pick up the pieces. We worked steadily through the repair and restoration of the brick and terracotta elements, sourcing more terracotta where needed from Ibstock, who fortunately still had their earlier moulds. As work progressed, our understanding of the building deepened, and we began to look more critically at the exemplar bay on the East Elevation completed by our predecessors, with its plaster and limewash finishes. In the centre of the East Elevation, an original doorway had been converted into a niche in 1714, when the whole of the East Range except the courtyard elevation was rebuilt, and a new crosswall blocked the original doorway. Within the niche was a strange, small cupboard door inserted by our predecessors, but firmly locked. What was its purpose? The key had been lost, along with the secret of the cupboard's contents. One day, curiosity got the better of me, and I had the cupboard door prised out of its recess. What lay behind proved a revelation! At the side of the original 1570s arched doorway was an impost block, with the whole jamb and impost moulding beautifully formed in white lime plaster, in a perfect state of preservation, since it had been walled up behind the niche since 1714 (figure 11). Close examination revealed the extraordinary nature of the original 1570s work. It was

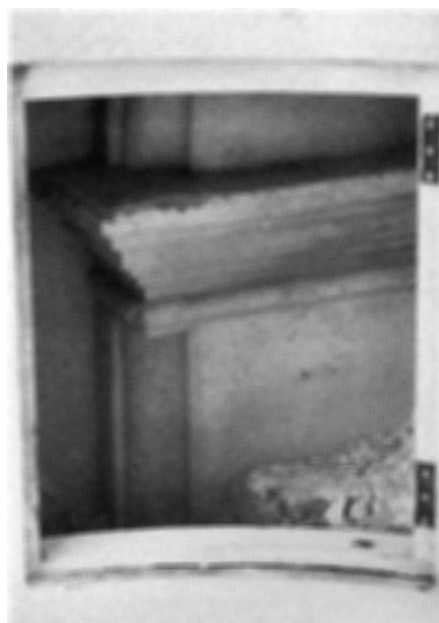


Figure 11 The original 1570s white lime plaster finish to the door jamb of the blocked East Courtyard doorway.

not just the plain brickwork of the door jamb which was plastered. The finely moulded terracotta impost block had itself been coated in the same white lime plaster – first a thinly brushed-on base or priming coat, then a thin finish coat, beautifully hand-modelled and only 3–5mm thick. Most extraordinary of all, the surface, which had been brought to a lovely, smooth, close finish, had no evidence whatever of any further surface treatment. Closed up since 1714, it was visible proof that the original elevations had been finished in plaster, without application of any protective limewash.

Here was a challenge for replication indeed! The 1980s completed bay now seemed a poor thing by comparison, with its thickly plastered brickwork and limewash crudely applied over the terracotta blocks, leaving the joints to grin through. Despite misgivings about whether such work could be re-created, its durability, and the extra costs, we could not turn our backs on this evidence. A visit from Paul Drury, who led the archaeologists' team in the early 1980s, stiffened our resolve, and we sought revised tenders for the plasterwork on this new basis.

The plasterwork contract was won by St Blaise, and we were fortunate indeed to have their master plasterer John D'Agostino, whose fierce commitment and skill carried the project through. Many samples and trials followed, to perfect the mix and techniques of application. The mix was of pure lime putty and sand, applied in two coats like the original work. The great challenge was to create a fine surface finish, with every detail and

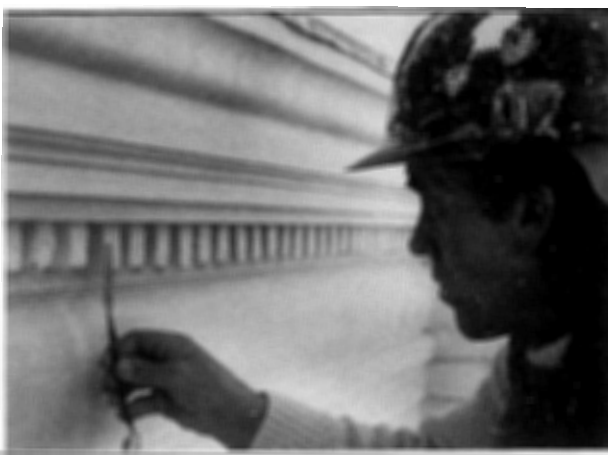


Figure 13 Hand-modelling of the lime plaster finish to dentils of the Ionic entablature.

profile hand-modelled to follow the Tudor technique, rather than using the running moulds and fixed rules of later work. Many templates of zinc were used as hand-held profiles, but the final finish had to be achieved with small trowels, spatulas and endless, patient dedication (*figures 12–14*). As anyone who has worked with pure lime plasters will appreciate, the great problem was to avoid shrinkage cracks and crazing, especially when applied at only 5mm thick, and with no limewash to cover imperfections. To add to the difficulty, the plasterwork had to be completed over the winter of



Figure 12 Detail of Ionic entablature with profiled terracotta and plaster undercoats.



Figure 14 The fine lime plaster finish, without limewash, to the Ionic entablature.

1994–5, with the aid of a fully sheeted-in scaffold and a heating system with blown hot air to combat low temperatures. The final result is very fine, with a beautiful surface texture and flowing line. The plasterwork has stood up to exposure remarkably well, the only problem area being the exposed top copings of the dormers, which had to be renewed in hydraulic lime after their first winter. This was probably the first extensive use of decorative thin lime plaster on an external elevation in this country for over three centuries.

Rather less successful was the pointing to the brickwork areas of the courtyard elevations. The problem here was that the joints, repointed in a hard cementitious mix around 1910, had been raked out crudely, with much damage to brick arrises. The original Tudor joint finish was a 'double struck' V-profiled joint, but when tried on the very wide joints with which we were faced, this looked a mess. So we adopted instead a 'penny struck' joint with a ruled indented profile, as found on some early-eighteenth-century parts of the building, to try to reduce the impact of the over-wide joints. It remains a regret – one of the few looking back on the completed project – that we could not find a better solution. For all other elevations, we kept raking out in future to a minimum. On the completely new-build sections of brickwork to the Corinthian dormers, we were able to adopt the correct Tudor 'double struck' finish, which is far better.

The Corinthian dormers, the last one destroyed by Blomfield's alterations in 1910, were the most intricate

restoration challenge of all. A single *Country Life* photograph (*figure 15*), combined with the fortunate archaeological discovery of relevant terracotta fragments (including the beautiful lion mask motif on the cornice) and of a buried Corinthian capital, allowed authenticity in all the details. The only missing element is a gable finial, omitted as no strong evidence was available for its form. The precision needed to construct the dormers, and the forward planning involved in the firing of all the intricate modelled terracotta pieces, is an impressive testament to the abilities of Thomas Smith's original craftsmen (*figures 16–18*).

BRICKWORK REPAIRS AND REBUILDING

While the two courtyard elevations were in progress, work proceeded with the design and specification for the main repair and re-enveloping works. The proposed major budget allocation, of £1.6m, had to be spent equally over three financial years, so we had to devise a programme which would achieve this. A three phase programme was the natural outcome: Phase 1 the brickwork repairs and rebuilding; Phase 2 the re-roofing; and Phase 3 the windows, external plaster and completion.

The supply of suitable bricks for such a major undertaking had to be organised far in advance, so this was a role we had to take on ourselves rather than leave it to the contractor after appointment. Over 100,000 hand-

Figure 15 The courtyard in 1906 (*Country Life*) with the original Corinthian dormer demolished in 1910.



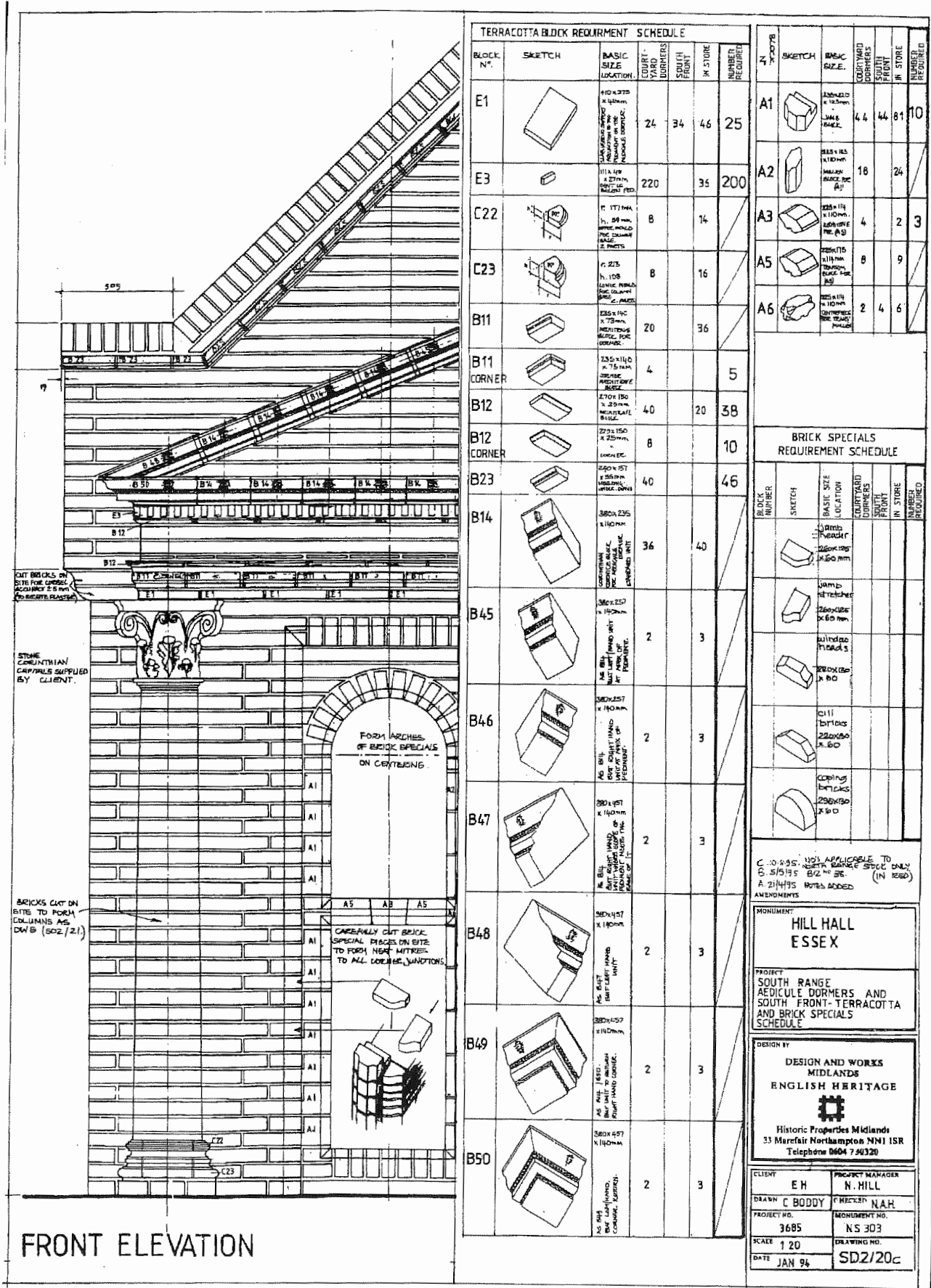


Figure 16 Design for the Corinthian dormer, with moulded terracotta schedule.

made bricks were required, all of purpose-made size to match the existing. Three different sizes were needed, the bulk to match the long, thin Tudor bricks, a second type to match the early-eighteenth-century bricks used widely in the East Range, and a third for the mid-nineteenth-century bricks of the West Front. We visited Peter Minter at Bulmer Brick and Tile to discuss our needs. Bulmers are well-known as one of the few surviving truly traditional makers of hand-made bricks in the country, still dependent on a single nineteenth-century coal-fired kiln. Brick making has to follow the seasons and starts in April, pressing clay into moulds and stacking outside to dry – weather permitting! (*figure 19*) The kiln is fired every 3 weeks from May to December, giving Bulmers a total annual production at the time of around 190,000 facing bricks per year. It soon became clear we should have planned the brick supplies two years ahead, not the six months now in our programme! So we used Bulmer bricks for all the best facing areas, and obtained other bricks – Bovingdon and a long-stored supply of Swanage – for internal work. The problems of supplying hand-made bricks on such a



Figure 17
Setting out the base of the Corinthian dormer.



Figure 18 The Corinthian dormer with completed plaster finish.

scale have echoes in the documentary accounts of the original Tudor builders. At Hill Hall, the service wing was unfinished at Thomas Smith's death in 1577, and in 1578 workmen were instructed to dig 'within the soyle or ground of Hill Hall aforesaid ... earth or ure sufficient to make 150,000 bricks'.⁴ At Kyre Park, Worcestershire, the brickmaker contracted to make 200,000 bricks in 1592, but only 100,800 were made because 'the beginning of sommer proved very wett and unseasonable for making thereof'.⁵ This excuse for delay was one with which we were to become familiar!

Our main contract for the brickwork repairs, with Historic Property Restoration, got underway in August 1995. This phase presented two very different challenges: first, repair of the ruined brick shell; and second, restoration of all the lost features. The brick walls, having stood open to the elements for 25 years, were in a critical state in many areas. I remember standing high on the walls in a November gale, watching an unsupported 17 metre high chimney stack on a crosswall in the East Range swaying back and forth by up to two inches, and feeling the cracked brickwork open and close under my hand. The original areas of Tudor fabric were often in the worst condition, with extensive structural cracking, decay of oak lintols and unstable walltops or cornices. The challenge here was to restore structural integrity with the minimum of intervention, respecting all the archaeological complexities of the building fabric. Careful recording, dismantling and piecing back together was necessary, a process in which the splendid team of bricklayers grew in confidence as work progressed. Very often, the toughest problem was to devise methods of temporary support to surrounding fabric, while inserting for example a new lintol, underbuilding an overhanging section of cornice or rebuilding a fallen arch. We made great use of stainless steel ties, of many types, which have the great advantage of giving structural integrity without extensive taking apart and rebuilding. Horizontal 'spiro' ties inserted into bed joints bound together vertical cracks very effectively. For facework, resin-fixed 'spiro' or butterfly ties enabled sound bonding without extensive dismantling for 'tooth in'. Heavier duty Helifix 'Cemties', up to 900mm long, were very useful for areas where major restraint was needed. The ultimate weapon was the 'Cintec' anchor, a 20mm square rod with an ingenious



Figure 19
Bricks for Hill Hall in stack at Bulmer's brickworks.

expanding sock, pressure filled with grout to provide anchorage. These can be drilled to great depth, and were particularly useful for tying back the East Front to its crosswalls, with 3 metre long anchors. The most complex repair problem was to preserve the great west gable wall of the South Range, which was riddled with cracks and out of plumb by nearly one metre in its 19 metre height (*figure 20*). A huge scaffold raking shore had been erected in 1987 to prevent its collapse. Although seemingly 1.8m thick, the wall contained large flues from the original kitchen fireplaces, so in reality it had only thin inner and outer leaves of brickwork. A pattern of 'Cintec' anchors was inserted to tie the leaves together, and the great cracks at the abutment to the South-west Tower – up to 100mm wide – were rebuilt and tied together. The new roof structure was to supply the necessary lateral support, replacing the raking shore scaffold.

With the existing walls secured, rebuilding of the lost features could begin. The South Front saw the greatest changes, as before and after photos illustrate (*figures 21, 22*). The huge projecting entablature was rebuilt, again using newly moulded terracotta profiles, including the large corbel blocks. Incorporated in the entablature are terracotta plaques with Smith's coat of arms, of superb Tudor workmanship. A few replacement plaques were needed, and this time we went to Bulmers not Ibstock, as in this instance the terracotta is left unfinished, so correct colour and texture were vital. We also decided to select the best-preserved original plaque of each of the two types, and preserve these as museum objects, rather than reinstate all of them and risk losing their beautiful design to future weathering. On top of the entablature, the dormer windows and Great Hall chimneystack were reinstated. As with all the restored details at Hill Hall, we were fortunate that close study of surviving fabric and historic photos could supply every necessary piece of evidence. Under the magnifying glass, not only could brick courses be counted on old photos, but brick bonds identified, and complex three-dimensional details worked out (*figure 23*). A total of five replacement chimneystacks, often of complex Tudor diagonal pattern, were rebuilt, restoring the dramatic skyline of the building.

