

ASSOCIATION FOR STUDIES IN THE CONSERVATION OF HISTORIC BUILDINGS

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Edited by Alasdair Glass

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Editorial Notes

Transactions is the annual journal of the Association. As the title indicates, its purpose is firstly as a permanent record of some of the proceedings at lecture meetings and conferences, but contributions on any aspect of the historic environment from members and other interested professionals are welcome.

The journal aims to provide a platform for authors and topics which might not otherwise be published. It is not a refereed journal, but contributions may be reviewed by the Editorial Panel, which is drawn from or appointed by the Committee.

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ASSOCIATION FOR STUDIES IN THE CONSERVATION OF HISTORIC BUILDINGS

The Association was founded in 1968 and aims to keep 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 places of interest. Membership, now about 400 strong, is by invitation and is open to those professionally engaged in work relating to the conservation of historic buildings.

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The Conservation of Wartime Underground Air Raid Shelters

CHRISTOPHER RAYNER

Air Raid Shelters are a potent reminder of the darker side of life on the Home Front during the First and particularly the Second World Wars. Neglected for a long time and regarded as a homogenous group of undistinguished spaces, these structures are now beginning to be appreciated, just at a time when many are succumbing to both inherent and external pressures. This is a personal view of the challenges that would need to be faced in any attempt to conserve them.



Fig 1 Wartime graffiti in Littlewoods staff shelter, Liverpool

The threat of aerial bombardment from the latter part of the First World War onwards led to the development of a variety of air raid shelters in the UK. The family-sized Anderson shelter and similar bottom of the garden buried rooms are well known and celebrated elements of the story of life on the Home Front, as are stories of Londoners sheltering in Underground stations during the Blitz. Far less well known are the many types of purpose-built or adapted communal air raid shelters, some of which

still survive but now face a challenging future.

I first came across them when researching building stone quarries and mines in connection with stone conservation projects I was working on, and found that many had been adapted and used as air raid shelters or bunkers during the Second World War and Cold War. This generated an interest in what had happened in other areas of the country less favoured with ready-made large underground spaces.

What impressed me was the tremendous variation in size, layout, depth, entrance design and construction materials – all seemed to be unique to each shelter. This is in stark contrast to many other wartime structures such as pillboxes, anti-aircraft batteries and, across the Channel, the Third Reich’s Atlantikwall bunkers on the west coast of Europe from France up to Norway, which all have strictly defined typologies. To a certain extent this great variation is due to their particular function.

Surviving public air raid shelters which were built in the residential areas of some towns and cities typically have multiple entrances to allow those seeking refuge to get inside as quickly as possible (the time from the first warning to the first bombs falling was about seven minutes). They have offset entrances for blast protection with angled frames for anti-gas curtains, communal latrine areas housing chemical toilets or, occasionally, even rudimentary plumbing and drainage, and also areas set apart for first aid and for the Air Raid Precautions (ARP) shelter control marshals. Many deeper shelters

consist of parallel corridors in a regular grid layout; however, if nearer the surface the passages are shorter to limit the effects of blast in the event of a direct hit.

The eight very large purpose-built Deep Tunnel Air Raid Shelters in London (four north and four south of the Thames, each designed to accommodate 9,600 people) depart from this arrangement, with a highly ordered plan consisting of pairs of large parallel tubes each 3.6km long, split vertically into upper and lower layers. This very specific layout however was a pragmatic design intention to allow for potential post-war use as part of the London Transport Tube network (Fig 2).

Large deep public air raid shelters were not however the pre-war Conservative government’s original preference, which was for smaller, dispersed shelters. The Hailey Conference (a Home Office committee charged with developing an air raid shelter policy) when it reported to Parliament in early 1939 had looked closely at the experience of deep shelters in the Spanish civil war, where



Fig 2 Clapham deep tunnel shelter, London



Fig 3 Rover aero-engine shadow factory, Drakelow

a few direct hits had resulted in heavy casualties. Paradoxically, critics of the government’s policy, including many leading architects and engineers, drew a different conclusion pointing to the much greater numbers protected in the larger deep shelters. The government was also worried that the cost of building deep shelters strong enough to resist high explosive bombs would be too high and a drain on precious resources. There was also a concern that deep shelters would lead to work absenteeism and aid the spread of disease. Their report was possibly a foregone conclusion, since this had been Home Secretary Sir John Anderson’s view as early as 1924, and the policy was only finally set aside when mass disobedience resulted in the London Underground tunnels being occupied by desperate civilians during the London Blitz of late 1940.

‘Shadow Factories’ were set up from the mid-1930s onwards to allow production of aircraft components and some other essential wartime supplies in areas less prone to bombing. Some of these had underground sections which had the added complication of needing much larger spaces in order to allow urgent war production to continue unchecked by bombing raids. This need for larger spaces in many cases influenced their location and layout. In some cases production was moved to a new site where the topography and geology was better suited to tunnelling, such as the Rover aero engine plant at Drakelow, near Kidderminster, where a 23,000m² grid of tunnels was built (Fig 3). Royal Enfield meanwhile adapted a section of the Westwood Bath stone quarry for motorcycle production (Fig 4). The layout of these sites was heavily influenced by the adjacent non-protected areas of the site – for example, underground

elements of the Shorts seaplane factory were cut into a river bank at the back of its works in Rochester to try to integrate them into the rest of the production on site.

Military shelters come in a variety of forms. Those beside coastal gun batteries had some command and control functions but were also there for shelter during bombing and naval or cross-Channel shelling. Other military shelters might be better called bunkers as they are exclusively battle or regional headquarters.

Smaller air raid shelters were often provided by industrial and commercial organisations for their staff or archives. Many reused or extended existing cellars, with additional steel strutting and secondary escape routes, but purpose-built shelters have also been found. Schools also often provided shelters for their pupils, and these as a rule have survived marginally better due to finding new uses, particularly where they were only half buried and thus more accessible and less prone to dampness and flooding.

The design variation has also come about due to the lack of an overall control. The ubiquity of the Anderson shelter (a family-sized galvanised corrugated steel shelter supplied in kit form for assembly and burying in one’s back garden) came about through mass production following the Munich Crisis of September 1938, when a panicked government at last faced up to its responsibility to protect its poorer citizens. Otherwise, householders, businesses, local authorities and others were to an extent left to their own devices, with occasional, often contradictory government advice.



Fig 4 Royal Enfield motorcycle shadow factory, Westwood Bath stone quarry

The design and construction of the shelter might then largely depend on what experience their local builder had. Cut-and-cover shelters, where the structure is partly recessed into the ground and then covered over with spoil, were once very common but have rarely survived except in schools. They were often developed from the simple timber-lined trenches rapidly dug in late 1938, and are typically built of precast or in situ concrete, or have brick walls with in situ concrete slab roofs. Their cross section is usually rectangular. Their differences, although sometimes slight, are very interesting, giving a glimpse of the designer's thought process at the time – for example, the unusual neo-Expressionist entrances at the London Midland and Scottish Railway's wartime headquarters in Watford (Fig 5), the secondary internal steel frame at Whitehawk School in Brighton as a cautious afterthought, and the neat rows of almost parallel shelters at Limpsfield School, Surrey, like rows of children waiting to be called to their forms for assembly (Fig 6).



Fig 5 London Midland and Scottish Railway HQ entrance, Watford



Fig 6 Limpsfield School shelter entrances



Fig 7 Dumpy Level, Dover Castle wartime tunnels



Fig 8 South Foreland plotting room, Dover

Another reason for their ad hoc nature is possibly due to speed. The cut and cover shelters have the appearance of structures thrown up virtually overnight. The previously mentioned school air raid shelter at Limpsfield consists of six roughly parallel semi-recessed unlinked passages, half cut into the ground and with the excavated earth thrown on top. These have stepped entrances at one end and laddered escape hatches at the other. They are formed of in situ concrete, but strangely do not appear to have been set out accurately in relation to one another, a basic first step one would have expected any contractor to follow, even in wartime.

Military shelters are at the other end of the spectrum, often having been built by Royal Engineers' tunnelling companies, which during the wars were often staffed by peacetime mining engineers. The Dover deep shelters cut into the chalk headland have in common the use of steel colliery hoops with an outer lining of profiled steel sheeting, but their layouts are all slightly different as though they were allowing each user group the chance to stamp their own personality on them

(Fig 7). The shallower plotting rooms adjacent to some of these meanwhile have a very different layout – with a ladder, rather than stair, approach to a large almost cube-shaped room, all built with in situ reinforced concrete (Fig 8).

CURRENT AND FUTURE THREATS

Ranged against these survivors are some formidable threats. Abandonment, neglect, overlooked maintenance, theft: all are common threats one would list for above ground structures, but which take on a different meaning here. These air raid shelters, tunnels and bunkers were typically abandoned decades ago and have only survived because it was too much trouble to fill them in. Having no external form, such underground structures were rarely considered to have any merit and are still typically seen as non-architecture, particularly with their stripped down aesthetic (compared for example with the beautiful brick-vaulted tunnel systems of 19th century forts) and tomb-like monumentality.