RE-ROOFING

An early decision was taken to construct the new roof structure in steel, not timber. There were several reasons for this. Unlike the brick walls, there was very little evidence for the original timber roofs to enable restoration of the original design. Practically all the timber had been lost in the fire or the following years of decay, and there were almost no historic photographs. The strong framed steelwork structure was also essential to support the seriously weakened walls, especially the great leaning west gable of the South Range. Steelwork was already a considerable feature of the building, as Blomfield had inserted a number of huge RSJs in his destructive interior alterations of 1910, and the North Range had been re-roofed with steel trusses in 1981. All the steelwork would in any case disappear from view behind ceilings or linings when re-fitting for any future beneficial use took place. The high cost of a timber-

framed roof was thus not sensible, and we opted for steel.

The detailed design of the roof had been worked out in conjunction with the brickwork contract, as all the truss bearing points had to be created at this stage. The complex roof form had to be pieced together from study of the remaining fabric, with very little assistance from old photos. We had to work backwards from flashing lines or pockets to receive gutter bearers and trusses in the surviving brickwork. Eventually, the intricacies of each intersection, lead flat or stepped gutter fell into place. With the brickwork contract completed in March 1996, a second major contract for the re-roofing was tendered, and won by Sindall. After the accustomed delay while financial approval was sought and commitment to continuing with the project re-confirmed, work started in June 1996.

The problem of fitting the roof structure to the building had dominated our thoughts for many months. Anticipating problems, I had flagged up the issue in the contract preliminaries to raise awareness: 'The difficulties of fitting a steel-framed roof to the irregularities of the existing building should not be underestimated. Walls are not parallel or square to each other; truss spans vary in almost every case; truss spacings and purlin spans often vary and are not parallel; and the South Range western half slopes out of level by around 180mm.' Despite this warning, the steelwork subcontractor struggled with the concept of non-uniform steelwork and had to spend a great deal of extra time and expensive crane hire before the steelwork – not the building fabric – was made to fit. The South Range, with the widest span and a complicated mansard shape, was the most difficult. Here, the trusses had to be lowered into deep slots in the walltops (*figure 24*). Towards the west end, the trusses were seated on a reinforced concrete beam, built into the wall thickness. Such use of reinforced concrete is now generally out of favour, but proved very useful here to provide a shallow but strong support, spreading the roof loads widely across the weakened walls. The roof framework here also provided the critical lateral support to buttress the leaning west gable.

Considerable thought went into the selection of roof tiles. With a large quantity to provide in a short time scale, a major manufacturer was needed, so Keymer was chosen. I visited one or two English Heritage properties which had been re-roofed with Keymer 'Antique' tiles in recent decades, and was struck by the disappointingly uniform, dull brown appearance. So we experimented with a blend of brighter red tiles, browns and a specially made black. The result was very successful, giving a mature appearance while retaining the vibrancy of the red tones.

Work progressed on the new roof around the East, South and West Ranges, until we were ready to make the junction into the existing North Range roof. Because of the precious wallpaintings inside, a huge temporary roof structure had to be built over this, to ensure no leakage occurred during the work. A new parapet and gutter also had to be built for the North Courtyard Elevation, to complete the restored courtyard design. Here, as on the awkward South Front gutter, we used terne-coated stainless steel for gutter linings, as the falls

NICK HILL



Figure 21 The South Front in 1995.

Figure 22 The South Front in 1998.



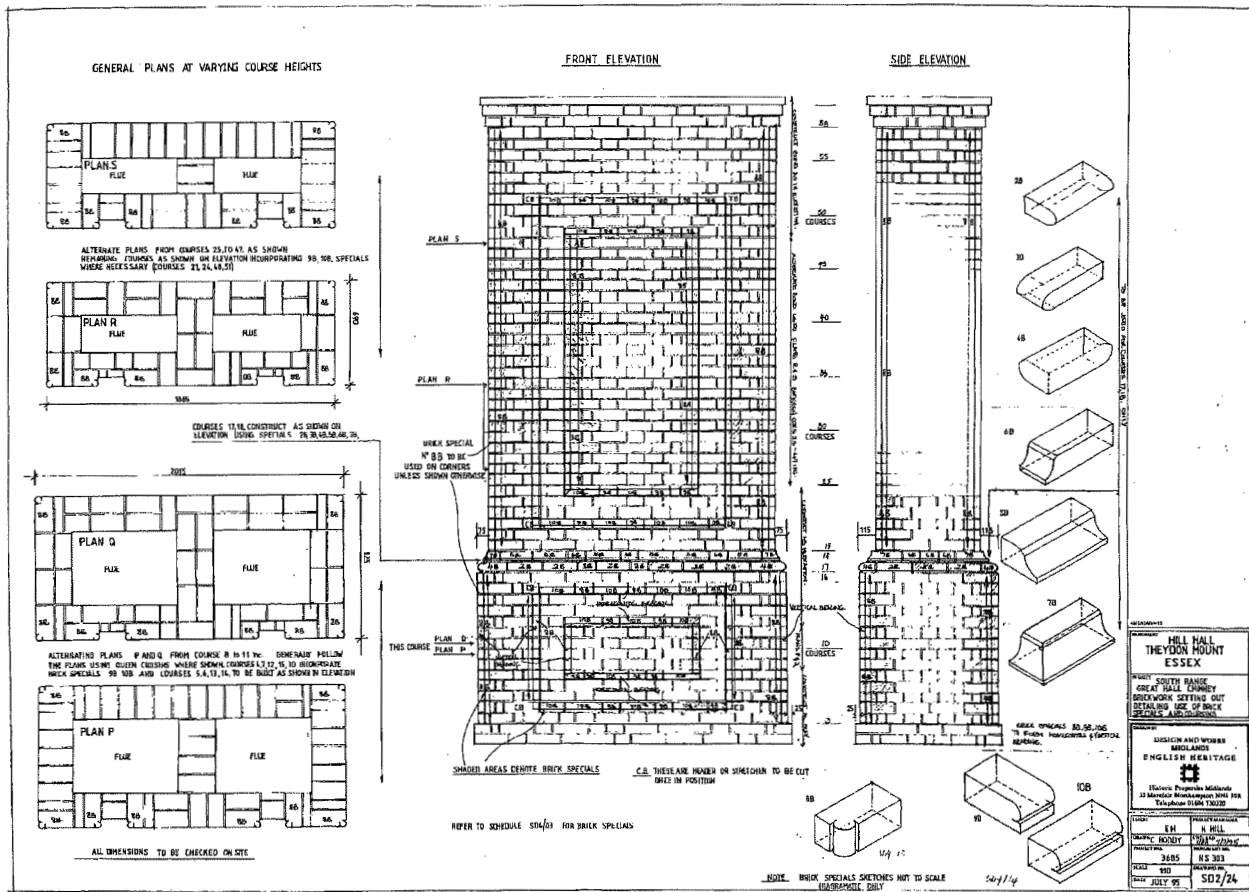


Figure 23 Design for the Great Hall chimneystack.

and drips could not be accommodated in traditional leadwork. To complete the roof work, new lead downpipes and hoppers were fitted where these were missing. For the new hoppers, besides the date of 1997, we added a particularly fitting motif – a salamander. This lizard-like beast, known in mythology for its ability to survive fire, had been adopted by Thomas Smith for his coat of arms, after he escaped burning at the stake during Queen Mary’s reign, unlike many of his Protestant friends. We felt Smith would have approved of the double symbolism, now marking Hill Hall’s own survival after the fire.

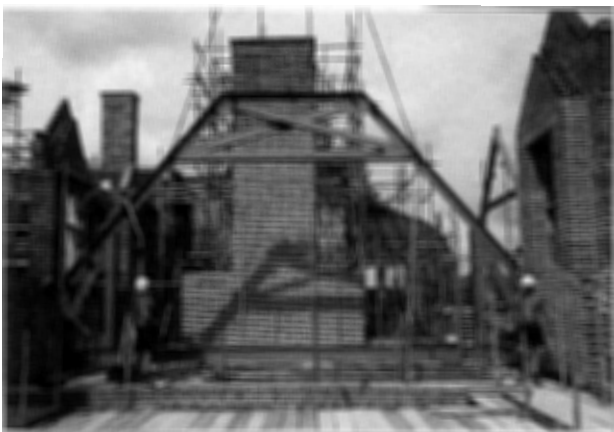


Figure 24 The first steel roof truss on the South Range being lowered into place.

WINDOWS AND EXTERIOR FINISHES

With the re-roofing completed, the principal elements needed to complete the external building envelope were the windows and plasterwork. By this stage, we had the advantage of lengthy familiarisation with the building, and our regular presence on site during the preceding phases gave us time to prepare well in advance – a matter of vital importance given the scale of the necessary works in both re-fenestration and plastering.

The windows were of two types. In the original mullioned Tudor openings, there were steel windows with leaded lights, while the later, re-modelled openings had very large timber sashes. Nearly all of the timber sash windows had been lost in the fire or the following years of decay, but a few still remained *in situ*, providing crucial evidence for the new replacements. The earliest windows were those on the East and South Fronts, of c. 1714. Only the outer window frames survived except for one remaining sash casement over the east door, which gave us the pattern for the thick, ovolo-moulded glazing bars, typical of the early eighteenth century. The stout outer frames were constructed of oak for the exterior faces and softwood internally, so our new frames followed this pattern (figure 25). We also copied the original fixing detail, with large iron cramps spiked into the brickwork and face-fixed to the sash boxes – a method particularly useful to give a sound fixing into the brickwork openings without assistance from internal linings (which we were not fitting). Of similar design were the great sash windows in the loggia openings of the courtyard, nearly 3 metres tall with their semicircu-

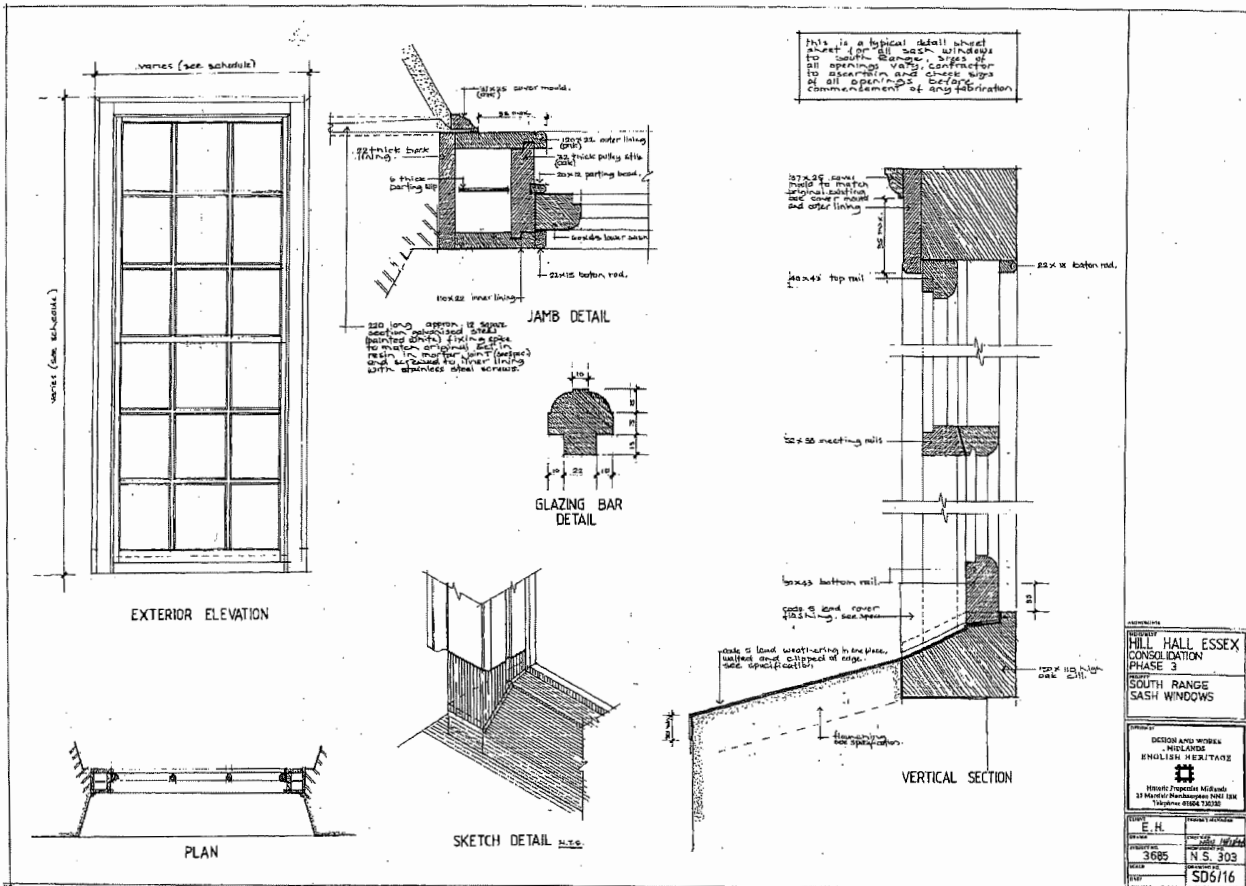


Figure 25 Design for the South Range sash windows. The unusual, awkward cill detail survived in situ, and resulted from the adaptation of the original brick mulioned window to timber sashes around 1714.

lar heads. Elsewhere, sash windows followed various later designs – in all a substantial joinery contract, with 55 new large sashes, as well as many of smaller designs. Alongside all this new work, careful repairs were made to surviving original windows, *in situ* where possible, to restrict further damage.

Strangely enough, repair and replication of the much more modern steel windows proved far more difficult than for those made of timber. Blomfield had replaced the whole of the earlier iron windows in 1910 with new rolled steel profile windows, with stays and fasteners to his own, attractive design. Muthesius provides a useful contemporary description of the use of such windows:

This type of metal window has been developed to great perfection in England. Since these are windows that belong in the main to houses built by good architects and in which good workmanship has been a prime condition, much care and attention has gone into the development of good constructions. These metal windows are manufactured by a mere handful of firms, of which the best known are George Wragge in Manchester and Henry Hope in Birmingham. Each firm has its frame with its own cross-section with which it attempts to make its windows as air-tight and water-tight as possible.⁶

This last sentence, of course, points to the problem; the windows used special rolled steel profiles, long since

replaced by the very limited range of Crittall *et al.* Recognising the problem, we made a very early approach to a few specialist firms for advice. Production of matching rolled steel profiles was immediately established as unviable, as the cost of setting-up ran into tens of thousands of pounds. So, working with a chosen manufacturer, we eventually developed a prototype window, using milled-down standard sections, which were a reasonably good match, with narrow sightlines. Extensive repairs were also needed to surviving windows, which had often rusted at the cills. We had to cannibalise sections from some windows to enable the repair of a reasonable number of others, using the pieces of matching profiled section. All the windows were removed to allow thorough anti-rust treatment by shot blasting and zinc spraying. Re-fitting of the window frames and all the leaded lights into the openings, seating into the plasterwork profiles, demanded very careful work.

The nature of the plasterwork in this final phase was very different from that undertaken at the outset to the South and East Courtyard Elevations. Instead of the thin lime, hand-modelled finish, we were now matching later techniques of the nineteenth and early twentieth centuries. Also, instead of the complete recreation of two whole elevations, the bulk of the work now involved piecing-in repairs to existing plasterwork, though extensive new work was called for on new-build areas such as the South Front. With the benefit of full scaffold access, we were able to make a full, detailed examination of all the elevations and start to get to grips with the huge scale of the task. With time to plan ahead, we

established the viability of repair techniques by carrying out trial areas, and calling on specialist advice from the plastering firm of Trumpers and their master plasterer, Jeff Orton. Trumpers also acted as consultants to us in advising on the cost estimate for the work, an area where their wide, practical experience proved extremely useful in quantifying a major element of work and controlling what had seemed a very high risk part of the programme.

The two remaining elevations of the central courtyard, to the north and west sides, still retained most of their early-nineteenth-century Roman cement. In contrast to the South and East Elevations, where the Roman cement had been stripped and the Tudor plasterwork recreated, the approach here took the normal, conservative line, seeking to retain the Roman cement wherever possible. Following trials, a suitable mix to match the Roman cement was established, of hydraulic lime and selected, sieved sands. Unlike the thin Tudor plaster, the bold Roman cement profiles were often up to 50mm or more thick, needing stainless steel armatures and gradual building up in several coats (*figure 26*). After removal of the various later paint coatings on the surface – a job needing great tenacity and patience – we finished these elevations in limewash, toned to match the plasterwork of the south and east sides and give the courtyard a visual unity.

On the more exposed, exterior elevations, very little



Figure 26 Cornice to West Courtyard elevation. The early-19th-century Roman cement dentils survive, but the rest of the profile needs major building up.

Roman cement survived. Closest in date to it was the render on the West Elevation, dating from 1844, which was identified by Dr Ian Bristow as 'metallic cement', with a distinctive black, glassy aggregate of metallic particles.⁷ Much more extensive, though, covering most of the South, East and North Elevations, was Portland cement render. With the enthusiastic revival of lime in recent years, Portland cement has of course now gained itself an evil and unwholesome reputation. Quite a number of major historic buildings have had whole façades stripped of Portland cement renders, to be replaced in lime. Portland cement is seen as an unsympathetic, harsh material, and particularly bad for historic buildings in its inability to let the fabric 'breathe'. Yet as I examined the evidence on the elevations of Hill Hall, I found myself less and less certain that wholesale removal of the Portland cement was the right solution in this case. Certainly, there were some areas of poor quality later cement patching, and of cracking or de-bonding. But close inspection showed that most of the render was of a particular character: very high quality, well formed, finely finished and often in surprisingly sound condition, despite its location on roofless walls in a very exposed position. No doubt the fact that the render is applied only to the architectural details of entablature, columns and quoins, rather than the whole façade, has meant that it does not completely trap moisture in the walls like a full render covering. Further study of historic photographs and careful fabric analysis suggested that this high quality cement render was in fact of quite early date, perhaps around 1900. So we decided finally that the cement render had every right to be treated like any other part of the historic fabric, and instead of removal determined on a programme of conservation and patching repair, with matching, compatible materials of a 1:2:9 mix using Portland cement. For the larger new areas, however, and the failed areas near ground level, we opted for a more porous, hydraulic lime based mix. Most impressive amongst the extensive render repairs was the re-running of two of the 'giant' order South Front columns, over 5 metres in height, and of the South Front entablature with its huge cornice profile. All this plasterwork was carried out to a very high standard by Joy and Son from Suffolk.

The problem of how to achieve a successful finished appearance to the render of these exterior elevations had been something I had pondered over from the earliest stages. The grey, dead surface gave the building a bleak, unattractive air. I realised too that the extensive repairs works, with all the necessary patching and piecing-in, would be impossible to disguise if left unfinished, and would give a terribly blotchy and discordant final result. So I was excited, in our close examination of the surviving render, to discover a few remaining traces of previous surface coatings. If we could establish that the application of a surface coating was historically correct, we could solve the whole problem. We called in Dr Ian Bristow to investigate and take samples for analysis, and he confirmed the surfaces had received early coats of colour wash, though nearly all of this had subsequently weathered away. We went on to experiment with various recipes of limewash, as the preferred option, and left a variety of samples exposed

on the south-west corner over a winter. The samples included several different levels of surface preparation, and plain limewash as well as limewash strengthened with casein. It was fortunate indeed that we had the time to take this precaution, as all the samples, unable to successfully bond to the cement substrate, failed dramatically within a few months. The consequence of such wholesale failure across the completed elevations would have been catastrophic. So we turned instead to Keim paint as the best option, a silicate-based type with a long track record on historic buildings. This proved very successful. The final colour selection, a warm white, was based on large scale trials, guided by three factors: first, the paint analysis, though the highly degraded colour wash samples were less useful than normal oil paint samples; second, the need to blend in to the Coade stone column bases, which it seems had never been painted; and third our own value judgement of the best effect. The enormity of the decision to paint the building exterior was not something lightly undertaken, but certainly proved very successful in transforming the whole appearance of the building. It also undoubtedly made a major contribution to the positive perception of the building prior to marketing, an important factor in establishing a viable future.

Inside the restored envelope of the building the agreed approach, as explained above, was to undertake only essential structural repairs, except for two highly demanding conservation problems: the wallpaintings and the Great Hall chimneypiece.

THE WALLPAINTINGS

The two principal wallpainting rooms had, miraculously, survived the fire but by 1993 were in poor condition. A major programme of work was necessary, undertaken in several discrete phases from 1993 to 1998 by Tobit Curteis Associates, under the detailed guidance of the English Heritage Wallpaintings Studio. Only a very brief summary is possible here (*figure 27*).

A very intensive programme of investigation and analysis was necessary to establish the best approach. Besides the more obvious problems of delamination and cracking to the plaster substrate, the investigation found the principal threat to be salt crystallisation,

leading to deterioration and flaking of the paint layers. This was exacerbated by the wildly fluctuating environmental conditions, but also – as so often it seems in wallpainting conservation – by the results of previous conservation works. In the 1950s, major repairs had been made in gesso and cement, with very high salt contents. A wax coating of the 1950s and further coating/consolidation in the 1980s with Primal or PVA had severely reduced surface porosity, resulting in widespread flaking, as well as disfiguring blooming. Extensive trials were needed to establish the best method of removing or reducing these coatings, using various mixtures mainly based on methylated spirits, but often involving pre-consolidation of the underlying, poorly bound paint layer with Paraloid B72 before the surface coating could be safely removed. Where possible, the earlier gesso/cement repairs were carefully removed and replaced in lime-based mixes, with extensive, painstaking work also necessary in grouting and crack filling.

Wallpainting conservation is indeed the hi-tech end of the building conservation business, and the wallpainting rooms, filled with a panoply of chemicals, syringes, UV lights or CAD computers, made an intriguing contrast with the heavier construction activity going on outside.

An interesting debate arose over the extent of re-touching or 're-integration' to be carried out. The repair of patches or cracks created a very fragmented effect, spoiling the aesthetic appreciation of the paintings. The 1980s repairs had addressed this problem by re-touching in *tratteggio* fashion, with a series of vertical lines. This technique certainly allowed clear identification of the modern intervention, but had been rather crudely carried out and looked poor. A more convincing approach to re-touching was possible, but it was feared this would become misleading restoration. An innovative use of digitised image manipulation enabled a 'virtual' reconstruction, to view the effect of fuller re-touching. In the end, a purist line was taken, with only the disruptive fine crack fillings re-touched and all the larger areas left blank, though toned down with limewash and watercolour. The largest and most intrusive of the *tratteggio* re-touchings were left in place, though some of us felt it a pity that we could not find the confidence to improve on these interventions.

The lengthy programme of work was a great success, with all the wallpaintings soundly conserved, colour and tone much improved, and many lost details made visible. Besides the two principal rooms, the whole of the extensive wallpainting fragments dispersed throughout the North and West ranges were consolidated. A full environmental monitoring programme was carried out for the two main rooms, and conditions brought under control by the enveloping works and installation of humidity-driven electric panel heaters. We benefitted greatly by securing continuity of treatment for the whole programme (including monitoring) by Tobit Curteis and his team over the whole five year span – not easily achieved nowadays, within the dictates of competitive tendering and tight programme constraints, but essential in such work, where only the highest conservation standards will do.



Figure 27 One of the scenes from the Hezekiah wallpainting series, after conservation.



Figure 28 The Great Hall chimneypiece during conservation. The original grey plaster has been repaired on the columns with a matching mix, which is still drying out.

THE GREAT HALL CHIMNEYPIECE

Hill Hall originally had a number of impressive chimneypieces which formed an integral part of Thomas Smith's late-sixteenth-century, classically inspired design. Of these, that in the Great Hall was the best preserved, but was in desperate need of conservation, with extensive delaminating plaster and all the paint finishes heavily damaged by the fire (*figure 28*). Like the other original chimneypieces, it is of imposing, aediculed form, with two columns supporting a pediment, here of the Doric order. As the focal feature in the building's largest room, full restoration to its pre-fire condition seemed appropriate, rather than conserving it as a battered, archaeological relic.

However, as little research had been done on the chimneypiece previously, we used the opportunity afforded by the conservation works to investigate its history in detail, with fabric analysis, paint research and study of the architectural design. As usual at Hill Hall, things were more complex than they might appear at first sight. We found that the five plaques with coats of arms over the fireplace opening, although original sixteenth-century terracotta, were inserted by Blomfield in 1910; some of them must have come from the original Great Hall screen, which Blomfield removed. The bust of Thomas Smith in the pediment was also an insertion, probably of the eighteenth century. This left the original 1570s chimneypiece as a much more plain and severe Doric design, though with characteristic 'incorrect' features, such as the elongated triglyphs. Most interesting of all, however, was the original finish. The whole chimneypiece was found to be covered in thin grey plaster, beautifully hand-modelled, of lime with coal dust. We realised that, like the white lime plaster of the courtyard elevations, which simulated limestone, this

plaster finish must have been done to simulate grey marble, with no original surface coating. An extraordinary parallel elsewhere on the building came to mind: the architectural backdrops of the Cupid and Psyche wallpaintings included several features painted as grey marble. Others before us had noted the similarity between the classical designs here and those on the building itself, such as the columns with high pedestal bases. But perhaps the wallpaintings also allow us a glimpse of the variegated colours with which the original building was finished.

The conservation work, carried out by Nimbus, needed careful repair and patching of the grey plaster, in a matching mix. We restored the paintwork to the scheme created by Blomfield in 1910, when the last major alterations had been made. We decided however, rejecting a pedantic approach, to remove the ugly, deep stone hearth, now damaged, which Blomfield had inserted, as it severely marred the original Tudor design.

COMPLETION AND MARKETING

By the closing stages of the project, even the long-term pessimists were beginning to feel that a successful outcome was possible. More money was at last made available, to repair the exterior of the service courtyard buildings, refurbish external paving and improve the landscape setting. An event was held to celebrate the completion of the project on 28th April 1998, which also marked the start of the marketing exercise. It was decided that the best way forward was to seek best offers from developers on the open market for the purchase of a 999-year lease. A glossy brochure was produced by agents, advertisements placed in *Country Life* and a marketing pack devised, setting out English Heritage's requirements, constraints on developers and planning policy guidelines. The response from developers was surprisingly strong, with a number of good quality bids, offering English Heritage sizeable premiums, well above what many had expected at an earlier stage. Interestingly, all of the bids were for subdivision into apartments, with no offers for other uses – a clear demonstration of the open market view on a viable beneficial use. A lengthy process of selection and negotiation followed, led by Alasdair Glass of English Heritage's Major Projects Team. In the interim, we were able to open Hill Hall to the public over the summer of 1998, with provision of temporary visitor facilities. The project team mounted an exhibition on the restoration works.

Out of the negotiation process, with English Heritage in a strong position, came a major and unexpected benefit for the building. The North Range roof, completed in 1981 without any of the original features of clock tower, pediment, cornice and dormers (see *figure 4*), was now distinctly disappointing in comparison with the fully restored details of the whole of the rest of the building exterior. We had indeed, during the re-roofing phase, made strenuous efforts to secure extra funding to complete this work, but without success. Now, with a large premium on offer from a developer, we were able to dust off our outline design drawings for the North Range roof and strike an innovative deal. Instead of English Heritage receiving the whole premium, the

developer would instead spend part of it on full restoration of the North Range roof.

The developer's design proposals had eight apartments in the main Hall and nine in the service courtyards, with the Great Hall retained as a common space. English Heritage will retain control of the two wallpainting rooms, which will be open to the public, along with the Great Hall and the building exterior, for 28 days per year on a pre-booked basis. Within the tight imposed constraints, the design ingeniously managed to fit the apartments into the existing envelope with a minimal impact on the fabric, the key decision being to create divisions vertically not horizontally, with most apartments on two floors. Only one new external doorway was needed, adapted from an existing window in part of the service wing altered by Blomfield. No new windows were allowed, and only two new openings internally were needed through historic walls. The vertical division was particularly advantageous for the two wallpainting rooms, which could now be sealed off as a wholly separate area under English Heritage control. Previously, it had seemed likely that principal circulation routes around the building would have to pass through these rooms, standing as they did at the head of the main surviving staircase. The proposed scheme thus seems very effective in avoiding impact to historic fabric, English Heritage's prime objective, though these constraints may also have led to a cramping of any more imaginative, design-led initiatives for the interior fit-out.

CONCLUSION

Looking back over the project, it is interesting to reflect on a number of issues raised. The primary objective of our five year project had certainly been achieved. We had rescued the building from its sorry state of decay, repaired and restored the whole of the external envelope, and so brought the building to a point where new owners could be attracted, to care for it into the future.

Is it right that the building should be subdivided into separate apartments? This is the fate of a growing number of country houses today, and one that is sometimes opposed by English Heritage. It may seem unfortunate that the principal sequence of spaces, on the ground floor of the main house, will no longer be able to be appreciated as a single entity. But with the almost complete loss of the building's interior to fire and decay, such spaces have lost most of their meaning, and a thoroughgoing interior restoration would have little point (*figure 29*). Alternative uses, such as a hotel, offices or institutional use, may have allowed the main house to continue to function without such subdivision, but had not proved attainable – at least not without considerable damaging development proposals elsewhere. Perhaps the ideal would have been a single residential owner or a gallery/museum use, but again these never seemed a realistic prospect. Besides, the high premium offered by the developer for use as apartments will allow the full restoration of the North Range roof, of much greater significance than internal subdivision.

Should English Heritage have retained ownership of the building, rather than selling on to a private developer? In previous decades, the repaired shell might have

been kept as a property in care, like so many other English Heritage properties. The visitor would have had access to the whole of the main house, and the opportunity to see the complex archaeology revealed on the inner faces of the walls. But the fact is that most of the interest at Hill Hall is in the building exterior and the wallpainting rooms, still available to visitors. Most of the interior, however fascinating in detail, is of interest only to the dedicated few. With continuing pressure on its budget in today's political climate, English Heritage cannot continue to shoulder never-ending maintenance commitments if these can be passed on to others.

And so to the matter of Restoration, a word I have purposefully dared to use in the title of this paper. Restoration has had pejorative overtones in this country in conservation circles, ever since Ruskin and Morris. Words such as repair or consolidation find far greater favour. Restoration is certainly a dangerous game to play and is not to be undertaken lightly. But I believe dogma, the rigid adherence to a single doctrine, is something which must be firmly rejected. In a different case, at Old Gorhambury,⁸ we and all our predecessors took a firm minimum intervention line, the most appropriate approach for this precious, ruined fragment. But at Hill Hall something quite opposite was called for.

There are two levels of Restoration at Hill Hall. The first, more readily defensible, is the restoration of the main shell to its pre-fire appearance. Once the decision



Figure 29 Interior view of the West Range after completion of the external envelope restoration. Compare with *figure 6*.

had been taken that it was essential to re-roof the building to preserve it, restoration seemed the only sensible and consistent approach. Restoration here did not involve removal or loss of any historic fabric, beyond that necessarily affected by repairs. Even on the South Front, where the most extensive restoration work took place, it is difficult to see any other approach being successful. Instead of rebuilding the three dormers here, should we have created a new design of our own? I think not, in particular because – and this is the critical point – we had every piece of evidence (including parts of the original fabric) to allow faithful restoration with no conjecture.

The second level of Restoration occurs of course on the South and East Courtyard Elevations, which raise more difficult issues. Here the decision taken in the 1980s was to actively restore the original Tudor design, which involved the destruction of work done in the nineteenth century. The whole two façades were stripped of their Roman cement detailing, and major original features, such as the dais window and Corinthian dormers, were re-created. This is indeed full-blooded Restoration, of the kind which so incensed Morris and led to the founding of the SPAB. It is unlikely that such an approach would be permitted nowadays. But in the end, speaking with a certain detachment as the executor rather than the initiator of this decision, I believe this is a rare case where such a bold approach can be justified. The starting point, of course, must be accurate evidence for the restoration work. At Hill Hall, good fortune had preserved all the necessary strands of evidence, and exhaustive research was able to assemble these into a convincing whole, with no elements of conjectural restoration.