The tidy-mindedness of local authorities from the 1960s onwards led to the classification of many of those wartime structures that had survived the immediate post-war purge as ‘eyesores’, leading to their removal. Air raid shelters regularly had their stair enclosures and other surface structures

removed and many were capped off to prevent access. Capping off was seen as conclusively closing the door on the issue, while the cost involved in completely backfilling the tunnels or crushing them meant this option was rarely employed after the initial post-war demolitions. Their greatest threats today tend to come from groundwater and people.

Water is an obvious threat, flooding some sites almost to roof level and elsewhere pushing in walls and decaying timber props and metal sheeting. Few of these shelters had anything but the most rudimentary damp-proofing and would probably have been quite damp even in their heyday. Structures prone to flooding became waterlogged year in year out (eg Broadwater Down, Kent), while in others just timber and metal surfaces have been affected. The timber props which are present in parts of many structures, have after decades of continual damp begun to resemble chocolate flakes both in strength and appearance (eg the underground Brigade Headquarters for Southeast Army Command at Sarre, Kent, intended to be used to coordinate Auxiliary Units in the event of a German invasion) (Fig 9). Timber panelling, benches supported by gallows brackets and other timber fittings have largely decayed in these conditions or are covered with exotic looking moulds, although there are rare survivals.



Fig 9 Sarre underground brigade headquarters



Fig 10 Ellington School shelter, Ramsgate

Structural collapse is always a potential problem, and in some cases, erosion. The coastal deep shelters of Dover were built beside their cliff-top gun batteries, often with offshoot tunnels to the cliff face to allow excavation spoil to be more easily dumped down onto the beach. Over time these are becoming less viable.

Development threats are typically less common – the majority have survived this long by being in more out-of-the-way places. Occasionally, however, new development can accidentally come across lost shelters which are then, hopefully at least, surveyed and recorded before being resealed. This is what happened in May 2010 when a late First World War air raid shelter was uncovered at Ellington School in Ramsgate (Fig 10). Other threats are more episodic, generated by prevailing economic conditions. For example, the decline in manufacturing production in recent years has resulted in the redevelopment of many sites and the loss of some unusual underground tunnels and structures, such as at the Austin Rover site at Longbridge. Meanwhile the current disposal of military sites as a result of armed services rationalisation is likely to lead to the loss of some command and control bunkers and personnel

shelters, as well as above ground structures.

Abandonment of most sites in the immediate post-war period led to generations of children adopting them as their playgrounds. Some have even entered the local folklore in highly honeycombed towns like Dover and Ramsgate, while the airless passages of the Brinksway shelter in Stockport have become an initiation rite for local adolescents. More recently and for reasons which are not clear, exploration by younger visitors has sometimes been coupled with vandalism and even arson, a particularly unwise activity in an underground space which seem to have been less prevalent in earlier decades.

Arson has other consequences, for while the structures might be robust enough to survive a fire, any fittings will have been lost and the risk to the lives of both arsonists and fire-fighters will lead to renewed pressures to permanently seal or destroy the structure. Asbestos was used in many shelters both for fireproofing and to provide finishes that were less sensitive to the damp conditions. After decades of decay and heavy treatment by some visitors these are in a fractured state at best or have turned to dust and become a potent health risk.

One of the most visible signs of recent vandalism is the blanket covering of surfaces with spray paint. Graffiti is not a new feature, in fact the wartime and earlier graffiti can be of great historical interest. However, modern day tagging with spray paints is far more extensive in its surface coverage and quite often obliterates the finer writing and pencil sketches of aircraft and cartoon characters drawn by the shelter's occupants during wartime raids.

The growth of the internet in recent years has led to a corresponding growth in interest in abandoned wartime structures, of which the air raid shelters and bunkers are some of the most evocative examples. This interest is mostly benign and potentially very positive but has resulted in some sealed or forgotten structures being opened up and explored, but then with less respectful visitors following. This increase in access and damage, coupled with increased concerns about the health and safety of visitors, is leading some landowners and councils to consider more permanent solutions such as filling in or permanently capping these structures.

THE CHALLENGE OF CONSERVATION

Conservation would be extremely difficult for many of these structures. Controlling dampness seems almost impossible without works that would destroy the historic integrity of the structure, for example by providing internal damp-proof membranes. There is a danger also of overlooking the fact that ground conditions are in most cases unlikely to have changed dramatically since the structures were first built. The wartime occupants would have had to adapt life and work to suit the prevailing relative humidity. Where flooding has occurred there is often a prime suspect such as a services entry which can be specifically targeted for repair. Paddock, Churchill's alternative Cabinet War Room in north London, only began to leak to excess when building work above punctured its original damp-proofing.

Moisture in the air or coming through the walls can damage the structural elements and overall integrity of the shelter. Unlined and timber propped tunnels unsurprisingly have the greatest proportion of collapses, and almost invariably any move to provide safe public access



Fig 11 Mount Wise underground extension, Plymouth

will require the replacement of most of the timber supporting structure. The wartime Plymouth Underground Extension at Mount Wise, built as a communications hub prior to D-Day, has a fresh look due to its naval owners replacing its roof timbers and adding new structural members in the 1970s (Fig 11), but at what stage does the structure become like my grandfather's axe (in which both head and haft have been replaced several times)?

Rot is an associated feature, decaying structure, fittings and finishes. Since its membrane was compromised, Paddock has seen an alarming growth of fungi and mould at each successive biannual public opening. Even relatively dry structures like Drakelow Tunnels exhibit some deceptively attractive growths (Fig 12). Coupled with this is the risk to the health of particularly vulnerable groups with asthma and other respiratory conditions. This could lead to pressure to carry out comprehensive removals and environmental management in some possible scenarios of unrestricted public access.

Even in its mildest forms the high humidity causes some problems. The Whitehawk School air raid shelter recently found a new use as a museum of wartime life (the National Curriculum has caused a number of schools to look more favourably on their air raid shelters – an unexpected beneficial consequence!). Some exhibits though are beginning to suffer, particularly papers and fabric, although this could be controlled relatively easily by providing vapour sealed cabinets or keeping them off site when not in use.

In most cases potential structural problems including those due to geological processes, faults and vibration would have been considered by the original builders, and there was also a natural tendency to

overdesign the shelters to give them a greater chance of surviving bombing. The threat of bombing also led to most shelters having at least one alternative exit via stair or ladder, which could be of great importance in their conservation and potential wider public access, even if at present they are sealed off.

Visitor safety is likely to create pressure for some form of environmental management, fire control, enhanced lighting, and surface protection (to protect from sharp edges and locally restricted headroom), with the result that the shelter could begin to be substantially different in character from the original. Inclusive access is likely to remain a challenge in all but the largest structures, where the provision of lifts may be feasible.

Visitor management in its broadest sense is also likely to be a major problem. Would there be enough visitors to make it financially viable to employ people to look after the visitors and structure? In most cases the answer will be 'no way'. A more sustainable option may be to engage with existing or new voluntary groups which could open the shelters up for at least a few days a year and regularly check their condition. This already works well with larger structures such as Dover Western Heights, Fort Amherst at Chatham, the Williamson's Tunnels in Liverpool and also at smaller structures like Paddock (courtesy of Subterranea Britannica). Other options might include grilling or gating the structure, but unless there is the option of occasional controlled access, they are likely to be opened up unofficially. A solution arrived at by involving all interested parties, including internet urban exploration groups, is likely to be more successful (or less unsuccessful, as shown by recent work to restrict the size of entrance of an abandoned stone mine near Bath in order to deter metal thieves).

Legitimising access will mean that biodiversity will need to be considered and any shelters used by bats may need to be off limits for part of the year or have other suitable access restrictions.

Another potential problem is the possible need to agree access terms with landowners who own the property above the structure. HMS Forward, an underground wartime shore station in Newhaven, had to close to visitors several years ago when a householder above objected to any access beneath his property.



Fig 12 Rover aero-engine shadow factory, Drakelow



Fig 13 Fort Southwick underground headquarters, Portsdown

Commercial use is generally a less desirable option where it results in the loss of public access (eg data or wine storage), but this option is likely to have been already taken up if there was a demand and if economically viable. Non-destructive uses such as Airsoft (a sport where participants fire polystyrene pellets at one another) could be more desirable as they generate income, maintain security and also typically welcome visitors, as at the Underground Headquarters built in 1942 for Operation Overlord at Fort Southwick, Portsdown (Fig 13). Drakelow Tunnels has generated some income needed for security and restoration by running regular ghost tours. These are likely to be options only for larger structures however.

CASE STUDIES

The problems and opportunities, although different for each structure, are worth considering on a case study basis.

Fan Bay Deep Shelter, Dover

The Deep Shelter at Fan Bay is one of the most interesting to visit in the Dover area. Above ground only piles of rubble remain from when the Second World War gun battery was finally obliterated in the 1960s as part of Dover Council's 'Operation Eyesore'. Below ground is another matter and not only the deep shelter but also two underground magazines survive (if you can find them), with the deep shelter in particular having an access, or more importantly an egress, that can be challenging.