But all this merely amounts to the evidence for restoration, not a reason for it. We must face up squarely to the fact that a value judgement is required: what is the value of the nineteenth-century work as against the original Tudor design? The recently introduced Conservation Plan methodology allows a systematic analysis of value judgements, using the central concept of 'Significance'. This process of defining the qualities and features which are of greatest significance to a historic building has a compelling outcome, often not fully appreciated. If certain features are of greatest significance, then others are necessarily less so. At Hill Hall the significance of the building lies principally in the extraordinary early classical creation of Thomas Smith. It is this, not any of the many later alterations and additions, which give it a place in the history of English architecture. In the courtyard, Smith created one of the earliest English attempts at the full use of three superimposed orders across a whole elevation, with an extraordinary intricacy of fabric and craftsmanship in

his execution of the classical detailing. The heavy re-modelling in Roman cement, and the other nineteenth- and twentieth-century alterations, including the loss of the dais window and the last Corinthian dormer, are of far less significance in comparison. Besides this, we were in fact in the happy position of being able to have our cake and eat it too. On the North and West Courtyard Elevations, where Smith's work was less fine and evidence not so clear, we have retained the nineteenth- to twentieth-century appearance, including all surviving Roman cement.

One of the extraordinary things about working with English Heritage Historic Properties is that one can have, for a time, a wonderful sense of ownership over the project and building on which one is working, as one takes on the role of both architect and client. The opportunity, however, for such a total involvement as I was fortunate to enjoy at Hill Hall, on a building of such fascination, and a project of such breadth and complexity, is rare indeed and comes perhaps only once in a lifetime. The sense of achievement on completing the project is mingled with regret that, like all good things, it must come to an end.

Visits to Hill Hall may be made via English Heritage from the summer of 2002.

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REFERENCES

- 1 Drury, P J, 'Terracotta from Hill Hall, Theydon Mount, Essex', *Antiquaries Journal* LXIII, 1983, 364–9.
- 2 For a detailed account of the wallpaintings see Simpson, R, 'Sir Thomas Smith and the wall paintings at Hill Hall, Essex: Scholarly theory and design in the sixteenth century', *Journal British Archaeological Association* cxxx, 1977, 1–20; also, by the same author a recent re-appraisal, 'Politics put in paint', *Country Life*, 20th April 2000, 112–15.
- 3 Drury, P J, 'A Fayre House, Buylt by Sir Thomas Smith': the Development of Hill Hall, Essex 1557–81', *Journal of the British Archaeological Association* cxxxvi, 1983, 98–123.
- 4 *Ibid*, 116.
- 5 Airs, M, *The Tudor and Jacobean Country House: A Building History* (Stroud, Gloucs: Alan Sutton, 1995), 115.
- 6 Muthesius, H, *The English House* (2nd edition, 1908–11, reprinted BSP 1987), 192.
- 7 Bristow, I C, 'Exterior Renders Designed to Imitate Stone: A Review', *ASCHB Transactions* 22 (1997), 25.
- 8 Hill, N, 'Conservation and decay: two centuries at Old Gorhambury', *ASCHB Transactions* 21 (1996), 36–48.

Nick Hill MA BSc ARICS GradDiplCons(AA) is a Project Co-ordinator with English Heritage.

THE PARTHENON: A VISIT

Cathy Fisher

The Building Conservation team at the Architectural Association organised a group trip to Athens in June 2000, led by Dr Sue Blundell. We had an early rendezvous one morning, up at the entrance to the Acropolis, where we met Dr Korres from the Athens School of Architecture, who has acted as architectural adviser on work to the Acropolis over nearly two decades. The programme of repair and restoration work currently in progress on the Parthenon (*figure 1*) is an extraordinary undertaking, and the opportunity to see the work at close quarters with such an authoritative guide was a rare privilege.

Dr Korres outlined the complex history of the Parthenon, the current temple (commenced in 447 BC) being the third one built on the site. The sophistication of the building's construction, in the finest Pentelikon marble, is well known, with its precisely curved stylobate platform and other 'refinements'. But Dr Korres revealed a further extraordinary level of precision which had come to light during the repair works. The massive column drums, around six feet in diameter, had an accuracy of fit one on top of the other of 0.01mm – the kind of tolerance needed for modern aero engines!



Figure 1 The Parthenon from the south-east.

The aims of the current restoration programme are primarily to conserve the structure of the monument, to conserve the surfaces, to protect the sculpture as far as is possible, to correct the position of stones restored earlier, and to carry out a supplementary restoration in certain areas, using mainly the *disiecta membra* lying on the ground.¹

Its present condition of ruin and decay has been largely attributed to the actions of man in the past – in particular the disastrous bombardment by the Venetians in 1687, which destroyed much of the north and south sides, and the depredations by Lord Elgin in 1802. In the early twentieth century N Balanos rebuilt the fallen section of columns to the north side, along with other extensive restorations. This work has been praised for its architectural virtues, but it has been criticised for its poor execution and the use of iron, which has now caused cracks in the marble and has accelerated other types of decay.

As part of the current restoration programme, all of these rusting iron elements are being removed, and the marble is being put back in position using titanium to reinforce fragments, and to clamp the stones together.

The work began on the east side, as a matter of priority after the damage caused by the earthquake of 1981. Ancient marble blocks, with a total weight of about 300 tonnes, were taken down, conserved and replaced in position. The authentic sculptures have been replaced with faithful copies. The work on the west side of the *cella* (the central enclosed space) has also resulted in copies, where the stones from the frieze have been removed and transferred to the Museum on the Acropolis.

As work has proceeded, the estimated time required has inevitably increased, but eventually there are proposals to restore the *pronaos* (the antechamber), using the surviving stone blocks. The original positions of all of these have been established in a painstakingly detailed study of them. The identification work began in 1978, and the theoretical reconstruction of it was presented in 1989.

On our visit, it was difficult, at first, to grasp the full complexity of the task ahead. However, having given it some thought, it is interesting to reflect on the way in which the philosophical issues of the current restoration programme have been addressed.

'... to conserve the structure of the monument ...' is understandably of primary importance in virtually any conservation project. The removal of the corroding iron, with the necessary dismantling work, falls into this category.

'... to conserve the surfaces, to protect the sculpture as far as is possible ...' are both issues all conservationists have to address. How these will be addressed in this particular situation, will be interesting to follow. We



Figure 2 Dr Korres discussing a new marble column drum with the job architect

witnessed work being carried out on the Acropolis, to damaged pieces of marble, where fine cracks were being consolidated. We had difficulty understanding what types of mortar were being used for repair works, and it would be interesting to find out more about the Greek



Figure 3 Restoration of lost stone to a column drum, before cutting of flutes. The new marble will be toned down to harmonise with the appearance of the original, though still readily distinguishable.

attitudes to pure lime mortars, as opposed to the addition of white OPC, when used with marble. The attitude towards the protection of sculpture has resulted in identical copies being made, where sculpture can easily be removed from the structure, and put in an internal environment.

'... to correct the position of stones restored earlier, and to carry out a supplementary restoration in certain areas, using mainly the *disiecta membra* lying on the ground ...' This starts to really address the most difficult of issues. We were confused initially by the proposals of 'reconstruction'. However, having read about it in more detail, it is clearer that the intention is primarily to *re-assemble*, rather than *reconstruct* certain areas of the Parthenon. This ambitious task has been made possible after an extraordinarily detailed archaeological survey of all the scattered pieces of stone lying around the Acropolis, and an equally intensive recording of the existing standing structure of the Parthenon. It is with this background information that the 'supplementary restoration' work to certain areas of the Parthenon will take place (figure 2). The proposals are to restore the *pronaos*, using the surviving stone blocks.

However, this work will require the inclusion of newly carved pieces of stone, where the existing pieces have not been found. It will also require conservation and repair work to be carried out to the damaged existing pieces. The re-assembly of these pieces, together with new pieces, will undoubtedly result in a patchwork appearance, but one that is considered the most authentic as possible under the circumstances (figure 3).

The philosophical issues about this reconstruction of specific parts of the Parthenon have clearly been debated for some time, given that the theoretical reconstruction was first presented in 1989. Our trip to Athens was most enlightening, in that we were able to look at these conservation issues from a different point of view. This led to much debate on our part, as to the perceivable differences in attitude. The more this was debated, the more it was appreciated that each and every situation is unique. Inevitably, there are always difficult philosophical problems to be addressed, when carrying out conservation work to historically important structures.

The next trip to Athens will have to be planned, for us to go back and see how the work proceeds, and indeed whether this complicated architectural jigsaw puzzle can be completed.≈

1 Eds Korres, M, Panetsos, G A, Seki, T, *The Parthenon Architecture and Conservation* (Foundation for Hellenic Culture; Committee for the Conservation of the Acropolis Monuments, 1996), 16.

Cathy Fisher BAS BArch GradDiplCons(AA) RIBA IHBC AABC is an Associate with Purcell Miller Tritton Architects in Ely.

GAUGED BRICKWORK: TRACING THE NETHERLANDISH INFLUENCE

Gerard Lynch & David Watt

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ABSTRACT

This paper examines the skills of master bricklayers in providing special-shaped bricks for architectural enrichment in the post-fired state in the Netherlands (modern Holland and Belgium) from the fifteenth century through to the seventeenth century. This 'working' of the bricks eventually became so precise and refined that the bricklayers reduced the size of the mortar joints to less than 2 mm, thus developing a specialised branch of bricklaying that, when introduced into England in the seventeenth century, became known as 'gauged' work.

The information presented in this paper concentrates mainly on the Netherlandish aspects of the subject; it does not set out to explore fully all aspects of the historical introduction of gauged brickwork into England.

The paper concludes that seventeenth-century English gauged work had its influence, not from Flanders, but Holland; and in particular from the architecturally influential city of Amsterdam. Evidence further reveals that English bricklayers did not take an early form of work and gradually refine it. The knowledge, material, skills and rules of gauged work arrived in England already perfected, from where, in the highly capable hands of English craftsmen, they spread further afield, such as to colonial America.

BACKGROUND

The research presented in this paper is the result of work undertaken to assess the Netherlandish¹ influence of gauged brickwork on the craft of bricklaying. In particular, it sets out to study the development of gauged work in order to determine the level of skill being practised by Dutch master bricklayers at the time that

the technique was introduced into England in the seventeenth century. Did, for instance, gauged brickwork arrive as a fully-developed branch of this craft or was it refined in the hands of the master bricklayers of London as the city rose again after the Great Fire of 1666? In the century that followed, the quality of English brickwork and, in particular, gauged brickwork was brought to a level of skill that has rarely been equalled and never surpassed.

This paper is based on a dissertation submitted by Gerard Lynch and supervised by David Watt in partial fulfilment of a MA award by independent study at De Montfort University, Leicester in October 1999.

GAUGED BRICKWORK – A DEFINITION

'Gauged brickwork' is an English term used to describe brickwork of a superior finish required to provide detail to important brickwork elevations, including moulded reveals, arches, string courses and other forms of ornamentation. The term may appear paradoxical, as all brickwork could be considered to be gauged, but it serves to distinguish a special branch of bricklaying to very accurate measurements, which raised artisans of the craft to the status of masons.

By definition, to gauge is to measure, set out and work exactly objects of standard size so as to conform to strictly defined limits, and this term is eminently suitable for this class of brickwork. The bricks used for such work in England have always been referred to as 'rubbing bricks' or 'rubbers', these being defined as masonry units made from a brickearth or topmost clay that possesses a high natural silica content. A rubbing brick is low-fired or baked to a point just below vitrification (900°C), so that the resultant unit possesses no fireskin normal to other fired bricks. It has the same uniform characteristics of soft body and close texture throughout, so allowing it to be easily cut, carved, filed and rubbed to smooth accurate finishes and sharp arrises without detriment. The surfaces of these bricks become exceedingly hard with weathering, so enabling them to withstand even the polluted atmospheres of towns and cities.² For centuries, in England, this has made the rubber prized for use in all forms of enrichment where precision and fineness of joints were essential in the days preceding mechanised quality-controlled regular-shaped bricks.

It has always been accepted and documented in writing on English historic brickwork that this ultimate expression of the skill of the master bricklayer was introduced into England from the Netherlands during the second quarter of the seventeenth century.³ Kew

Palace, London (1631), formerly known as the Dutch House and built for a wealthy merchant of Dutch descent called Samuel Fortrey, is considered the earliest example. Although of good quality, it is, like most early English gauged work prior to the Restoration, rather crude. It is not until the work of English architects, such as Wren, May, Pratt and Hooke, that the work is refined to the standards noted above.

WORKING AND LAYING POST-FIRED BRICKS

Historical background

Bricks capable of being worked in the 'post-fired' state, before and after laying, similar to how a mason works stone for architectural enrichment, have a long history that pre-dates Roman times.⁴ The skills of working post-fired bricks were evident in the great civilisations of Assyria and Mesopotamia, and were advanced by the ancient Romans, as can be seen in the ruins of Ostia (the port of Rome). Such skills were not entirely lost with the collapse of the Roman Empire in the 5th century AD. Some fine examples of dressed bricks and brickwork are still to be seen on eleventh-century classical façades in Siena, Italy. In particular, on the façade of the church of Santa Maria Della Scala (1090), where the large bricks are precisely finished to be laid with joints averaging 6 mm, the faces of the bricks clearly reveal *in situ* finishing using a mason's drag in some places and, in other parts of the building, by the use of some form of cutting tool to provide a regular herringbone pattern on the individual stretcher faces (*figure 1*).

The influence of Italian architecture and building craft practices spread to northern Europe, mainly through the work of the Cistercian Order and their monastic trading links. In the Netherlands, this began to be seen first in the prosperous region of Flanders. The Cloth Hall in Brugge (Bruges) (c. 1280) is mainly a brick building with stone enrichments where the face brickwork is drag-finished exactly as the stonework.

The practice of post-fired 'cutting and rubbing' of bricks in Flanders, to gain precision in shapes for virtually all detailings of their popular Gothic-styled buildings, gathered so much momentum from the



Figure 1 Herringbone tool marks from post-fired finishing on bricks at Santa Maria Della Scala, Siena, Italy. Note the fineness of the joints, made possible by the 'ashlaring' of the bricks to sharp arrises.

fourteenth century that, from the very early fifteenth century, the prestigious master bricklayers capable of executing this work were in international demand. Small wonder, then, that in England from this time a 'Fleming' or 'Docheman' was frequently requested to cut and build the richly-decorated chimney stacks.

Although some of the brick mouldings may have been cast in a wooden mould, close examination of the brickwork generally reveals that the overwhelming majority was of cut or 'hewn' bricks. This can be easily substantiated by studying documentary evidence, such as the accounts for work at Tattershall Castle, Lincolnshire (1434), which show payments for 2,200 'Tegulis operatis vocatis hewentile' or 'worked bricks called hewentile' for the chimney and windows of the stableblock.⁵

The bricklayers executing the cutting of these mouldings were termed hewers ('hewyers'), whilst Westminster accounts refer to the 'hewen chymneys' of 1552, showing how this work was frequently programmed for the winter when, due to frost damage, bricklaying ceased (ie 'the hewyng of 50 tonnells [shafts] in brycke for chimnes ... which hath byn hewyn thys wynter by taske').⁶

Simply put, Flemish and later English bricklayers were treating bricks, capable of being worked 'post-fired', as building stones; and initially some enrichments, like window tracery, were stuccoed to complete the illusion of the stonework they replaced. This Masonic link is understandable when one studies historic documents as, for example, in *The History of the King's Works*: 'In Calais, in the fourteenth and fifteenth centuries, bricklaying was always done by "masons" and their materials were called "brickestones" or *lapides vocati brykkes*'.⁷

Nicholas Moore records:⁸

In England ... building accounts including both brick and stone construction often show the interchangeability of brick and stone layers. At Eton, although there were 13 men in 1444-46 who were paid only as bricklayers, there were also 18 stonemasons of whom ten worked partly as bricklayers. In 1442 there were only two 'brikemen', who worked for four weeks each, but 38 stonemasons of whom 20 were also paid as 'brikemen'. The clerks distinguished them as *positores de brike alias roughmasons* or *positores vocati rough leyers et brekemen*. Again, at Kirby Muxloe, Leicestershire, some of the most skilled bricklayers were paid in May-July 1482 as 'roughmasons'. At Nonsuch Palace, men employed as bricklayers in 1538 were 'roughlayers' subsequently, while working under the same warden. Men found employment both as bricklayers and masons at Sandgate Castle in 1539-40.