It was constructed by the Royal Engineers in 1941 to shelter the four officers and 185 men of the Fan Bay gun battery during bombardment and is deeper than others in the Dover area, with three

flights of staircases (the Dover area 'Deep Shelters' are associated with gun batteries and are deeper than most air raid shelters due to the heavy punishment they were expected to receive from cross-Channel guns in addition to aerial bombardment). An unusual feature is the timber uppermost staircase, instead of the usual concrete, which has largely rotted away, turning the uppermost section into a mud slide.

The shelter itself has the standard military deep shelter structure of steel colliery hoops and profiled steel sheeting, the high cadmium content of the latter having caused it to suffer very little degradation in the last 70 years. Like all of the local deep shelters it has its own special quirks, such as, in this case, unlined chalk passages, timber propped sections, roof falls, and most intriguing, a pile of spare sheets and hoops in one curved chalk tunnel as though construction work had been interrupted and the shelter had never been completed (Fig 14).

The challenge would be to open this up to a wider audience without losing that character. Rebuilding the stair would be relatively straightforward, but reopening a secondary exit may prove more difficult. The rebuilding of the wartime above ground stairhead enclosure on what has been since the 1960s an open section of National Trust-owned chalk headland would not be necessary and would almost certainly be seen as a step too far. Another interesting philosophical decision would be what to do with the chalked-on graffiti of explorers from particularly the last 20 years – has this now become part of the story of the structure?



Fig 14 Fan Bay deep shelter, Dover

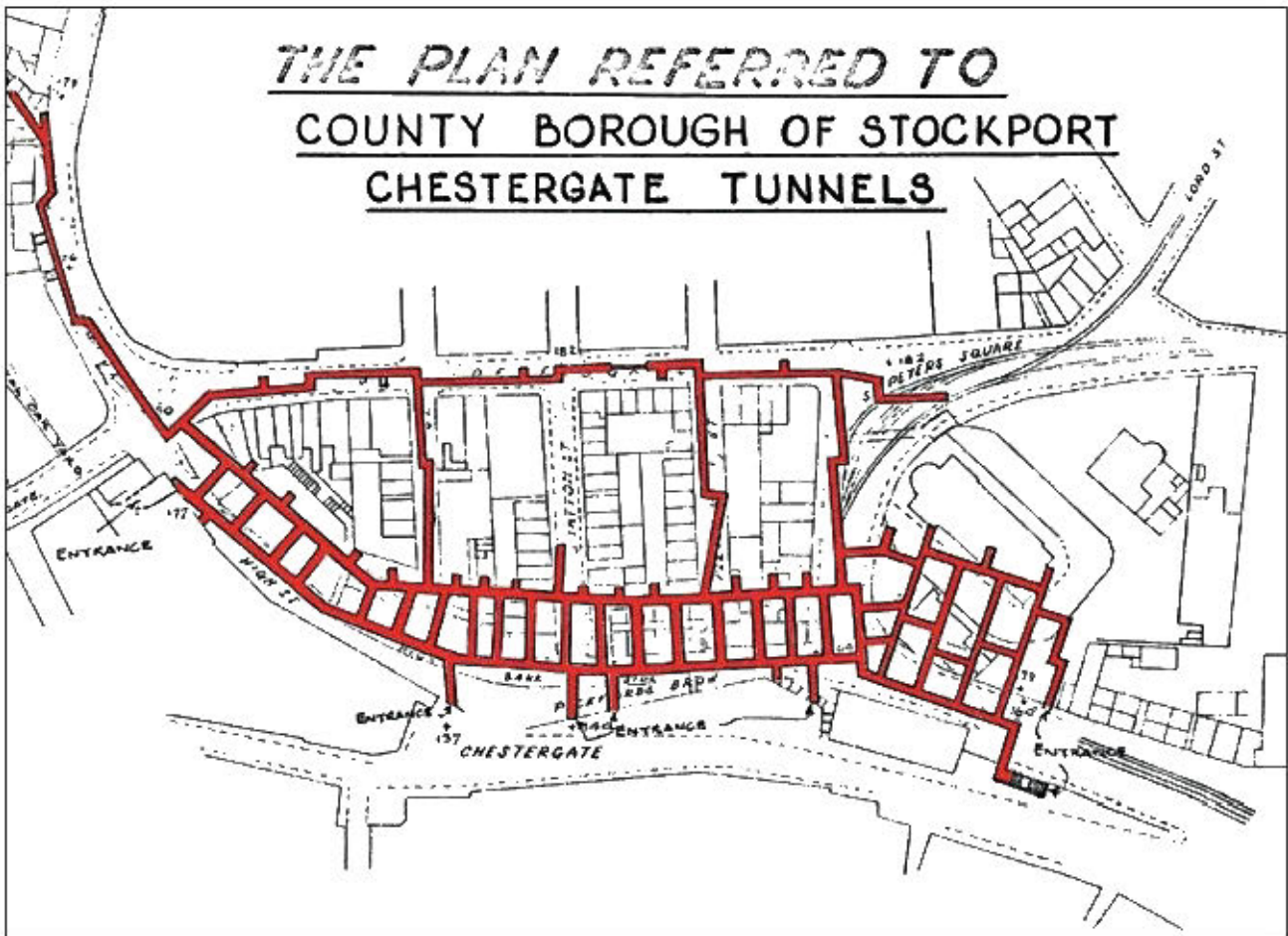


Fig 15 Plan of Chestergate shelter, Stockport

Stockport Air Raid Shelters

At the other end of the scale are the Chestergate Air Raid Shelters in Stockport, part of the Manchester conurbation expected to undergo heavy bombardment during the Second World War. When the government tasked local councils with the preparation of civil defence plans, Stockport's councillors decided to extend old cellars and mine workings rediscovered a few years earlier during road improvement works. These were in the relatively soft sandstone bluffs beside the river Mersey and seemed ideal for enlargement into large public shelters, even if this was against government policy at the time.

Experiments with cutting different tunnel sizes led to the ideal size (approx 2.1m wide and high) being determined and several shelters were built in late 1938 and 1939. The largest of these, Chestergate, became the most famous, accommodating originally 3,800 people before being enlarged to take 6,500 (Figs 15 and 16). This became nicknamed 'the Chestergate Hotel' due to the comparatively dry conditions, good natural ventilation and atypically

generous, albeit Spartan, facilities: chemical toilets, electric lighting, canteen, and later bunk beds. The social life and communal support in larger shelters also provided a greater feeling of security, although this was something the government had with some justification feared, believing that 'shelter mentality' would lead to people not wanting to leave them and become a consequent drain on the war effort.

After the war the Chestergate tunnels were boarded up and forgotten, only being re-opened in the mid 1990s. They found a network of interconnected vaulted tunnels about a mile long which were in surprisingly sound condition. The lighting and most timber benches had perished, but the steel and zinc bunk beds and the very unusual 16-seater toilets (a large brown drainpipe with seats fixed on top of it) had survived (Fig 17). An ambitious plan was developed to create a visitor attraction and to date they are the only purpose-made public air raid shelters in Britain open to the public.



Fig 16 Bunks in Chestergate shelter, Stockport



Fig 17 Toilets in Chestergate shelter, Stockport

The scheme to reopen the shelter had several things working in its favour. Land ownership issues have not arisen due to the siting of the tunnels under the centre of streets or open ground. This was partly for structural reasons, but also to reduce the amount of rubble above the shelters following an attack and ease identification of entrances that needed to be dug out.

The lack of flammable materials in the tunnels meant that the Fire Services were mainly concerned with evacuation and communication. Fortunately the original shelter by its very nature naturally had a number of access points, in order to be able quickly to bring many people to safety over a wide area of the town, and this worked well with the modern need to provide alternative fire escape routes. Fire detection is a high priority and fire and smoke detectors are provided in the reception area, while in the tunnels the greater concern of gas detection is addressed via fixed and staff-carried oxygen and methane detectors. Fortunately, asbestos appears not to have been used.

Dampness has been accepted as a natural part of the experience. Flooding itself is not a problem due to the careful siting of the shelters, and there was (and still is) drainage and sump pumping available just in case. Exhibits are either damp-proofed or expected to have a short life. There was no original damp-proofing except for a primitive lining of dope (cellulose nitrate) impregnated canvas in the medical and nursing mothers' sections of the tunnels, which has been recreated in modern materials. Mould is regularly checked for and treated when found, but appears to only occur if visitors smuggle food and drink into the tunnels.

However, the public part of the shelter uses only a relatively small part of the tunnel system, and a bold plan subsequently emerged to have infrequent guided visits into the unlit sections, with hard hats and head torches provided. This takes the more intrepid visitor along the whole of the rest of the system, seeing countless rows of bunk beds, different varieties of toilets and a narrow concrete lined section where subsidence had been a problem during the war. This cleverly satisfies a need that might otherwise lead to illicit visits, while at the same time creating another revenue stream.

The shelter has proved to be popular with the public, attracting 50,000 visitors a year, and is Stockport's top tourist attraction. This could be a model for the future use of larger shelters in particular, and the excellent condition of the tunnels stands in stark contrast to the Dodge Hill tunnels on the opposite bank of the river. There, despite difficult access and regular sealing of the entrance, explorers, local youths and even drug users have been occasional visitors and left their marks either in painted directional arrows (showing the way out), damaged bunks or discarded needles.

Whitehawk Primary School, Brighton

School air raid shelters are currently going through a period of renewed interest after decades of neglect. The emphasis on modern history in the Key Stage 2 Curriculum has led to many schools revisiting the dank wartime shelters in their grounds. Many survived the immediate post-war period and subsequent development pressures by either being out of the way, or too much trouble to demolish, or occasionally even being seen as useful for ground keepers' storage. Small, wholly above ground air

raid shelters have occasionally been converted to classrooms, although the costs of new openings in concrete walls can be an uncomfortable surprise to the unwary governing body or contractor. The 50th anniversary of the war in the 1990s gave impetus for a few schools around the country to dust down their shelters and open them up for visits by their own and other school pupils. Schools in Ipswich, Tunbridge Wells, Redhill and Limpsfield are among those with regularly visited air raid shelters on Heritage Open Days and by arrangement at other times.

Whitehawk Primary School in Brighton is a good example. Like many school shelters it was built by the cut and cover method, relatively quick and cheap to throw up while offering some blast protection. The walls and flat ceilings are built of in situ concrete, and the clean board marks suggest an early phase of the war when timber was not rationed. Lightweight metal framing is irregularly fixed internally with the intention of giving extra resistance to collapse, a possible afterthought by the builders which also raises the question of whether there was any reinforcement within the concrete (Fig 18). The flat roofs prevalent



Fig 18 Whitehawk Primary School shelter, Brighton

in school shelters, as opposed to stronger vaulted construction, may be as much to do with the inexperience of the builders as to the desire for cheapness, indeed oral history records confirm that a large part of the construction works, presumably principally the excavation and covering over works, was carried out by local volunteers, almost certainly the parents of the schoolchildren who would be sheltered.

The shelter is parallel with the school to allow its seven original entrances (only two of which survive today) to be used in the quickest manner. Inside there are two interconnected parallel tunnels and a couple of vertical escape shafts should the school-facing entrances be blocked. Earth from the excavation is piled over the top, enough to hopefully soften the impact of debris from nearby explosions. Completed in January 1940, it was then used almost exclusively for children during school hours, only once sheltering mothers who were collecting their offspring.

For four decades it was unused and locked up until in the mid 1980s when the school authorities found that children had been regularly getting into it. More drastic blocking up was carried out, and so it remained until just after the millennium when it was opened up for storage. It proved to be too damp for that but the opportunity to turn it into a museum that would tie into the school curriculum was taken up by volunteers. The entrances were reopened, new lighting was installed and benches rebuilt to match the one surviving section from the 1940s. Now the shelter hosts visits from other schools as well as opening as a feature attraction of the Brighton Festival.

Water ingress only occurs after prolonged rain (like almost all shelters there is no damp-proof membrane), and is caught by appropriate exhibits (a tin bath and metal fire buckets), however, condensation requires sensitive exhibits to be decanted after each opening. This may become the limiting factor to the shelter's future as the volunteers are elderly, indeed their recollections of the 1940s form part of the intangible shelter experience.

'Paddock' Alternative Cabinet War Room
Damp and a committed group of volunteers are a common theme at Paddock, the codename for

Churchill's alternative War Room in Dollis Hill, North London. The better known Cabinet War Rooms in Whitehall, now a major visitor attraction run by the Imperial War Museum, were not bombproof and so Paddock was built to overcome this deficiency. Built on two levels, it was a large bunker intended to be the government's new centre of operations if bombing made Whitehall and Westminster untenable.

It was designed by the same team responsible for the Whitehall site and included two major rooms, a map room with very large wall surfaces for displaying maps and a Cabinet meeting room with seating for 30 people. In addition there were smaller offices, a BBC studio and teleprinter room. Above this were two layers of concrete 1.5m thick overall with a layer of shock absorbing gravel between, a large upper basement level with smaller rooms, plant rooms and offices, and finally a concrete roof just over a metre thick. The lowest level was 12m below ground.

Churchill was initially optimistic about its usefulness and called for cabinet ministers to overnight there to try it out, but his feelings changed on the first occasion the War Cabinet met there in October 1940. He subsequently said it should only be "treated as a last resort" and even the "vivacious luncheon" they had there could not raise his spirits. A further War Cabinet was held there without him in 1941, but otherwise the site was not used by the Cabinet and from mid-1941 on it was mothballed.

After the war the site was returned to the Post Office and only irregularly used by it and subsequent users, finally being redeveloped for housing in the 1990s. At some stage in the post-war period the structural integrity or damp-proofing was compromised and the bunker began to leak heavily (a plan to reuse it as a Cold War 'War Room' in 1981 was rejected due to this). The current owners, a housing association installed pumps and electricity to allow biannual visits (May and September – a time-limited condition of its planning approval which has now expired, although it generously continues to allow visits) which are run by Subterranea Britannica, a society heavily involved in research into man-made underground sites. Essential income to allow it to remain open has come from hiring it out as a film set.

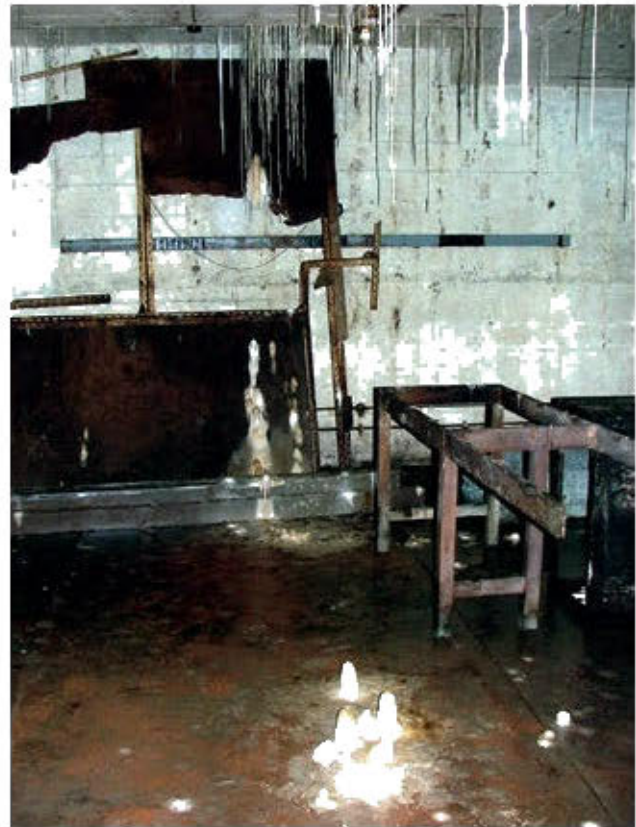


Fig 19 'Paddock' alternative Cabinet War Room, London

Paddock is clearly a site of national importance, but ironically a large element of the experience of visiting the site is about the post-war water penetration. The floors are damp and the walls each season appear to have larger and larger fungal growths on them. One is clearly not seeing the bunker as it was in its prime, but perhaps that imprints its story on one's consciousness deeper. There is also something about being conducted on a guided tour by an enthusiastic volunteer that transcends guided tours by paid employees in the official heritage sector. There will however be a time, probably fairly soon, when the fungus covers all surfaces and the site will become the preserve of only the most diehard explorers (Fig 19).

Shorts Shadow Factory and Shelters

The Shorts seaplane factory site by the river Medway in Rochester is a final example. In the early days of the war Short Brothers tunnelled horizontally into the chalk bank behind its works to create two large chambers, ancillary spaces and tunnels where work could continue with greater protection during bombing. These were linked via a spine tunnel to factory personnel shelters and even public air raid shelters at the north end of the site, the shelters



Fig 20 Shorts seaplane shadow factory, Rochester

following a familiar pattern of two parallel tunnels with cross tunnels. The overall length is over a kilometre. Regular entrances and escape shafts are provided, which in recent years have been a problem for the owners to secure (Figs 20 and 21).

Construction of the air raid shelters and access tunnels is both simple and relatively strong, comprising a calcium silicate brick wall with vaulted corrugated sheeting above covered by a layer of concrete. At tunnel crossings the original rendered flat ceilings have largely fallen, exposing a framework of rusting steel beams and rotten timber joists above. The factory end meanwhile has large brickwork vaulted chambers. Other features include a well, an area of possibly older tunnels near the factory end, gated chambers that have been interpreted as cells but which were in fact repositories, and some fine pencil graffiti of warplanes, V1 'doodlebug' flying bombs, and by far the most common of all, tallies recording card game scoring.