John Cowper trained as a stonemason at Eton college, yet was master mason in charge of the brickwork at Kirby Muxloe Castle, Leicestershire (1480-84) and other brick buildings.⁹ Robert Newby was master bricklayer and master mason at Lincoln Cathedral in the 1520s, and Christopher Dickenson was master mason at Windsor Castle and Nonsuch Palace, yet is recorded in the Nonsuch accounts by his role there as a Master Bricklayer.¹⁰ The standard bricklayers would have

been skilled only in 'setting' or laying bricks to bond, hence, probably, the not infrequent use of the term 'brickmasons' (with various spellings) in contemporary documents.¹¹

The prolific use of 'de tegulis operatis vocatis hewentile' or 'worked bricks called hewentile'¹² was quickly to become established as the most popular way to produce moulded enrichments on brick buildings such as simple window detailings, as well as for decorative chimney stacks. Here the term 'moulded' needs to be clarified, as its use may be misleading. A brick can be 'moulded' to a specific shape in the 'green' or unfired clay state. Alternatively, a brick can be 'moulded' by being cut to shape after firing following the design of a prepared template in much the same way as stone. This is not always made clear by writers on historic brickwork and is why a knowledgeable bricklayer will always describe the latter as a 'cut and rubbed' moulding.

Nicholas Moore states that 'The extensive use of foreign detail on the finest buildings shows the domination of the industry by foreigners for a considerable period, tailing off only in the 1470s and 1480s'.¹³ He continues '... brick emerged as a high-quality and decorative building material confidently handled by English designers and bricklayers and popular for building of all types; especially for bishops' palaces and country seats, such as those of John Alcock (Bishop of Ely, 1486–1500) at Ely and Little Downham (Cambs) and Cardinal Morton at Hatfield, Lambeth, Charing (Kent) and Croydon. Imported details, such as diapering and the spiral chimney, were assimilated and developed'.

The level of achievement possible by native craftsmen is borne out in a letter (undated, but possibly of 1440) regarding the building of an ornate chimney stack for Havering-atte Bower, Essex:¹⁴

Ye well ordeyne me a mason that ys a ducher or flemynge that canne make a dowbell cheeny of ye breke ... yf ye may no flemynge have, then I wold have an engelesche man, and he were a yong man for a yonger man ys sharpest of wittes and of cunnynge [skill and knowledge].

Post-fired cutting or green moulded

All this time and expense for 'cutting and rubbing' bricks may seem strange to many observers today. Why not make a mould to the desired shape and cast the shape before firing when so many repeats would be needed? There are several answers to this:

- the slight warping, twisting and shrinkage of the varying brickearth/clays in firing would be a problem for enrichments, especially where precision was vital (not so much though for those bricks hidden by stucco);
- the lack of skill shown by brickmakers in making sophisticated timber mould boxes to cast the clay into and mould the special shape before firing;
- the problem of moulding complex shapes that possess deep undercutting made their removal from the timber mould box, fixed with removable 'negatives', virtually impossible;
- the prolific use of 'clamps' to fire bricks, where the close-stacking arrangement of standard bricks and the lack of firing control did not suit the production of

'specials', which, like roofing tiles, needed to be kiln-fired;

- the inherent quality of some brickearth/clays when low-fired to be easily cut to shape and abraded to a precise profile and smooth finish; and
- the employment of masons and the continuing development of some of the highly-skilled brickmasons/bricklayers as 'hewers' able to expertly cut and rub bricks quickly and accurately to the desired shape.

Cutting mouldings from 'green' clay

It is important to note that there is evidence on some enrichments from the late fifteenth century that sometimes the mouldings were also cut from the 'green' (ie before firing) clay brick while it was in a semi-dry state. It is suggested that '... this method could well have been carried out by the brickmaker under the guidance of the brick mason speeding production' and that 'the identification of cut post-fired bricks as opposed to cut green bricks, is as follows':¹⁵

Cut after firing: The material, even at low-fired state, is hard and abrasive, and requires the use of saw, skutch, rasp or any other tool capable of cutting down and rubbing to a finish. Marking out done even with a sharp instrument would only leave a shallow scratch in the surface of the brick, whilst a rasp tends to leave striations on the face. Poorly-prepared clay and other inclusions become exposed when cutting into the core of the brick, these are then visible or in some cases fall out of the body of the brick during its lifetime.

Cut green: Providing the clay is some three parts dry, it is possible to cut with a knife or chisel in the way a carpenter would work wood. The marking out is bolder due to the softness of the material and a more permanent mark is left, often becoming more pronounced due to weathering. When cutting semi-dry clay, the knife will tend to smear or smooth the surface of the cut so giving a somewhat polished effect. Nodules of harder clay are cut leaving evidence of their presence, but burnt into the brick once it is fired. Timing of the cutting varied, giving rise to a different size to the finished brick due to the amounts of shrinkage still to be experienced. This can be up to 8–10%. Again, a careful check, particularly of the marking out marks, will confirm the state of wetness of the brick.

Without doubt, the final statement again highlights the problem of working with green clay. Unless the bricks were all cut within a day or two of each other, the continuing drying and shrinkage of the clay would cause noticeable differences in the fired mouldings. One can therefore see, once again, the obvious advantage of cutting and moulding the post-fired brick for consistency of size and shape.¹⁶

That the majority of fifteenth- and sixteenth-century mouldings were to be of 'roubed (rubbed) bryck'¹⁷ is readily apparent, as Nicholas Moore states 'both from building-accounts and from the bricks themselves, the worked parts often revealing a core quite different from the fired face'.¹⁸

It is, however, during the seventeenth century, again

with influence from the Netherlands, and in particular the south-west of present-day Holland, that the highly refined skill of what quickly became termed 'gauged' or 'gaged' work,¹⁹ evolved as the ultimate development of the earlier work.

The use of gauged work was possible because of the fine quality and considerable quantity of ideal brickearth that ranged over large parts of southern England, the considerable Dutch influence on the use of fine brickwork, and the ever developing skills of the native bricklayers (particularly in the city of London). It was also popular with architects, especially in London during the rebuilding following the Great Fire of 1666, where builders had little choice but to use brick (stone being generally too expensive). The vogue in England for classical architecture during the seventeenth century demanded broad, smooth-faced façades to emphasise detailing and ornamentation. If brick was to be used, the bricks could not be warped and laid with thick mortar joints, as in the first part of the century, or the façade would be too busy and distracting. The solution was to cut and rub the bricks to precise shapes of fine tolerances, and set them by 'dip-laying' on a thin lime-putty and silver sand joint averaging 1–2 mm, but often less (particularly in the work of the post-Restoration period).

HISTORICAL OVERVIEW OF GAUGED BRICKWORK IN ENGLAND

Although Kew Palace, London (1631) is usually given as the earliest example of gauged work, it is perhaps better described as a good example of the gradual transition of the Artisan Mannerist style of employing post-fired brickwork for enrichments from the earlier Tudor Gothic cut and rubbed work prior to the later and more refined classical use of the true Dutch style of employing gauged brickwork.

A good example of very early English gauged work is to be seen in the remains of the classical entrance porch to the north-facing elevation of the ruined Houghton House, Ampthill, Bedfordshire (*figure 2*). The ashlar gauged work of orange fine-textured rubbers is, as yet, undated, but possibly c. 1617–18 and thought to be to the designs of Inigo Jones (1573–1652) commissioned after the house was completed in 1615. Of Houghton Hall, Harris and Higgott record:²⁰

The most tantalizing and grand commission of these early years is Houghton ... possibly begun just before Jones returned from Italy. ... It is possible that in the building process she [Mary, Dowager Countess of Pembroke] was persuaded to provide modernity to the house by inserting classical frontispieces into the north and west fronts. These could only be by Jones, so classical are they in Jacobean England. As such, they are precious relics of his designing skills in this early period, probably in mid-1615 and certainly before 1621 when the Countess died.

This is very significant, as the brickwork, although still inclined to vary in joint size and lacking the highly-disciplined nature of the post-Restoration work, is generally of a higher standard than that at Kew Palace. Yet, it clearly predates it by a decade or more. It would

now surely be correct to recognise Houghton House as the first building on which gauged brickwork was introduced into England.

It is in the fine work of the century following the 1670s, however, that we truly begin to see English brickwork at its finest. A masterpiece of gauged brickwork, a large doorway pediment, from a now demolished house in Enfield, Middlesex (1675) is on display in the Victoria and Albert Museum and is by one of Wren's master bricklayers, Edward Helder. It is a consummate statement of mastery over material that has rarely been equalled and certainly never surpassed. The gauged entrance doorways of King's Bench Walk, London (1678) would similarly appear to be the work of Helder. Excellent examples of gauged work are also to be seen in many of the royal works of Sir Christopher Wren, as at the Royal Observatory, Greenwich (1675) and Hampton Court Palace (1690s).

It is frequently incorrectly stated, and recorded,²¹ that true red rubbers are a unique blend of brickearth confined to Berkshire and Kent. This is simply not true. These counties were mentioned in seventeenth-century documents, only because of their close proximity and ability to transport bricks to London.

Brickearth of varying quality sufficient to make rubbers exists over various areas of southern England; it is not however exploited as it once was. It is important to



Figure 2 Part of the early gauged brickwork at Houghton House, Ampthill. This gauged work is part of a Renaissance-styled alteration attributed to Inigo Jones.

bear in mind that the same rule applies to rubbing bricks as to all building materials in the days before mechanised transport – one mainly used what was locally available. The construction of Winslow Hall, Buckinghamshire (1700) was overseen by Wren, who checked all the accounts for the owner, Sir William Lowndes (1652–1724), Chancellor of the Exchequer at that time. 99,450 standard-sized rubbing bricks were used for the gauged work and all were obtained from a variety of local brickyards within seven miles of Winslow.²²

This practice remained essentially the same until the Victorian period when, with continuing improvements in brickmaking, companies with permanent brickyards having kilns and rail access to the city and other major towns began to specialise in the production of rubbing bricks as well as general face bricks. These included the premier 'red rubbers' called Fareham Reds from Fontley in Hampshire, the 'Bellingdon rubbers' from W. H. Allens of Suffolk, and, from the 1850s, the orange/red rubber of Thomas Lawrence & Sons of Bracknell, Berkshire (TLBs). In London, from the second half of the seventeenth century, the popular yellow clamp-fired London (grey) stock brick held the field for a whole range of bricks to suit every part of a brick structure. Its equivalent to the rubber was termed the 'Malm Cutter', being made from the best brickearth (malm) and reserved for all gauged dressings.

BRICKEARTH AND RUBBING BRICKS

Although wash-milling brickearth and pumping to settle in a washback for several months before adding more sand and moulding to a brick, and then firing in a kiln at a temperature of 1,140°C, is mentioned,²³ this would not, however, have been the method employed in the seventeenth, eighteenth and early nineteenth centuries. Instead, the brickearth of natural high-silica content would have been moulded by tempering to a soft consistency, using on-site sand to aid release from the mould/stock. The bricks would then have been either kiln- or clamp-fired using mainly wood as the fuel, averaging a temperature of between 850°C and 950°C. This temperature is significant, as at 900°C vitrification begins to occur and a fireskin develops on the brick; below this temperature it would be more true to use the phrase that the brick is 'baked rather than burnt', and this was certainly true of the best traditional rubbers (including the TLBs that were also fired at 900°C). A temperature of 1,140°C is too high for rubbing bricks.

Cutting and shaping the rubbers

The techniques used in the English brick cutters' shed also changed with the passage of time. In the Stuart, Georgian and early Victorian periods, most selected rubbing bricks were, as in later periods, first rubbed square on their bed and face on a circular flat slab of York stone (millstone grit). It is important to stress, however, that they were not then placed, wedged and strutted into an appropriately-shaped timber cutting box for cutting to shape using a bow-saw with a twisted wire blade.²⁴ This uniquely English practice dates only from the later Victorian period, made possible with the advent of mass-produced steel wire in the 1860s and general improvements in the removal of inclusions from

the prepared brickearth. The brick cutters of the earlier periods used a variety of tools including the double-bladed brick axe, brick 'scutch', mason's small hand saws, files and other established form of abrasives (figure 3).

This practice is described by Joseph Moxon:²⁵

A Brick Ax, with which they cut Bricks to What shape they please, as some for Arches both streight and Circular, others for the mouldings of Architecture, as Archytrave Friez and Cornice. A Saw made of Tinn, to saw the Bricks which they cut. A rubstone, which is round, and is about fourteen Inches Diameter, and sometimes more or less at pleasure, on which they rub the Bricks which they cut into Several Shapes, and also others which they cut not, being call'd Rubbed Headers and stretchers.

He continues:

Some use a Float Stone, with which they rub the moulding of the Brick, after they have cut it with the Ax, pretty near to the Pattern described on the Brick, by the Trannel from the Wainscot, or Pastboard Mould, that so they may make the Brick exactly to answer to the Pattern or Mould. Others use no Stone at all, but cut the Brick exactly to the Pattern with their Brick-Ax, leaving the Ax stroaks to be seen on the Brick, which, if they be Streight and parallel one to another, look very prettily, and is the truest way of Working; but then they must take care, to Ax the Brick off, with an Ax that is exactly streight on the edge, that the moulding in the Brick be neither round nor hollow, from side to side of a header, or from end to end of a stretcher.

The leaving of the 'ax stroaks' echoes the practice of banker masons deliberately texturing the surface of their stone – what masons refer to as 'boastered' (a series of parallel grooves formed at an angle to the vertical) or



Figure 3 A traditional brick-axe being used by Gerard Lynch to cut an ornate moulding on a low-fired hand-made brick held on the chopping block in the manner of a seventeenth-century brick mason 'hewer'.

'tooled' (where the parallel grooves are vertical).

This practice was much the same as with the medieval brick 'hewers'; the craftsmen worked the brick shape true to the template as it was held by the cutter's free hand on the timber 'chopping block' positioned on the cutting bench. Obviously a large block of stone, when worked by a mason, will not move because of its self weight; a brick, being a small lightweight unit, needs to be held secure on the chopping block or worked against some form of bench-stop. Where required, final shaping on a running mould or, where curved, a trammel (radius rod), using a reverse or negative metal template, was then used to both finish and check the profile.

The late Victorians developed the now familiar use of the profiled moulding box to hold two or more bricks for cutting to shape by the use of a bow-saw with a twisted-wire blade (*figure 4*). This was a development in the use of the small plain wire bow-saw that some brickmakers would use to cut off the surplus green clay from the 'clot' thrown into the moulding box. Many of the brickmakers responded to this new practice by producing their rubbers oversized. This allowed the brick cutter extra surface to cut on the 'boxed' cutting bricks (never cutting 'blocks' as sometimes stated – this is a modern term). Finishing by fine abrading was then carried out with appropriate straight-edges and the skilful use of a variety of hand-held abrasives.

GAUGED BRICKWORK IN BELGIUM

The re-introduction of brickwork into the Netherlands after the departure of the Romans in the 5th century came mainly through knowledge of the skills of the Cistercian monks in the late twelfth century. There are several monastic sites with buildings from the early thirteenth century that are easily accessible for study. Some buildings, such as the once great abbey of Ter Duinen in Koksijde (1214), are in a ruinous condition. Others, however, like the monumental barn of Ten Bogaerte (1230), again near Koksijde, and the very similar construction of Ter Doest at Lisswege (1275), are in remarkably good condition for their age.



Figure 4 A twisted-wire bow-saw being used by Gerard Lynch to cut rubbing bricks held in a cutting box in the traditional manner of the late Victorian cutter.