After the war the underground factory end in particular continued to be used by Shorts and later site owners until the mid 1990s, after which the site was redeveloped for housing. Subsequently the tunnels were abandoned or only penetrated at their margins

by local children. A more troubled era coincided with the growth of the internet and the availability of better torches and spray paint. Visitor graffiti, often spray painted navigation arrows and reference points (often ignoring the wartime packing-case stencil signage with much the same purpose alongside), began to appear. Wartime artefacts began to disappear, rows of formerly intact bench brackets began to be kicked off, and most destructive of all, several fires were started at the underground factory end. The great majority of visitors came and went 'taking only photographs, leaving only footprints', but the odd visitor with light-fingered or destructive tendencies followed in their wake. The site is now securely sealed, but land ownership issues will unfortunately make public access difficult to bring about: a great shame as this is one of the most interesting and evocative historical sites in the Medway area.

THE FUTURE

More shelters are being rediscovered from time to time but a far greater number are lost every year, principally through development and natural processes. They are unglamorous structures, unlikely to catch the interest of planning officers, councillors or amenity societies,



Fig 21 Shorts seaplane shadow factory shelter

and only very rarely are they given any formal statutory protection. Damaged by vandals and arsonists, looted of their metalwork, leaking and structurally unstable, they do not seem well-placed to gain friends, but year by year the interest seems to be growing, nurtured by the internet that can also be their foe.

Protection and some form of greater public access are needed to guarantee their immediate future, but the form of this is less easy to see. An illustration of the difficulties is the recent controversy in mining exploration circles that followed one group's well meaning attempts to save a well-known site from the attentions of scrap metal thieves by altering the size of the mine entrance. A storm of protest ensued, with diverse groups expressing a proprietorial interest over a site still owned by a stone extraction company which could conceivably resume mining there at any time, destroying all the artefacts some enthusiasts have been striving to protect. Mines are very different places to the wartime underground shelters described here, but the passions are likely to run as deep, passions though that could also be the driving force behind their future survival.

New survey techniques, such as those used by the Nottingham Caves Survey virtual mapping

project could also be helpful in revealing and sharing their three-dimensional complexity. As part of their survey they have also rated the structures numerically to demonstrate their archaeological significance and help to justify their importance, relevance and uniqueness, which would be a good pattern to follow elsewhere. A solution, or possibly more accurately many individual solutions, is needed that not only recognise the wartime significance of these sites but also take into account their many lives in the decades since.

ACKNOWLEDGEMENTS

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Christopher Rayner MA(California) RIBA is Senior Partner of Christopher Rayner Architects.

FURTHER INFORMATION

<http://www.subbrit.org.uk/>

<http://www.airraidshelters.org.uk/>

<http://nottinghamcavessurvey.org.uk/>

Vault Repairs to the Tomb of Sir Robert Danvers, Christ Church Cathedral, Oxford

JANE KENNEDY

Delicate repairs were carried out to significant cracking in the fan vault of the late 15th century monument. The conservation of stone monuments often involves significant rebuilding. The propensity for monument builders to place in ferrous fixings that will corrode often calls for dismantling to remove them, and there is sometimes the added need for the insertion of vertical and horizontal damp-proof membranes. But for most significant monuments, repair in situ with the least disturbance of ancient material should be the aim of any conservation team.

INTRODUCTION

Sir Robert Danvers, Chief Justice of the Common Pleas, was born c1424 in Ipwell, Oxfordshire. He died in 1467 and was buried in Holy Cross Church, West Smithfield, London, the predecessor to St Bartholomew the Less, chapel of the eponymous hospital.

His tomb in Oxford lies between two of the north eastern chapels in Christ Church Cathedral (Fig 1). It was constructed in the late 15th century and is surmounted by a timber structure known as a watching loft, the whole sometimes referred to as a chantry chapel. The tomb chest is stone with the indent of a brass on an open platform



Fig 1 General view of the tomb



Fig 2 The internal staircase is much worn



Fig 3 The upper chamber

beneath a stone fan vault. At its western end a small stone staircase (Fig 2) leads up and into the timber superstructure, a tiny room which could have been used as a chapel or for some other purpose (Fig 3).

The whole was sited next to the tomb of St Frideswide. It is an unusual monument and something of a mystery. The stone steps are particularly badly worn, reflecting an intensity of use which it is difficult to explain. Even the ascription to Danvers is uncertain, but the re-sanctification of St Frideswide in 1480 on the steps of Old St Paul's must have led to an increase in pilgrimage. Danvers may have wanted his tomb here and seen the benefit for his soul of providing a chantry chapel above for those coming to pray to the saint. If so, the steps must have been used very frequently in the 50 years before the monastery was closed.

CONDITION

Concern about cracking in the vault of the tomb had been reported before my appointment to Christ

Church. Along both sides of the chest are stone shafts supporting a stone canopy. The canopy is made of eight panels forming two complete bays of fan vaulting. The eight pieces of stone are similar in plan, section and carving. They butt together on an east-west central joint and on the three north-south joints across the canopy. In 2008 I carried out a quinquennial inspection and noted the cracks in both directions, partly repointed and all, I thought, of some age. A year later I found that further movement had taken place and that there was a drop of 60mm between the webs of the vault in the eastern bay (Fig 4). With the advice of Sam Price, of Price and Myers, structural engineers, we immediately asked the clerk of works to fit temporary wooden props, to support the vault ribs as they were.

REPAIR

In his initial report Sam Price noted:

The stone of the vault webs is approximately 40mm thick at mid-span, and 190mm at the supporting shafts. They therefore effectively form an arch across the tomb.

The arch creates an outward thrust at the springing, which has to be taken by the stone shafts. The thrust from the arch has pushed the shafts outwards, and this has allowed the fan vaults to drop in the middle, the maximum being about 60mm. The corresponding outward movement at the springing at the shaft is about 17mm. The four end pieces, being supported also by the end walls, have dropped less than those in the middle.

There is no feasible way of providing restraint to the vaults at the springing points without strengthening the stone shafts, which is clearly not possible. The simplest way of holding the vault stones in place is to support them from above. The stone is only 40mm thick at the middle of the vault, but the ribs add a further 60mm.

We therefore proposed the opening up of the timber floor above the vault, gentle pushing up of the vault stones and then the insertion of steel channels alongside the timber floor joists above. From these we would fix into the rib vaults below with M8 stainless steel threaded rods in resin. The fan vault would then be hung from the structure above. The idea was discussed and developed with Cliveden Conservation who was working at the cathedral and with whom we negotiated a contract.

Work was undertaken carefully and in stages. Meetings were regular and recording was carried out by the cathedral archaeologist, Graham Keevil and Cliveden's stone masons in a sequence described as follows:

- All timber floor boards in the watching loft were taken up and set aside. Packing material and debris within the space between the floor boards and the stone canopy below was collected, bagged and labelled for the archaeologist. During this process, small clamps (lead, lead over iron and small lead plugs) thought to have been placed to assist with the initial positioning of the stone panels were also found, together with lead joggles between the joints and channels with iron flat bar inside secured by molten lead.
- The panels could not be lifted or adjusted individually as each one relied on the next, and the transfer of stress to the outer walls was a major concern. All eight panels were gently pushed into position from below, using multiple poles with hand-pump ratchet systems, with covered ends to protect the surface of the stone (Fig 5).
- When the stone was raised, timber props were installed and held with cross timbers for safety and to supply additional bracing during the remainder of the work. The outside wall surfaces were inspected, and no signs of movement were observed. The vault was raised about 50mm overall leaving some slight 'stepping' between the webs. Inside, where the walls met the canopy, there was some disturbance in the old cracks, but no new cracks opened (Fig 6).
- Five mild steel beams were installed from above, alongside the old timber joists. Holes were formed in the first two steel beams to match the



Fig 4 The crack in the vault



Fig 5 Propping and gently pushing the vault panels into place



Fig 6 Underside of the vault after repair



Fig 7 Steel beam within the floor structure

fixing points and to fit the studs which were inserted in the pre-drilled holes on the upper side of the vault bosses and fixed with resin (Fig 7). At the beam, the studs were secured with a nut and washer, and were cut back. A further central beam was installed to provide an additional point of fixing, and to reinforce the whole tomb across the middle, reducing the potential splaying of the walls.

- Not all the beams could be placed directly above the bosses and four fixing points are directly under the original timber joists. Drilling through the joists was not an option, so we made a set of mild steel bracket hangers to go under the joists and to be attached to the steel beams to either side to avoid contact between the metal and timber components. This ensured that the original floor structure and the new vault supports are independent from each other.
- The joints on the top of the canopy were re-pointed using a fine hydraulic lime mortar. All floor boards were replaced in the correct order and secured with brass screws. Some boards were broken and were bonded back together using Paraloid B72. A carved stone found during the cleaning phase of works was set back in place under the floor boards and left with a loose cover. From below, the canopy was re-pointed using a face mix mortar of hydraulic lime, silver sand and Bath stone dust. Areas inside, where movement was observed around the old cracks

were also re-pointed. On completion all bracing elements were removed.

OUTCOME

The archaeologist recorded the structure and sieved and assessed all the material taken out from beneath the floor boards. Finds included a Nuremburg jetton (a 16th century coin), fragments of medieval window glass and small pieces of alabaster with architectural detailing, perhaps from another monument. The exercise showed the value of sifting and analysing what might previously have been discarded as rubbish.