The orange/red-coloured bricks employed on these buildings are all very large, measuring 300–320 x 150–160 x 70–90 mm. These bricks, referred to as 'klostermoppen' (cloister bricks), are neatly laid in Flemish bond to standard-sized joints. There is no evidence on the faces of any of the plain bricks of having been worked post-fired, before or after laying. On the elaborate moulded bricks of the large ordered main entrance into the abbey of Ter Duinen, there are parallel striations running vertically down the brick faces. As the walling is only one metre in height and its internal constructional detailing clearly visible, one can see these marks carried through on to the parts of the brick that were originally set within the wall thickness. Furthermore, the faces of these bricks were vitrified with a clearly evident fireskin. One could therefore conclude that these marks were not the result of post-fired cutting and abrading, but rather the tell-tale evidence of saw marks on the timber mould box that had held the green clay brick.

Preliminary discussion with architectural historians in England, Holland and Belgium has emphasised that West Flanders was the historic centre for the tradition of gauged brickwork. Flanders had prospered, despite its turbulent history, through the cloth industries and transit trade through ports such as Brugge, Ghent and Antwerp and the mercantile benefits of several of the Flemish towns being part of the Hanseatic League. Brugge (Bruges) became not only the chief city of Flanders, monopolising the import of English wool, but also the leading mercantile centre for Europe, figuring significantly in the development of the Hansa (Hanseatic League).

The conditions that existed in the major towns and cities of Flanders were ideal for the erection of highly decorative public and private buildings founded by prosperous corporations, guilds and merchants utilising the very best of materials and the finest of craftsmen as an outward display of their vast wealth. The erection of masonry in the Low Countries using stone predated the re-introduction of brick, but was difficult because there was only a limited supply of limestone. Most was imported, with small sources of limonite available from the south Flemish hills and sandstone from Artesia. This made stone available only for the very rich to build with. Even today, a person in Flanders with a large fortune is considered to be 'stone-rich'.

Much of Flanders forms part of a sand-loam area that is geographically highly morphous with a grey green, rather sandy clay, forming a subsoil over almost all the entire region to a depth of 120 m. Such clay was perfect for the exploitation and production of good-quality bricks. It was only natural, therefore, that brick should become the ubiquitous material for structural and, later, ornamental masonry. Inland clays produce a pale orange/red brick. Frequently, however, the coastal 'polder clay', being rich in calcium carbonate, was preferred as it produced a pale buff-coloured brick that was more like the stone it was replacing, and as it yields a smaller contrast between brick and mortar joint, is perfect for masonry enrichment. It is important to remember that in the Low Countries the word for brick is 'baksteen', which can be literally translated as 'baked stone', and when in conversation with Dutch and Flem-

ish historians, craftsmen and architects, they frequently refer to bricks as 'steens' (stones).

Brugge

The major brick buildings of Brugge are built in the Gothic style. There are, however, some examples of Renaissance-styled building, but it was never popular in Brugge, or Flanders, although a unique highly-ornamental style of Flemish Renaissance developed gradually.

The huge Cloth Hall, built between 1280 and 1350, is a mainly brick building with stone enrichments. The bricks on the earlier part of the building are not unlike the 'klostermoppen' mentioned earlier, yet laid in English, rather than Flemish, bond. More significantly, there is clear evidence on the brick faces of post-fired working. The parallel comb-like marks, running vertically up the ashlar wall face, would have been made by a mason's tool such as a drag, which can be seen on all the adjacent dressed stone enrichments. As these bridge the joints, the dressing was actioned as-laid or *in situ* by the bricklayer/masons.

Similar marks are also evident on the brickwork of the vaulted corridors at the rear of the Cloth Hall. This brickwork, of 1350, is of smaller, orange-red bricks set with standard-sized joints. The doorways have ordered moulded reveals, bridged by Tudor-styled depressed arches. The cutting of the voussoirs, particularly for the tight curves to the left and right sides of the arch with joints not exceeding 6 mm, planned so that they radiated through both orders of voussoirs, echo again the knowledge and skill founded on sound masonry practices. The *in situ* finishing, with the comb-like marks, is worthy of note. On the reveals the marks run mainly horizontally, but occasionally they are vertical as the craftsmen 'humoured' the shape of the profiles for a straight and plumb line to the eye. Across the face of the voussoirs the comb-marks run horizontally with the curve of the arch. The brickwork of this building is, in all respects, a long way ahead of what was being achieved in England at this time. Certainly the practice of finishing the brick facework as a stonemason his stone was not common to English brickwork, although abrasive marks are often seen on cut mouldings originally intended to be rendered to resemble stone (acting also as a key) up until the sixteenth century.

The Palace of the Gruuthuise (1425) is constructed in the Gothic style, richly ornamented with beautiful brick tracery or, as the Flemish term it, 'maaswerk', across the façade with occasional use of stone as a corbel to support the enrichments or terminal features and to cope the gables. The post-fired shaping of bricks to templates in the manner of a stonemason is known in Flanders as 'beworkte baksteen' or 'worked-on bricks'. Some of this tracery was given a coat of lime and stone-dust stucco to imitate the natural stone it was replacing.

The Hanse House (1478) is a wonderful example of neatly laid brickwork with mortar joints much thinner than contemporary English brickwork of this period. The large window reveals and pilasters are of purpose-moulded specials, but the 'maaswerk' areas of mouldings are beautifully shaped and laid with thinner joints than for the general facework; they were intended to be seen and not disguised behind a coat of plaster.

Tribune Hereman van Outvelde (1516) is a fine brick-built square-bayed window, constructed for the owner of that name, a master silversmith, intending to impress customers and display the wealth created from his craft (figure 5). The bay has many fine elements of brickwork laid as tracery and other forms of enrichment in a delightful red brick set with fine joints of 2–4 mm. This has to be considered an example of early gauged work. There are specially moulded bricks as terminal features for highly-decorated cut and rubbed quoins containing narrow flues, because in this room Outevelde smelted the ores and the flues were necessary to vent the resultant noxious fumes.

Early gauged work

The demand by wealthy merchants and town corporations for even more elaborate shapes to enrich buildings meant employing the best of craftsmen and materials. This combination acted as the catalyst for the development of great skills, including working bricks to shape after they were fired; a natural progression of a craft ever refining its materials and skills. Many knowledgeable and highly skilled 'meester metselars' (master bricklayers) worked as 'staad metselars' (town bricklayers) and were members of powerful guilds controlling the craft. The best of these also designed buildings, supervised the training for apprentices, and ensured bricks were made and laid to the very best of standards.

The 51 detailed articles for the guild of the Brugge



Figure 5 Wonderful early Flemish decorative gauged brickwork at Tribune Hereman van Outvelde, Brugge.

bricklayers²⁶ show that, in the first half of the sixteenth century, the apprentices had to be 15 years old before starting training, middle class, and with finances to resource their training over a period of four years. At the end of their apprenticeship, in front of two competent masters, they had to produce two of three given 'proefstukken' (masterpieces) involving an ornate window or two difficult ornate styles of doorway. Although masons had to draw designs for their masterpieces, bricklayers did not always do so. It is, however, acknowledged that the best bricklayers were also very good at providing such drawings, the skill being passed from father to son (ie not taught at schools or academies).

It is small wonder that, from the mid-fifteenth century, Flemish bricklayers were internationally renowned for their skills in fine ornate brickwork and a 'Ducher' or 'Fleming'²⁷ was often requested in Tudor England to build decorative chimney stacks for which the period is famous. Simply put, the constant demand for, and the use of, accurate decorative brickwork led by necessity to the cutting and rubbing of bricks after firing due to the difficulties of green clay moulding (so resulting in warped geometric shapes requiring further time spent adjusting them). Brick was also now fashionable, being displayed in its own right and no longer disguised behind stucco.

It has been possible to determine, through archival



Figure 6 Fine gauged brickwork doorway, built of stone-like buff-coloured coastal bricks, at 71 Gasthuisstraat, Poperinge.

research, the names of the most significant Flemish master bricklayers, who worked primarily in Brugge (eg Jan van Oudernaerde, Govaert Cowwe, Ferry Aerts). Although it is felt that all of these master bricklayers remained in Flanders, it is quite possible that some could have worked in England at some point in their working life.

Poperinge, a former Hanse town, virtually escaped the bomb damage of the First World War that destroyed so many historic buildings in West Flanders. 71 Gasthuisstraat (1579) is constructed of English-cross (or Dutch) bond laid with mortar joints of 5–10 mm. The brickwork is of pale-buff coloured coastal bricks that are of a relatively fine calcareous body. The large central brick doorway, designed in the regional Renaissance style, is a fine example of gauged brickwork (figure 6). The same bricks are used for the main walling, but the whole manner of the doorway treatment is completely different – cut and shaped with great care and then laid with joints of 1–2 mm and cross-joints varying from 1 to 5 mm.

It may also be noted that this gauged work had been finished *in situ*, similar to the dressing of stone with a drag by a stonemason. This is known in Flanders as 'planing.' There is, however, a noticeable difference in these striations to those on the Cloth Hall in Brugge. More care has been taken to work them parallel and vertical to the jambs, and then to follow the curve of the arch keeping with the coved horizontal rustications up the pilasters framing the doorway. This feature only deviates when the direction needs to follow the radiating voussoirs.

Viewed from a distance, especially with the tone of the brick, it is quite easy to mistake this doorway for stone work. This re-confirms the long-held belief of the author (GL) that gauged work is the result of the master bricklayers refining brickwork in the manner of the stonemason, resulting in brick being suitable for the moulded enrichments of Gothic and subsequently Renaissance and classical styles, all primarily intended for the medium of stone. In the post-fired working of bricks and brickwork, therefore, there would have been both a desire and ultimately a need to work the bricks like the best carving stone.

Die Nobele Rose (1572–75) in Veurne is a fine example of early gauged work, having similar bricks and finishing that echoes the Poperinge doorway. The arches and the large central window treatment with pilasters framing a scallop-shell hood within a moulded arch are especially finely wrought.

Veurne's town hall, of Flemish Renaissance style, was constructed in two parts, in 1596 and 1612. Both display fine gauged brick enrichments, as well as *in situ* carved strapwork. This work is superior in quality to the Poperinge doorway and Die Nobele Rose, as the skill continued to be refined with knowledge and experience. A description of the work carried out on cutting, rubbing and constructing a new spiralled brick 'topstuck' (ie a finial) to replace the seriously weathered 1612 original from this building is the subject of a paper by Elie Degrande and Miek Goosens.²⁸ This gives a valuable account of the methods employed by the Flemish craftsmen of Brugge in post-fired working bricks for restoration purposes.

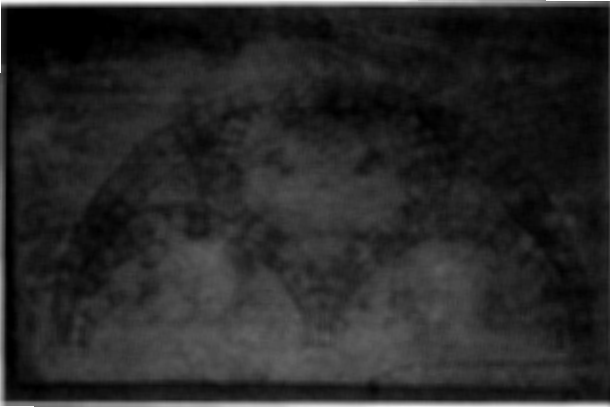


Figure 7 Geometric precision of the full-size setting out of 'maaswerk' on the tracing board prior to establishing templates for cutting post-fired brick.

A master builder's workshop

At the master builder's workshop of Arthur Vandendorpe in Brugge, the author (GL) observed how bricklayers set out and cut bricks for the restoration of 'maaswerk' (tracery). Gauged work has long gone from the Netherlands, and today the bricks are first cut to shape by machine and then hand dressed like stone. Surprisingly, all the bricks used on restoration work appear to be re-claimed; there are no brickmakers currently producing rubbing quality bricks.²⁹

The author was also shown the tracing boards with 'maaswerk' all neatly drawn out, the geometry being well executed and the joint sizes being to a maximum of 5 mm (figure 7). Full-size templates were prepared from these boards for individual cutting boxes; bricks could be placed in them and 'scribed' for machine cutting. A foreman bricklayer demonstrated his skill as a 'tailleur' (finisher), finishing the re-claimed brick that had been cut roughly to shape using a bench-mounted disc-cutter. Placing the brick on its edge at an oblique angle in a timber box fitted on the side of a bench, he produced a series of stripes with a mason's mallet and sharp plain-edged chisel across the brick exactly like tooling seen in fine stonemasonry. This finish in Flemish is called 'frijnen', meaning driven or striped. It basically involves 'walking' the chisel across the surface of the brick as it is



Figure 8 A steenschaaf, with appropriately-curved blades, being offered up to the lines set out on a prepared block of Le Pine limestone prior to planing the moulding.

rhythmically tapped with the stonemason's mallet. These parallel lines are faintly reminiscent of the herringbone pattern on the eleventh century bricks of Siena.

The steenschaaf

Although 'frijnen' produced parallel striations not unlike *in situ* finishing, it may be concluded that this method of finishing would not be ideal for *in situ* brickwork, especially set in slow-setting traditional lime mortar. Instead, the tool used for the *in situ* finishing process of 'planing' would appear to have been the 'steenschaaf' (stoneplane). This stonemason's tool is of various lengths and shapes with integral handles into which toothed or smooth blades are slotted and angled against the direction of 'push'. Such a tool is known in England as a 'French plane' or a 'French scraper' (never popular with English masons) and is used for running along stone or brickwork in a manner similar to how a carpenter planes timber. The steenschaaf appears to have been used for all the combing marks visible on gauged work studied in Flanders, produced during the final *in situ* finishing process to both line up the work and clean the faces.

In Saint Omer in French Flanders, the steenschaaf was observed in use by masons restoring a stone façade, both for *in situ* planing and also shaping stone on the bench. These French-speaking masons called the plane a 'rabotin' (figure 8).

Teaching advanced masonry skills

At the Vrij Technisch Instituut (VTI) te Brugge, advanced-level students are trained in restoration techniques, the emphasis being on the range of masonry skills necessary to maintain and restore the architectural features in Brugge and the surrounding areas of Flanders.

The students use mechanical carborundum grinding stones to rub a shape into the face of the brick, having scribed the bottom and top profiles from 'clip moulds' taken from full-size drawings. During this rubbing process, the two different patterns are carefully united at the middle of the brick face. This practice helps to confirm the theory of the author (GL) that circular rubbing stones of millstone grit were used for gauged work in England from the seventeenth century, evolving in the cutting shed where the grindstone was used for sharpening brick axes, bolsters and chisels to help work mouldings on the bricks. The circular stone seemingly came to be used for 'squaring' the bricks, being taken off the spindle and laid flat on a pier of bricks or on the cutting bench itself.

GAUGED BRICKWORK IN HOLLAND

In 1609, Holland achieved independence from Spain and within a few decades emerged as a world power, experiencing a golden age of prosperity. Many Flemish craftsmen and designers moved into the united provinces, enriching further their areas of specialism. From the early seventeenth century, one begins to see the Flemish skills of gauged brickwork appearing on Dutch buildings.

Gauged work is concentrated in the west and south of

Holland, linking into Flanders; no examples are known in the north or east of the country. Gauged work or, as the Dutch term it, 'geslepen metselwerk' (sharpened brickwork) was used mainly in the seventeenth and eighteenth centuries, but not to the same extent as in Flanders. Like Belgium, gauged work in Holland had long gone from the bricklayers' craft and no studies of it have been carried out.

Leiden

Johanna Hollstelle states that, by the seventeenth and eighteenth centuries, the brickmaking region of Leiden (Leyden) along the old Rhine (Rijn) had become important, where there were at least 30 kilns, some holding 600,000 bricks, fired three to five times a year.³⁰ The alluvial downstream clay, being of a very fine structure, meant that 'Leide steen' (Leiden bricks) were of excellent quality. The bricks, after burning, were sorted into several grades and the best of the top grade reserved for gauged work; there was no brick called a rubbing brick or equivalent Dutch term.³¹

The gauged work in Leiden dates from the early seventeenth century through to the early nineteenth century, although a different type of clay was used for the latter period. A semi-circular arch leading into the courtyard of the Burgerweeshys (1607) is accurately cut and gauged, with the bedding faces only rubbed and edged and laid with fine joints. The voussoir faces are not dressed or finished *in situ*, the clay folds being visible on the brick faces.

In complete contrast is the treatment of the large semi-circular arch of similar span to the church at 64 Breestraats (1635), finished *in situ* with a steenschaaf and following neatly the curve of the arch (figure 9). 9 Pieters Kirk Gracht (1620) displays gauged work for ashlar, as well as handsome segmental arches. This, again, was finished *in situ* with the steenschaaf, being highly suggestive of Flemish craftsmanship and craft practices.

The accurate cutting for an impressive hearth vault at Jean Postigns Hofge, 21 Kloksteeg (1685) displays again the interchange of skills between bricklayers and stonemasons. Particularly noticeable is the finishing achieved by rubbing the brickwork smooth, with no signs of the



Figure 9 Detail from the face of the large-span, canted semi-circular gauged arch at 64 Breestraats, Leiden, showing striations made by the use of the steenschaaf.

use of a steenschaaf.

What has become obvious from such observations is that, in the regions of Holland where gauged work is present, it is not in the buff brick, favoured by the Flemish, but in orange/red fine-textured bricks. This is gauged work evolving from Flemish practices as a direct result of the use of Lieden bricks, which allowed easier post-fired work and so eliminated the need for the abrasive action of the steenschaaf. Hollstelle, however, appears to be in conflict with the results of this research, when she states:³²

When specially shaped bricks with chamfered corners or mouldings were required they were moulded in their final form in northern districts and in Flanders, probably under the influence of the brick workers of the abbeys there; but in Holland, ordinary rectangular bricks were cut and carved to the required shape.

This statement is not upheld by the author (GL), as findings show that the historical Dutch practice had been to make special-shaped bricks to order, whereas in Flanders they were usually fired before being cut and shaped, as described earlier.

Hollstelle also considers the firing of moulded bricks in the desired form as a characteristic expression of a fully-developed brickmakers' art and sees post-fired mouldings as a fundamental misuse of the material. This is not so, and misunderstands the difference and nature of utilising a baked brick for cut and rubbed or gauged brickwork, as opposed to a fully-fired brick (needing its all-important protective fireskin). Once understood, one can then see that gauged work is characteristic of a fully-understood and highly-developed art.

Kasteel Amerongen is a grand stately brick house built in 1673-85 in a style similar to that used by influential English architects such as Wren, Pratt, Hooke and May. The plastered vaulted ceilings have two deep red gauged arches acting as a vault rib. Spanning the length of the cellars, the brick faces are neither rubbed nor finished with the steenschaaf, and still show the folds from moulding. The darkened colour is attributed to a surface reaction peculiar to gauged work. Experience has shown that, as fresh gauged work dries, soluble salts and silicates within the body of the previously-soaked bricks are carried to the surface forming a darker toned veneer once the brickwork has fully dried out several weeks after laying. This can only be removed by dressing or finishing the facework using an abrasive, so bringing up the original lighter colour. Where the surface of the cellar brickwork is broken, it indeed displays both an orange/red colour and the fine quality of the clay.

Bricklaying guilds and 'Gildeproeven'

The guild system for seventeenth-century bricklayers/masons in Holland followed rules and practices similar to Flanders. The master bricklayers, despite the advent of professional architects during the seventeenth century, were still designing and erecting buildings with reference to pattern books published in Holland at that time. This style was referred to in Amsterdam as 'Contractor's Classicism'. The very best of apprentices wishing to advance to the status of a master had to

demonstrate their ability by constructing their 'gildeproeven' (masterpiece), to be assessed and passed by the 'proefmeesters' (proofmaster).³³ Gauged work was considered the ultimate skill for the bricklayer/mason, requiring knowledge of measurement, setting-out, geometry, cutting and shaping bricks, laying and finishing. It was not customary, however, for all bricklayers' guilds in Dutch towns to prove mastership by making such pieces, especially in earlier periods when there was no clear separation between the craft of the brickmason and the stonecutter. Following the guild rules of 1579, a bricklayer/mason could only join the guild if he had practised his craft, as an apprentice, for four years, followed by working for two more years with the same master. Amazingly, there are two places in Holland where examples of 'gildeproeven' from the seventeenth century still survive; the best, not surprisingly, is in the wealthy city of Amsterdam.

De Waag

The Onze lieve Vrouwegilde van de Metselaars or Our Lady's Guild of the Bricklayers in Amsterdam dates from the fifteenth century. In 1617, the guild took residence in one of the former old city wall gateways in the Nieuwmarkt, later called De Waag. It was here, in the 'metselaarsgilderkamer' or bricklayers' guild room, that the master bricklayers of Amsterdam would meet to teach their apprentices and discuss the mysteries of their craft. One, Simon Bosboom (1614–62), an artisan architect, translated and elaborated the complete work of the Venetian architect Vincenzo Scamozzi (1552–1616).

The bricklayers placed their masterpieces, all executed in gauged work, around the walls of De Waag. These are dated from the second quarter of the seventeenth century, up to about 1670, and are part of the classical and more theoretical approach that was sweeping Dutch architecture in the early seventeenth century, deriving its heritage from the Renaissance and the classical proportions of the orders. Almost all of the original medieval wall surfaces of the guild room and spiral staircase are decorated with more than eighty masterpieces of very artistic gauged brickwork (*figure 10*). This is similar to the best English gauged work in all



Figure 10 A section of the seventeenth-century gauged brickwork masterpieces in De Waag, Amsterdam, that follow the spiral staircase to the top of the entrance tower in De Waag, Amsterdam.

respects.

The premier example to all of this brick craftsmanship is just inside the door of the payment room for the guild. A beautiful niche, with a carved scallop-shelled boss, is surmounted by a richly moulded pediment carried at each end by two turned columns on the capitals of which is carved the inscription 'Anno 1660' (*figure 11*). This confirms the high level of perfection that such work had reached in the Netherlands before the Great Fire of London of 1666.

On these gauged masterpieces the bed joints average 1–1.5 mm, the perpends finer at 0.5 mm. Many have been achieved by the use of a fake or dummy joint scored on to the face of an appropriate stretcher. Rather surprisingly, Flemish bond was used on many of these masterpieces, as it is uncommon on Dutch brickwork of the period. As it is a bond so often linked with gauged work when introduced into England in the seventeenth century, it further emphasises the direct Dutch influence in this area of the craft.

It is also rather surprising not to see anything of either the quality or extravagance of the gauged work of De Waag in Amsterdam itself. Clearly, in the city of Amsterdam where they had perfected the skill, gauged work did not establish itself as a fashion, perhaps due to the austere puritan attitudes of Holland as compared to Catholic Flanders. Through archival research, the names of some significant masters and journeymen bricklayers working in Amsterdam during the seventeenth century have been discovered. Although it is felt that all of these master and journeymen bricklayers remained in Holland, it is quite possible that one or more could have worked in England at some point in their working lives.

Amersfoort

In the church tower of Onze Lieve Vrouwetoren in Amersfoort (1440–1500) there are three apprentice masterpieces in gauged work contemporary with those of De Waag – an arched niche, a splayed elliptical bullseye with moulded reveals, and two gauged vaults (joining to form a shelf) very much like the hearth vault in Lieden. This is delightful gauged brickwork and executed to a high standard, but is rather more provin-



Figure 11 The exquisite seventeenth-century gauged brickwork masterpiece in De Waag, Amsterdam. The date of construction is clearly carved into the capitals 'Anno' and '1660'.

cial in quality than the Amsterdam masterpieces.

As in Amsterdam, the use of gauged work appears restricted almost exclusively to flat arches. A striking feature of the flat arches seen in Holland is that they are all built half-bond. Although this does occur on flat arches in England, it is more common to see the use of dummy joints to create the effect of a closer (quarter brick) next to the header and thereby effect a Flemish bond face. Such treatment appears to be uniquely English.

CONCLUSIONS

Evidence clearly indicates that the skills and techniques needed to work post-fired bricks by cutting and rubbing to a variety of intricate shapes, which developed in Flanders from the thirteenth century, reached its zenith in the fine early gauged work of the late sixteenth century. Due to political and religious turmoil, along with the economic decline of the cloth trade, a great exodus of highly-skilled craftsmen moved into the northern provinces of modern Holland. Some also found refuge in England, in places such as Sandwich in Kent, as well as in London. The skills of these immigrants greatly enriched their new homelands.

In England, during the early fifteenth century, records reveal that the Flemish bricklayers were always in demand for supplying enriched brick detailing.³⁴ In Holland, Flemish skills neatly dovetailed into an already highly-skilled craft, but one where the bricks were almost always moulded to shape before firing. When possible, Flemish bricklayers displayed their expertise with cutting and rubbing to complete an intricate moulding or to execute a shape, too difficult to cast in the clay, thus greatly enhancing the skills and craftsmanship of late sixteenth century Holland. During the first half of the seventeenth century, a combination of architectural changes in fashion, high-quality bricks and highly-skilled master craftsmen centred in Holland, particularly Amsterdam, were the final elements in the evolution and emergence of classical gauged work raised to a level of execution that is not seen in England until the post-Restoration period of the 1660s.

Summary of development in Flanders

During the thirteenth century, Flanders began to prosper with the cloth trade. Such financial prosperity meant a high level of patronage for building work, keen to display wealth and impress neighbours and visiting merchants, and insisting on all forms of architectural embellishments to enliven their ornamental Gothic façades. The craft guilds of the bricklayers and masons were repositories of knowledge and standards of craftsmanship. Although most stonemasons remained working with stone, some did work with brick simply because it was used in such great abundance. Inevitably there was a cross-fertilisation of skills of which bricklaying was the major beneficiary. Gothic architecture demands great skill in the production of enrichments, all clearly evident in the skill of Europe's stonemasons of the period. The masons' use of brick in Flanders meant an inevitable development of fine skills in working to shape post-fired bricks.

Firing moulded special-shaped bricks will usually

lead to some distortion, requiring them to be laid on large mortar joints to allow adjustments to 'humour' the profile to line. Fine joints in masonry are symbolic of individual pride, accuracy of skill and stronger construction. When the Roman Empire was at its height, the quality of its masonry was accurate with fine joints between stones or bricks. As the Empire declined, so did its masonry skills; joints increased significantly in size. Flemish masters continued this desire to refine their brickwork during the fifteenth century. This made it impossible to adjust distorted moulded bricks on thin joints and therefore led to time-consuming trimming and re-shaping of purpose-made specials to obtain perfect lines. Inevitably, this resulted in many bricks being entirely worked post-fired to shape, a practice made possible by the characteristics of certain low-fired Flemish bricks, which subsequently case-hardened to form a durable surface very similar to the behaviour of freshly quarried stone.

By the fifteenth century, Flemish bricklayers became masters of this skill, with features drawn out full-size, templates made, and bricks marked and cut to the moulding by a variety of masons' cutting and carving tools including the saw and steenschaaf or stoneplane. The mortar would have had a relatively high water content for the porous bricks. For fine joints, it would be natural to either 'butter' the bed of the brick or simply dip it to pick up a joint, rather than spread a thin joint on the wall.

By the last quarter of the sixteenth century, all the early elements of gauged brickwork were starting to come together as can be seen in the magnificent entrance doorways at 71 Gasthuistraat, Poperinge (1579) and Die Nobele Rose (1575) in Veurne. This, however, was also the end of the golden period for Flanders. The medieval cloth trade economy declined, and Flanders was now under the rule of Philip II of Spain, who was determined to crush Protestantism in the Netherlands as the effects of the Reformation spread.

Summary of development in Holland

The arrival of Flemish craftsmen in Holland was at the close of the Gothic period of architecture and the rise of the Renaissance style (called Dutch Mannerism). By 1600, this style became known as Dutch Renaissance and, by 1615, Amsterdam Renaissance. Dutch Classicism began to appear in 1625 and enjoys its heyday between 1640 and 1665. It was this Dutch Classicism, which strictly followed the rules of Italian treatises, that was to become popular in England and bring with it the prolific use of gauged work in the second half of the seventeenth century.

In Holland, the sixteenth-century bricks were not normally cut after firing, except for some corners or edges. Flemish bricklayers quickly adapted their unique skills to suit Dutch bricks and designs. Renaissance and classicist styles, unlike Gothic, did not demand extensive use of decorative cut-brick enrichments. The brick industry of Holland exported to many countries during the seventeenth and eighteenth centuries, although the market to England was never significant. Gauged work of this period in the Netherlands appears to have been constructed to a much smaller vertical gauge than one generally sees with English work of the same period.

There are exceptions, however, such as at Marlborough House, St James Park, London (1709–11), which has lovely gauged work using bricks from Holland, being described as ‘... rather smaller than those made in England, redder in colour and cheaper, being brought in as ballast in hired transports then coming and going between Holland and Deptford’.³⁵

The guild system in seventeenth-century Holland established high standards by means of rules for the production of the apprentices’ ‘gildeproeven’ or masterpiece, remarkably similar to the ‘proefstukken’ models of the sixteenth-century Flemish bricklayers, as the ultimate test for demonstrating mastery. The best-quality bricks made from the downstream alluvial deposits of Leiden, in the province of South Holland, were the most suited to gauged work.

The consummate expression of Dutch gauged brickwork or ‘geslepen metselwerk’ is to be seen in De Waag, Amsterdam. This is the work of bricklayers, not masons, yet skilled in the post-fired working of bricks, who fully understood the precise rules of brickwork and its principles of bonding. The seventeenth-century masterpieces in the old ‘metselgilderkammer’ or bricklayers’ (masons) guildroom (c. 1625–60) are the fruits of a seed sown in Flanders four centuries earlier. This gauged work, combined with carved stonework, is of the highest order and surely emphasises the cross-fertilisation of masonry skills that must always have occurred at the highest level.

Summary of introduction into England

Kuyper quotes a passage from Wilson’s *Holland and Britain*:³⁶

For the seventeenth-century Londoner, it was easier to travel from England to Holland than it was to visit Lincolnshire or Cornwall: even in 1700 it was easier for a London merchant to send a letter to a correspondent in Amsterdam than to a customer in Hull.

Politically and commercially, England was very well acquainted with her Dutch neighbour. Lord Henry Wotton (1568–1639), English traveller, diplomat and scholar, was appointed as Special Envoy of James I to the Hague in 1624. He was long acquainted with the architect Inigo Jones (1573–1652), as well as the Dutch architect Constantine Huygens (1595–1687), and in 1624 published *Elements of Architecture*. This book, which showed the classical influences that coloured much of the work of the hugely influential Inigo Jones (who visited Holland in 1613), was very popular in Holland and, as Kuyper states, ‘is an indication of the impact of the ideas in Inigo Jones’ environment on Dutch learned circles’.³⁷

Nicholas Stone the Elder (1586–1647) was born at Woodbury, Exeter, and served the last two years of his apprenticeship and one year as a journeyman with Isaac James (1587–1647), a London monumental mason and Flemish refugee, to whom he had been transferred or ‘turned over’ from another unknown London mason. He was working for Inigo Jones when he caught the eye of Amsterdam city architect Hendrick de Keyser and town bricklayer Cornelis Dankerts, who were on a long stay in London. They took him back to Amsterdam in 1607 where he worked on the new Commodity Ex-

change and, under de Keyser’s tutelage, reached new heights of skill and architectural knowledge. He remained there until 1613 when, in April of that year, he married de Keyser’s daughter, Maria, and they returned to London. Stone was appointed master mason by Inigo Jones for the Banqueting House and took premises at Long Acre. He also served as Master of the Worshipful Company of Stonemasons in 1633 and 1634.

Stone had three sons – Nicholas (also a sculptor/mason), John (who was educated for the church) and Henry (who trained as a painter). After his death, his premises were inherited by John and Henry, with Nicholas running the on-site activities. A diary entry by Nicholas emphasises the ongoing commercial, as well as social, architectural and cultural connections, with Holland. On 13 November 1646, he writes that Mr Henry Wilson of Petticoat Lane had shipped 30 tons of Portland Stone to Amsterdam, to his uncle Hendrick de Keyser, and that he was to have a third part of the profit.³⁸

The Stones’ yard employed the finest masons, including Caius Gabriel Cibber (1630–1700). After studying in Italy, Cibber travelled to Holland where he came into contact with Peter de Keyser, sculptor/architect and brother-in-law of John Stone, and commenced working for him, first as a journeyman and then as foreman sometime before the Restoration. He later became one of Wren’s favourite mason carvers.³⁹

The Royal Office of Works was reconstituted by Charles II at the Restoration in 1660 when the King granted positions to those who had served him in exile. Among them was Sir Hugh May (1622–84), Sir Roger Pratt (1620–85) and, later, Sir Christopher Wren (1632–1723) and Dr Robert Hooke (1635–1703). Within six short years, the Great Fire was to present these, and others, with unprecedented opportunities to design and build many new properties to the latest architectural fashions, with good materials enriched by the best of craft practices.