The process was interesting: we do not know the cause of the sudden opening of the cracks, but we will be able to monitor any further movement. Sam Price was concerned that hanging a stone vault from a steel structure above seemed inappropriate but suggested that it was the only practical solution. Work was undertaken during the summer vacation when the cathedral is particularly busy and interpretive boards were fixed to the outside of the hoarding to describe the tomb and the repairs taking place. The thoughtful approach of the masons from Cliveden Conservation, together with the professional team, ensured a gentle and effective repair to this important and intriguing monument.

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Planning and Conservation at King's Cross and St Pancras Station, London, 1987–2012

ROBERT THORNE

A quarter of a century has passed since the decision to bring the Channel Tunnel Rail Link to King's Cross and it is now fast being forgotten that King's Cross station, not St Pancras, was the initial focus of attention. What happened next was as curious and breathtaking as any episode from the early history of railway building. It was also a reminder that where infrastructure is concerned the niceties of conservation can be overtaken by much stronger influences. Once St Pancras was conclusively the preferred choice, other kinds of decision had to be made, and the record of how these and other aspects of the project were handled deserves not be forgotten. In a sense it has to be a story twice told, because the reuse of St Pancras station and resurrection of the Midland Grand Hotel were inevitably two separate projects, even though they overlapped or converged in many ways.

INTRODUCTION

The history of the recent past is often the hardest to write; it ought to be the clearest but often it is quite the opposite. Immediate opinions about what has happened will be plentiful but a deeper perspective is harder to achieve. Sometimes the relevant information is harder to unearth than for more distant events and there is always, of course, the difficulty of dealing with sensitivities which may still be waspish from recent experiences. Yet there is an obligation to try to assess the recent past because its lessons will be more pertinent and connections to future decision-making more obvious.

St Pancras re-opened in November 2007 and the hotel in May 2011. Both openings attracted huge and much-deserved media attention and, for the station, the architect Alastair Lansley and colleagues compiled an account of the project as seen through their eyes.¹ It was too early then – and it may still be too early – to anticipate how the station will perform in its new guise and how it may be adapted in the future. But already it is easier than on the day it reopened to get a sense of what works well and what seems less satisfactory. It may even be possible to take the story forward by predicting what may happen in the short and long-term future. Meanwhile, the new western concourse at King's Cross opened in March 2012, similarly the subject of a lavishly illustrated account.² The works there are not the main focus in the discussion which follows, even though they neatly close the circle on the

events which were set in motion in 1987.

King's Cross and St Pancras, plus their respective hotels, stand in an improbable, confrontational relationship, the result of the lightly regulated way that the 19th century railway system was developed (Fig 1). Once they had been completed, with their approach tracks, sidings and facilities, they set a stranglehold on the surrounding area. Also, because the physical requirements of railway layouts are highly inflexible they set limits on what any future railway planning could hope to achieve. Before turning to recent events it is worth rehearsing how the two stations evolved and how that has dictated everything that has happened since.

THE HISTORIC BACKGROUND

For railways planned to enter London from the north, King's Cross was an obvious destination. As Alec Forshaw explains later in this volume, its industrial development had been stimulated by the construction of the Regent's Canal, completed in 1820. In addition to tile and brick making – traditional industries of the urban fringe – this brought the establishment of a gasworks, iron foundries and food processing works. A railway was a natural accompaniment and supplier to such industries. The canal, however, was an obstacle for lines which needed to cross it. The Great Northern Railway chose to tunnel beneath it to reach its terminus at King's Cross whereas WH Barlow,

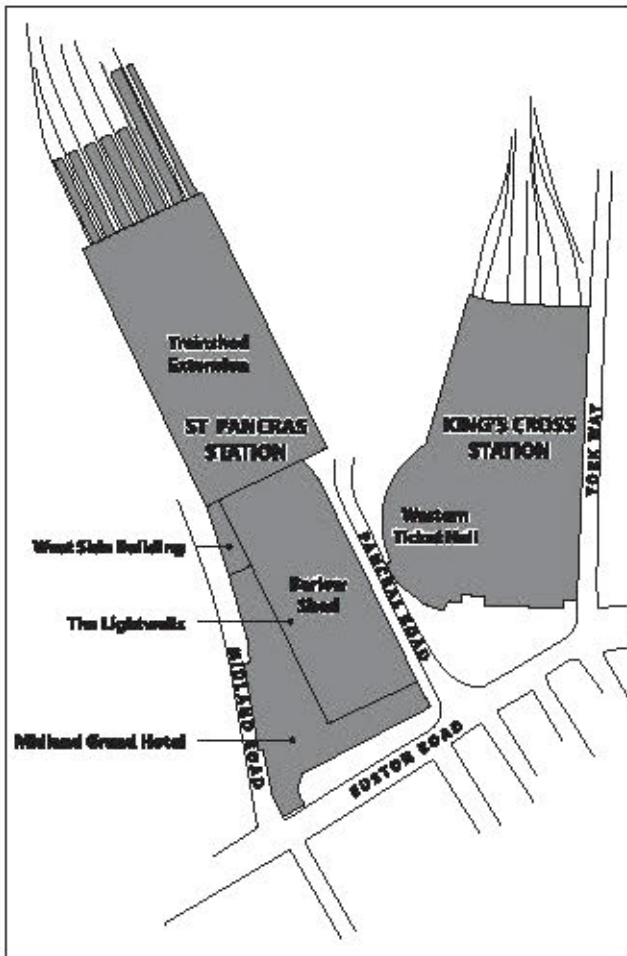


Fig 1 Key Plan of King's Cross and St Pancras

engineer for the Midland Railway, decided to bridge over it and thus to construct his station about 4.8m above street level. These different engineering solutions have fundamentally shaped the relationship of the two stations to each other and the possibilities for their integration. Equally important to their urban context was the limitation set by government in 1846, following a Royal Commission: that no railway should extend south of the Euston Road. This protected the urban estates of central London and confirmed for the railways what they were already learning, that they would have to limit their land expenses by buying land in less desirable areas on the outskirts.³

The Great Northern Railway obtained its enabling Act of Parliament in the year of the Royal Commission. The first part of its complex, opened in 1850, was a goods yard north of the canal where it erected the Granary (directly connected to the canal for trans-shipments), two sets of coal drops, other specialised goods-handling buildings and

its locomotive depot. Lewis Cubitt's passenger terminus, celebrated for its architectural expression of functional simplicity, was completed in 1852 and his hotel, treated as a separate building, two years later. In 1857 the Midland Railway, which had no London terminus of its own, started to run its trains over the Great Northern lines to King's Cross, both for passengers and for its increasingly lucrative coal traffic. This arrangement, slightly unrealistic from the outset, soon proved unworkable because of conflicts over the use of facilities, and the Midland directors concluded that they had to invest in their own line to London. Their necessary Act of Parliament was obtained in 1863.

The site for St Pancras was constrained by the existing infrastructure of the Euston Road and the Regent's Canal, plus the historic Old St Pancras Church and its churchyard and the gasworks on the canal. As Jack Simmons lucidly explained in his history of the station of 1968, Barlow's decision to bring the railway in at high level, over the canal and threaded between the churchyard and the gasholders, made good sense from the railway engineering point of view. In addition, by opting to design a single arch train shed of 73m span Barlow allowed for a greater degree of flexibility in platform layout than multiple span roofs permitted.⁴ He tied the 24 principal ribs of the arch by using wrought iron beams across the station beneath the platforms and tracks, which also functioned as the roof beams of the undercroft. The whole structure was carried on a forest of 720 cast iron columns (Figs 2-3). The train shed, erected in 1866-8 using two timber

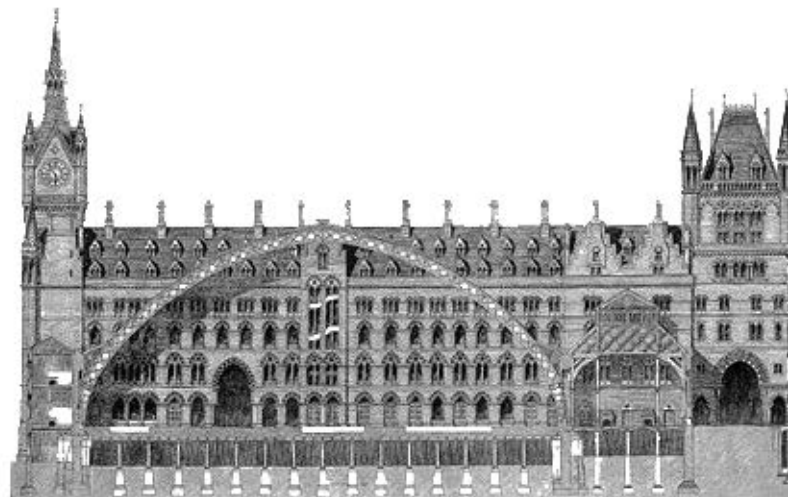


Fig 2 St Pancras: section through the station and hotel
(*The Engineer*, June 14 1867)



Fig 3 The trainshed under construction, spring 1868

scaffolds, was an extraordinary achievement which has always been singled out for praise, even by those who have denigrated other aspects of the station. It dictated other aspects of the station plan and how the building would relate to the streets around. Goods could come and go into the undercroft at street level but passengers had to be taken up to platform concourse level by ramps from the Euston Road, with a separate arrangement for people arriving and departing. This circulation system had less inherent flexibility than the layout of platforms and tracks, and of course it did not anticipate a future when most passengers would come and go by the underground.