These men were scholars, travelled and well read, greatly influenced by the fashionable continental designs and craft practices expounded in the pattern and design books that were coming into England from Europe, particularly the Netherlands. By the late 1660s, the fashion for the flamboyant Flemish style had run its course and the centre of printed material moved from Antwerp to Amsterdam. From now on, Dutch influence superseded Flemish, and the leading English architects were not untouched by it. Indeed, many large houses from this period, such as Aspley House (1692) and Winslow Hall (1699–1700), are, as Kuyper states, ‘... of the vernacular type current since Pratt and May, a placid Anglo-Dutch style suitable for unpretentious country houses’.⁴⁰ The majority of these houses were built of brick, laid in Flemish bond, with Dutch-styled gauged brickwork enrichments.

Dutch bricklayers in post-Restoration London

It is not impossible that Dutch bricklayers, possibly from Leiden or Amsterdam, did come to London to ply their craft in the post-Restoration period; especially with the extensive building work that became available in the city following the Great Fire of 1666. A royal

proclamation to consolidate the Building Act of 1667 allowed 'foreigners' (native craftsmen living outside the old city boundaries and in the surrounding shires), as well as 'aliens' (craftsmen from abroad), liberty to work as freemen on the rebuilding works. Working alone or as a gang, they could have found much work for the best city architects specialising in producing elements of gauged brickwork. To date, however, extensive research both in England and the Netherlands has failed to find evidence to support this theory. Their names may, of course, be anonymous within building accounts listed under an English master craftsman or have been anglicised.

Recent discussions with architectural historians in Holland have, however, revealed this possibility as unlikely. This is substantiated by Dirk de Vries, a senior historian with the Monumentenzorg, who discussed the possibility with his colleague and noted architectural historian Wouter Kuyper. He writes 'He (Kuyper) does not think that Dutch bricklayers came over to England, except two of four sons of Hendrick de Keyser, Willem (1603-74) and Hendrick the younger (1613-65)'.⁴¹ It is interesting to note that Kuyper talks of these craftsmen as bricklayers, when we would call them stonemasons. It simply reinforces the fact that when called upon, these craftsmen could and did cross from stonework to high-quality refined brickwork with consummate ease. Research indicates that Willem and Hendrick trained in England under their uncle Nicholas Stone. By 1640, Willem was back in Amsterdam working as city mason from 1647-53. He then returned to England, but went bankrupt in 1658. Hendrick returned to London when Stone died in 1647.⁴²

If we accept that Dutch bricklayers did not directly teach their fine skills in gauged work to the city bricklayers, then clearly they learnt from them by indirect means. From the Tudor bricklayers' work of hewing and rubbing brick mouldings, the craftsmen had continued to refine their skills, working with ever-improving bricks and the demands for smaller mortar joints, through the designs of the artisan mannerist movement. This movement, which was made strong by the proliferation of pattern books out of Antwerp, would have been reinforced by craftsmen learning new skills and techniques. This was directly and indirectly from master craftsmen like Nicholas Stone, who could not but have known these practices from his long time working in Amsterdam.

The rising aspirations of the seventeenth-century city bricklayer to be seen as both educated and skilful would have also given impetus to a willingness to learn these skills, so giving the best masters undoubted parity with the finest of stonemasons. The essence of this seventeenth-century view of the craft of the city bricklayer is summed up by Moxon, who says:⁴³

Whether the white mason, which is the hewer of stone, or the red mason, which is the hewer of brick, be the most ancient, I know not: but in Holy Writ, we read of making of bricks before we read of digging or hewing of stones; therefore we may suppose the red mason (or bricklayer) to be the most ancient.

The knowledge of Dutch craft practices and the materials they used were propagated through deeply-

read city architects, like May, Pratt, Hooke and, of course, Wren. These ideas would have been discussed at great lengths with the city master bricklayers, themselves well read, to help achieve the required level of refinement. Certainly Moxon's writings on the work of the city bricklayer, as a manual to instruct other bricklayers, reveal just how much knowledge and craft skill in setting-out geometry and working bricks like stone was a daily fact of life for the best craftsmen engaged in quality construction during the seventeenth century.

That, despite their high level of skills, seventeenth-century craftsmen were not being as fully trained as their foreign counterparts was, however, the subject of some concern. As Geoffrey Beard states:⁴⁴

In a long statement in *An Account of Architects and Architecture* which John Evelyn appended in 1664 to his translation of Fréart's *Parallèle de L'Architecture*, he wrote that he thought English 'mechanicks' impatient as being directed and unwilling to recognise failure, there was a current arrogance, he thought, which implied that craftsmen were unwilling to be taught their trade further when they had served an apprenticeship and worked for gentlemen who were satisfied with their endeavours. He did admit that our craftsmen were capable of exceeding 'even the most exquisite of other countries' when they set their minds to it.

This was still of concern 30 years later, when Beard further suggests:⁴⁵

The humbler abilities of the majority of craftsmen were pinpointed by Sir Christopher Wren. Writing in 1694 to the Treasurer of Christ's Hospital, he indicated the fundamental weakness in English training: what was wrong was the lack of education in designing or drawing. Craftsmen were capable of copying a foreign pattern so well that often they exceeded the original, but they could not measure against the common training, which everybody in Italy, France and the Low Countries pretends to more or less.

One can readily see that despite the criticisms of both Evelyn and Wren, both freely admitted that the native craftsmen in England were undeniably capable of following foreign designs within their own trade and matching, if not excelling, its quality of execution. The sheer proliferation of gauged brickwork being used on English brick buildings by the 1670s tells us clearly that native craftsmen not only had the range of skills required, but were supremely confident in their use of them.

Current research indicates that the truly refined skills and knowledge of seventeenth-century English gauged work had its influence, not from Flanders, but Holland, and in particular from the architecturally influential city of Amsterdam. Evidence further reveals that English bricklayers did not take an early form of work and gradually refine it. The knowledge, materials, skills and rules of gauged work arrived in England already perfected. The English, however, quickly became supremely confident to the highest standard, and the use of gauged work was fully absorbed into the range of good bricklaying craft skills and became prolific. With the return of country bricklayers to their native shires after the city building slump of the 1680s, the knowl-

edge and crafts skills of gauged brickwork spread far and wide across the southern half of England and, through emigrating craftsmen, to our colonies abroad, especially the fledgling United States of America and, in particular, Virginia and Maryland.

NOTES

Illustrations: except for figure 1 by J Hofmiejer, the photographs are the copyright of G Lynch.

- 1 The term Netherlandish, rather than Dutch, is considered a more appropriate word to include not just present-day Holland, but all 17 provinces of the original (pre-1579) Netherlands or Low Countries. See: Percival, A, 'Netherlandish Influence on English Vernacular Architecture – Some Considerations', *British Brick Society Information* 47, February 1989, 15.
- 2 Lynch, G C J *Gauged Brickwork: A Technical Handbook*, (Aldershot: Gower Technical Press, 1990), 1.
- 3 For example: Brunskill, R and Clifton-Taylor, A, *English Brickwork* (London: Ward Lock, 1972), 26.
- 4 Personal communication with Professor Luigia Binda, Politecnico di Milano, Italy (19 January 1999).
- 5 *The Building Accounts of Tattershall Castle, 1434–72*, Lincolnshire Record Society, volume 55 (1960), 26.
- 6 Salzman, L F, *Building in England down to 1540: A Documentary History* (2nd ed.) (Oxford: Oxford University Press/Sandpiper, 1967), 145.
- 7 Brown, R Allen, Colvin, H M, Taylor, A J (eds), *The History of the King's Works, Vol. I: The middle Ages* (London: HMSO, 1963), 427.
- 8 Moore, N J, 'Brick', in: Blair, J and Ramsay, N (eds), *English Medieval Industries: Craftsmen, Techniques, Products* (London: Hambledon Press, 1961), 232–33.
- 9 Harvey, J H, *English Medieval Architects: A Biographical Dictionary down to 1550* (Gloucester: Sutton Publishing, 1984), 73–74.
- 10 *Ibid*, note 62, 213.
- 11 Smith, T P, 'The Early Tudor Chimney Brick from Bridewell Palace London and its Significance', *British Brick Society Information* 76, February 1999, 3–8.
- 12 Lincolnshire Record Society, *op cit* (1960).
- 13 Moore, *op cit*, 214–16.
- 14 Ryan, P, *Bricks in Essex: from the Roman Conquest to the Reformation* (Chelmsford: P. Ryan, 1996), 57.
- 15 Personal communication with Peter Minter, The Bulmer Brick & Tile Company Limited, Bulmer, Suffolk (13 March 1999).
- 16 Smith, *op cit*. It is important to make clear the term 'moulded'. It can be misleading as it is used to describe an architectural moulding as in shaped stone or brick or, as is not the case with stone, being formed by casting in a mould. The author quite correctly suggests using an alternative neutral term 'shaped brick' unless moulding or cutting is intended.
- 17 Salzman, *op cit*, 574.
- 18 Moore, *op cit*.
- 19 Bill to Christopher Wren dated August 1690 for 'Gaged Niche' at Hampton Court Palace. See: Bolton, A T and Hendry, H D, *The Wren Society*, Volume IV (1927), 45.
- 20 Harris, J and Higgott, G, *Inigo Jones Complete Architectural Drawings* (London: Royal Academy, 1989/90), 84–85.
- 21 Lamb, J and Shepherd, T 'The History and Use of Red Rubbers', in *Building Conservation Directory* (Tisbury: Cathedral Communications, 1996), 68–70. This short article makes several inaccurate generalisations.
- 22 *The Wren Society*, Volume XVII (1940), 54–66.
- 23 Lamb and Shepherd, *op cit*.
- 24 *Ibid*.
- 25 Moxon, J, *Mechanick Exercises or the Doctrine of Handy-works, Applied to the Art of Bricklayer's Work* (London, 1703), 245–46.
- 26 Verhelde, C, *Les Anciens Architects de Brugge*, (Werbrouck: Imprimé Chez Vandecasteele, c.1871), 5–21.
- 27 Correspondence relating to the Royal Manor of Havering-Atte-Bower, c. 1440. See: Ryan, *op cit*.
- 28 Degrande, E and Goosens, M, 'Over een bakstenen topstuck in Veurne', *Monumenten and Landshcappen* 6, No 2 (1987), 45–50.
- 29 Traditional brickyards at Kerkdriel in Holland and Boom in Belgium supply good-quality handmade bricks for use in the restoration of traditional and historic brickwork, but have not ever produced rubbing bricks.
- 30 Hollestelle, J, *De Steenbakkerij in de Nederlanden tot Omstreeks 1560* (Arnhem: Van Gorcum and Co (H J and H M G Prakte), 1976), 276.
- 31 Personal communications with Joop Hofmiejer, Monumentenzorg, Zeist (12 April 1998), Dirk de Vries, Monumentenzorg, Zeist (15 April 1998) and Jan Droge, Monumentenzorg, Leiden (7 May 1998).
- 32 Hollestelle, *op cit*, 58.
- 33 Heische, R and Zantkvijl, H, *Huizen in Nederland* (Amsterdam: Architectura Natura, 1993), 85.
- 34 The introduction of high-quality work and foreign craftsmen appears to date from shortly after 1410, the earliest surviving building to combine them being the chapel tower at Stour Park (Oxfordshire) with its diapering and moulded brick corbelling, under construction by Michael Warrewyk and his Flemings in 1416–17. See: Moore, *op cit*, 214.
- 35 *The Wren Society*, Volume VII (1930), 227.
- 36 Kuyper, W, *Dutch Classicist Architecture* (Delft: Delft University Press, 1980), 210.
- 37 *Ibid*, 228.
- 38 Knoop, D and Jones, D P, *The London Mason in the Seventeenth Century* (Manchester University Press, 1937), 27.
- 39 *Ibid*, 26.
- 40 Kuyper, *op cit*, 123.
- 41 Personal communication with Dirk de Vries, Monumentenzorg, Zeist (15 April 1998).
- 42 Kuyper, *op cit*, 242.
- 43 Moxon, *op cit*, 237.
- 44 Beard, G, *Craftsmen and Interior Decoration in England 1660–1820* (Holmes and Meier, US, 1981) part 1, 11.
- 45 *Ibid*, 12.

Gerard Lynch LCG, Cert Ed, MA (Dist) is a self-employed Master Bricklayer, historic brickwork consultant and author.

David Watt BSc (Hons), Dip Arch Cons (Leic), PhD, MSc, FRICS, IHBC is Senior Research Fellow within the Centre for Conservation Studies, Leicester School of Architecture, De Montfort University, Leicester.

A CELEBRATION OF EARTH BUILDINGS OF GREAT BRITAIN AND IRELAND

Linda Watson

The diary of events associated with the conservation of buildings has been extensive this year. Those with the funds and the time have been spoilt for choice. TERRA 2000, the eighth international conference on the study and conservation of earthen architecture was a major event within the conference calendar which brought nearly four hundred delegates representing fifty countries together in Torquay in May. A large number of good quality conference papers and posters represented the current international knowledge base on earth as a building material. The organisers English Heritage, ICOMOS(UK) Earth Structures Committee and Centre for Earthen Architecture, University of Plymouth, were keen that the subject of earth was covered as diversely as possible. Hence conference themes ranged from archaeology, through conservation, to earth as a sustainable contemporary building material. A comprehensive conference publication¹ allows access to that which was disseminated but sadly without the hundreds of excellent illustration from sites across the world shown as slides during the event.

A travelling exhibition was launched at the conference 'The British Earth Building Exhibition'² which focuses upon the history of the earth building regions of the British Isles and the possibilities of earth in building today. Funded jointly by Millennium Festival Fund/Heritage Lottery Fund, English Heritage and the Centre for Earthen Architecture, University of Plymouth, it is available for display across the country. The exhibition has already been shown at the Architecture Centre, Bristol and the Museum of Welsh Life, Cardiff. More comprehensive information is available in Terra Britannica³ the publication, which accompanies the exhibition.

However it was TERRA 2000 fringe events which interested the media in May, in particular the earth sculptures in the grounds of Cockington Court near Torquay. Here two groups of youngsters, one led by Peter Mold, an earth builder, the other by Rainer

Warzecha, an earth artist, worked for one week to create an external oven for camping and picnics and an enormous seat reminiscent of a cross between a Buddha and a sphinx. Nearby Jill Smallcombe and Jackie Abbey created a seated woman in the walled garden adjacent to the historic house.

The construction of a new cob building also at Cockington got off to a good start with the assistance of delegates who attended a pre-conference week long cob conservation course.⁴ Again delegates came from across the world to find out about the techniques, which has fashioned so many British earth buildings. We were delighted that the participants returned to countries such as New Zealand, Zimbabwe, India, Bulgaria and Ireland with cob repair techniques developed by Larry Keefe and other members of the Devon Earth Building Association to assist in the conservation of their own built heritage.

Whilst organising the conference and associated activities was an enormous undertaking, it has created an excellent platform of exchange of knowledge for experts involved in earth building and an opportunity to raise public awareness in this country, particularly through the exhibition and publications.

NOTES

1 Sterry, N, ed, TERRA 2000 Preprints, James & James, 2000.

2 British Earth Building Exhibition can be borrowed from Linda Watson:

tel 01752 233630; *email* l2watson@plymouth.ac.uk

3 Hurd, J & Gournley, B, eds, Terra Britannica, James & James, 2000.

4 The Cob Conservation Course runs every year at the Centre for Earthen Architecture, Plymouth School of Architecture; contact Linda Watson for details.

Linda Watson BSc BArch DipArchCons is a registered architect who co-ordinates the activities of the Centre for Earthen Architecture.



God as architect-engineer.

ASSOCIATION FOR STUDIES IN THE CONSERVATION OF HISTORIC BUILDINGS

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