Most of all the siting and design of the trainshed dictated the outline plan of the hotel which was to front it. That plan had to take account of the change in levels and the station circulation system. The architectural competition for the hotel in 1865–6 was won by Sir George Gilbert Scott, a prize name that the directors were delighted to have acquired for the project. He had flouted the competition brief with a design higher than called for (it was later cut down to size), but in most crucial respects it did what the brief required. Most of the hotel – four storeys plus two dormer storeys – fronted the station set back from the road, but one part swept round in a crescent to reach street level. In other words, it was more consciously integrated with the station than many critics have appreciated. The congruence between hotel and station was confirmed by the way that Scott worked alongside Barlow on the architectural aspects of the station, including the Booking Office and the side wings.⁵

The hotel was built in two stages, the east wing along the station front completed in 1873 and the

curved west wing, containing the main reception rooms, in 1876. As work progressed on the interiors Scott's Gothic fervour was reined in by the directors, although the stencilling, finishes and fittings of the main staircase, coffee room and other principal rooms were as rich in character as any public interiors of their time. The hotel was well-used into the 20th century, but increasingly it was disadvantaged by its outdated services – it originally had only nine bathrooms – and its seemingly oppressive decoration. More fundamentally it suffered because of the awkwardness of its layout which put its main entrance and most of its public rooms at one end of the building, at maximum distance from most people's rooms. Its closure in 1935, and subsequent use as offices and railway accommodation, was no surprise. In the 1930s, and for many decades to come, its railway owners were in no position to reorder it in order to address its inherent problems.

The station fared better because of its flexibility (Fig 4). Two more platforms were added within the trainshed in the 1890s, and seven platforms remained sufficient for the rest of its original life. Bomb damage in the two wars was repaired, and many of the facilities were renewed in the 1950s. Ultimately the station's main problem lay not in any design faults but in its underuse. With the opening of Thameslink in 1988, taking suburban trains through London via Farringdon, St Pancras lost most of its local services. With only a few main line trains to handle it seemed far too grand for its purpose.

THE FIRST CRISIS AND LISTING: 1966–8

St Pancras is remembered as a case where a building (station and hotel were rightly treated as one entity) leapt from rejection to Grade I listing in a matter of months. The process that led to the listing was more protracted and the railway politics more complicated than is generally recalled. The two Beeching Reports on railway reorganisation of 1963 and 1965 put the future of the Midland line to London in question, but it was not until August 1966 that it was announced that King's Cross and St Pancras were to be amalgamated and that 'it is likely that only fragments of the original buildings will be recognisable'. The threat to St Pancras (as whole or in part), coming so soon after the demolition of Philip Hardwick's Doric arch at Euston, kindled a furious debate about the station and hotel as exemplars of



Fig 4 The completed trainshed

Victorian architecture (Fig 5). Jack Simmons' book summarised the controversy, with a swipe at Sir John Summerson, 'tentative and tepid' in his failure to recognise the vigorous energy of the design and all that it represented.⁶ What Simmons did not know was that St Pancras had been recommended for listing at Grade III in 1961 for its 'ingenious plan, giving a good lay-out and means of circulation, and great thoroughness of detail', followed by a proposal in 1963 that it should be upgraded to II, but in neither case were the legal formalities completed. Matters came to a head in September 1967 when formal proposals for the closure of St Pancras, 'released for other purposes', were announced. Within a day Lord Kennet, Parliamentary Secretary with responsibility for listing noted, 'I favour any upgrading of St Pancras and King's Cross – façades, vaults, ancillary catacombs and all': the Grade I listing followed two months later.⁷

That decision did not in itself save the station and hotel. Deliberations about their future continued, including proposals to reopen the hotel and turn the trainshed into a sports arena or a museum of industrial archaeology. What is most instructive about this extended episode is the quality of the railway decision making which brought it about. The intended amalgamation was announced with an air of certainty in 1967, outline plans for the redeveloped King's Cross having already been made. A year later on Christmas Eve 1968, when it was hoped the turnabout would not be noticed, news slipped out that St Pancras had been reprieved, because it was uneconomic to redirect its train services elsewhere.⁸

THE CHANNEL TUNNEL RAIL LINK AT KING'S CROSS 1987-94

Had the proposals for King's Cross of 1967 been completed, the sequence of events which commenced 20 years later might never have happened. With the start of work on the Channel Tunnel in 1987 it was made known that King's Cross would be the eventual destination for international trains. A short-term terminus was to be built at Waterloo (opened in 1994), but that was thought unsuitable in the long term because of the difficulty of bringing a high speed route through the southern suburbs and the impossibility of running through trains from there to the Midlands and the North. King's Cross seemed the ideal place to make such links. In addition, because its goods yard had largely fallen into disuse an opportunity appeared to exist to finance the international station through the redevelopment of a large adjoining site. The remodelling of Liverpool Street Station which had started in 1985, linked to the proceeds from the Broadgate development, served as an obvious precedent. The King's Cross Railways Bill was deposited in 1988, accompanied by plans drawn up by Foster Associates. The new station was to be built in tunnel, running diagonally beneath Lewis Cubitt's trainshed, served by a concourse between King's Cross and St Pancras on the site of the Great Northern Hotel (Fig 6).

As the plans with the bill showed, in order for the tracks to reach the below-ground station, about 17 acres of land to the east and south-east of King's



Fig 5 The Midland Grand Hotel in 1926



Fig 6 King's Cross Low Level Station proposal, 1988

Cross would have to be acquired and 150 buildings demolished. In other words, this proposal would be as destructive to existing buildings and community as any Victorian railway project. The response of those affected, under the banner of the King's Cross Railway Lands Group, was amazing in its vigour and detailed understanding of the parliamentary process.⁹ The weakness of the British Rail case was that the station had been promoted before the engineering of the line to it had been finalised and costed. When those costs were produced it became apparent that the proceeds from the adjoining development would fall far short of what was needed to build the station and its approaches, especially given a downturn in the office market.¹⁰ Engineers sceptical about the project had begun to look at other options, for the route and the site of the new station. In 1991 Arups proposed a route from the east via Stratford rather than from the south, far less destructive and offering opportunities for regeneration in East London. What soon became apparent as this option gained favour was that the realigned route pointed towards St Pancras as a less costly alternative, with the

immense additional benefit that it would invigorate a much underused station.

Two aspects of the demise of the King's Cross proposal seem scarcely credible. Firstly, that a project was being promoted through the bill process for which there was no clear government financial commitment: the King's Cross Railway Lands Group was sharp in identifying this failing. Secondly, there was a period of over a year when an architectural team at British Rail (led by Nick Derbyshire, who had won his spurs on the Liverpool Street project) was working on the St Pancras alternative while the bill for King's Cross was still progressing through Parliament. It was not until January 1994 that it was formally admitted by John MacGregor, Secretary of State for Transport, that St Pancras was indeed the preferred option and the King's Cross Bill was withdrawn.

A sub-plot to these episodes, immensely important to the reputation of the station and the future of the hotel, was the work undertaken to secure and restore the exterior of the Midland Grand. In the early 1990s it was manifest that the building, by then wholly redundant and empty, was in extremely poor condition. The Conservation Practice was asked to carry out a survey of safety followed by a full condition survey. These revealed a litany of problems – eroded brick and stonework, broken and missing slates, rusting ironwork and dry rot, plus of a century of grime (Fig 7). The restoration of the exterior in 1992–5 at a cost of £9 million was financed by British Rail in the final stages of its existence as a nationalised body, a public investment without which the building might never have found a new use. How the release of that funding related to the political wrangling over the location of the international terminus remains a mystery.



Fig 7 Reslating the Midland Grand Hotel, 1992

THE ST PANCRAS PROJECT

Simpler and less expensive though it might be, the St Pancras option, like its predecessor, required an Act of Parliament. A fresh bill was submitted in 1994 and passed in 1996, in the details of which was the provision to disallow the normal listed building procedures and substitute specially drafted heritage minimum requirements. In practice this system, although onerous for all involved, gave a more than adequate level of detailed protection. During the passage of the bill, London and Continental Railways Ltd was selected as the 'nominated undertaker' for the works, and it in turn selected the consortium to build the line from the Channel Tunnel and the associated facilities.

Barlow's station had survived largely unaltered because the demands put upon it had not greatly changed. Channel Tunnel traffic brought a wholly new set of requirements which involved a fundamental review of its functions and planning. In addition to the familiar roll-call of issues in building reuse – the treatment of existing fabric, the relation of new to old, the renewal of building services and adherence to new building standards – railway stations present their own problems. Foremost amongst these is question of capacity, and how to meet the rigid geometries of railway engineering. Allied to that is the issue of circulation; 19th century station design assumed patterns of movement for arrival and departure which have now been largely superseded, and related to circulation is the matter of access and how the station fits in the urban fabric, something which historically was often treated with crude insensitivity.

The scheme for St Pancras which was ultimately built in 2002–7 went through a tough process of evolution. The plans which formed part of the bill documentation, drawn up by the Nick Derbyshire team, were scrutinised and amended by the consortium team, principally Arups working with Fosters as master planners and subsequently with Alastair Lansley (advised on conservation by Roderick Shelton). Throughout this process the prime consideration was that the station would have to be extended by 250m to handle 400m long international trains. That extension would inevitably be at the same level as the existing station. It would have to be wider than Barlow's trainshed because to handle main line as well as international trains,

plus commuter trains from Kent, the number of platforms had to be increased from seven to 13. Nick Derbyshire envisaged an extension beneath a shallow arched roof, with a smaller roof over the commuter trains, but during the bill process English Heritage negotiated for a roof that would not rise above the bottom chord of the end screen to Barlow's shed, which meant a flat-roofed structure.

An ideal station has its platforms uniformly aligned across the concourse, as Nick Derbyshire had achieved at Liverpool Street. At St Pancras that was never going to be possible because of the unusual length of the international trains and the need to stop other trains short of the Barlow shed. Two kinds of circulation had to be provided for – international and domestic – with two related concourses. Those concourses had to link to the underground and the street, and to take account of the way the centre of gravity of the surrounding area would shift as the development of the goods yard to the north gathered pace. Derbyshire's plan set up a separate circulation system for international passengers, bringing them from facilities on the west side of the station via a bridge to their platforms – good for views of the Barlow trainshed, but forcing people through too many changes of level: up from the underground or street, up again onto the bridge, and finally down to the trains. For clarity and ease of movement it seemed far better if the main circulation could be kept to one level, beneath rather than over the tracks.

Barlow had planned for two circulation systems – passengers above at platform level and goods in the street level undercroft. Because the undercroft had no natural lighting and felt deeply unloved it was not immediately obvious that it could be brought into play as the new station concourse. A brilliant engineering solution, developed by Arups in conjunction with Alastair Lansley, allowed that transformation to happen by bringing natural light into its Stygian world. A reinforced concrete slab 400mm thick has been cast over the wrought iron beams and buckle plates which support the platforms and track. This slab is tied to the shoes at the base of Barlow's trainshed ribs to take the horizontal thrust from the arch and it is supported off the original cast iron columns through the use of sliding bearings on the column heads.

Into the slab on the west side of the station are cut four long lightwells which define the dimensions



Fig 8 The station lightwells



Fig 9 Sliding bearings carry the new concrete slab of the trainshed



Fig 10 The trainshed extension

of the new north–south concourse, linked to the international arrivals and departure areas in the undercroft and to the underground. In the strictest conservation sense an intervention of this scale would never be permitted, yet this is a model example of a solution which has enabled a building's use to be reconfigured without compromising its historic quality. Indeed it is more than that, because by cutting a slice through the floor it enables Barlow's structure to be appreciated in a way that was only previously available to those who knew the sectional engravings of it (Figs 8–9).¹¹

The north–south concourse leads to a wide transverse concourse which marks the beginning of the new extension. The idea of an even modestly arched roof to the extension having been dismissed early in the design debate, what emerged was a flat-roofed washboard proposal of steel transverse trusses supporting curved blades and north-facing openings, carried on four rows of steel columns (Fig 10). Beneath the roof the platforms are screened from the street by windows and glazed brick panels in steel picture frames. The transverse concourse has its own roof, partly hung off the bottom chord of the Barlow shed (Fig 11). The possible elegance of this whole roof design was compromised as built by the thickening of the main trusses and the decision to make the glazing north facing, rather than south facing as originally intended. The result is a platform area which feels much darker and more relentless than originally intended.

The inferiority of the extension roof in comparison with Barlow's arched roof is often remarked upon, generally without acknowledging the constraints that existed upon its design and construction. What has been less scrutinised is how the concourses and circulation work in practice. For international passengers the experience of arriving and departing is logical and, depending on the press of people at security and customs, a pleasure. The Barlow undercroft has come into its own, its cast iron columns (now painted white) providing a rhythm to the spaces which is never oppressive. For people catching domestic trains to the Midlands and Kent the experience is less agreeable. This is partly because they are consigned to the extension shed, but even more because the way they are required to reach the platform level is confusing. Instead of their escalators being clearly visible within the transverse northern



Fig 11 The northern concourse

concourse they are placed elsewhere – for Midlands trains in the lightwells of the Barlow trainshed, and for Kent trains tucked to one side of the concourse. In both cases the escalators face away from the direction of movement for departing passengers. The transverse concourse (including the entrance to the new Thameslink platforms) is an ill-defined restless space, much less successful than the long concourse in the lightwells. There are legitimate explanations for these problems of layout: for instance, the location of the Fleet sewer dictated the awkward configuration of the escalators to the Kent platforms. They amount to showing that to shoehorn so much onto a site constrained by its historic infrastructure was never going to be easy.

Few such reservations apply to the way the Barlow trainshed and station buildings have been treated. The trainshed roof had survived in much better condition than might be expected, except for corrosion at the bottom of the arches, but the roof covering had been much altered, ending up largely opaque with only thin lines of glazing. The decision was made to recreate the original form of covering, Welsh slates in the lower reaches and a version of

ridge and furrow glazing towards the crown of the arch. In some details updated materials have been used – profiled metal planks beneath the slating and aluminium not timber glazing bars – but the overall result, enhanced by the sky blue paint scheme which was the roof's second original livery, is a respectful restoration of the 1860s design.¹² The buildings along the flank walls had not fared so well, especially the parcels offices on the west side which had become partly derelict. In the replanned station these buildings took on new uses, involving adaptation and in one case total rebuilding. On the east side at street level what had once been the premises of the undercroft goods station became the entrance for international departures. So some openings had to be reconfigured, gated openings becoming windows with stall risers and other openings being fitted with new oak double doors. On the upper level the repaired facade conceals building services, the rebuilt roof and chimneys used for ventilation outlets. The careful pragmatism of this work means that for most people the changes are undetectable.

On the west side of the station the question of how to handle the changes of use was more

complex. At platform level where shops have been inserted in the openings between the trainshed ribs, the same approach of repair and replication as on the east side has been adopted. However, at the lower level in the lightwells the treatment changes. There the shops have fully glazed fronts brought forward from the column line of the undercroft, clearly distinguishing new from old. The same distinction occurs throughout the undercroft, and in other new insertions such as the lighting and signage. Where the parcels office area behind the west wall was concerned it was initially less clear what the architectural approach should be. From the outset it was realised that the buildings there would have to be demolished to enable the below ground Thameslink station to be built, and that a new building would be erected mainly for station plant and services. Here a skirmish between the advocates of new and old took place. The decision against a new treatment in favour of reproducing Scott's Gothic idiom was of consequence, not just for the station and hotel but arguably for the wider world of building conservation. The finished building has a meticulously detailed rubbed brick and stone facing to its structural steel frame. At street level it almost exactly reproduces the shallow arched arcade of the building which had to be demolished: the first floor arcade is flatter and of course windowless because of the plant hidden behind. This completion of the station's west side set the agenda for the debate about the hotel which was yet to come.

THE MIDLAND GRAND REBORN

As in the sequence for the original completion of the buildings, the works to the hotel ran behind the station project. The planning consents for its restoration and reuse were not granted until 2006, so the enabling works had only got under way at the time the station reopened. An earlier project for the hotel from the developers Speyhawk had obtained planning permission in 1989, but like the King's Cross Channel Tunnel project, had faded from view in the early 1990s.

The hotel became the responsibility of London and Continental Railways as part of its appointment in 1996, and it in turn selected the Chambers Group (Whitbread Hotel Co supported by Marriott Hotels plus Manhattan Lofts) as developers two years later. The proposal which won the Chambers Group

the project, drawn up by RHWL with Richard Griffiths Architects and Alan Baxter & Associates, had some similarities to the Speyhawk scheme, especially in its reliance on putting apartments in the upper floors of the buildings. But the Speyhawk formula had another ingredient – a speciality shopping centre in the station undercroft – which was no longer possible, so the new team had to think of another way of making the building work. Even though the exterior had been repaired and restored the problems which had led to its closure in 1935 hadn't gone away – its lack of services, its outdated room hierarchy and a flawed layout which placed most of its bedrooms exhaustingly far from its entrance. Furthermore, now that the Gothic romance of its interiors was viewed with far more favour, the matter of how they would be treated came high on the agenda. English Heritage had already set out its interpretation of which rooms merited the most scrupulous attention.

The Chambers Group scheme of 1998 adopted the Speyhawk idea of having apartments in the upper parts of the building where the rooms were not easily adaptable to present-day hotel use; ultimately 67 apartments have been created, with their own separate entrance on the main front. But having subtracted that number of original hotel rooms, those that remained were insufficient to make a viable new hotel. That, plus the cost of the conversion (including the conservation of the highly rated interiors) pointed inexorably to the need for more rooms in an addition to the building. The obvious location for this addition was on the west side, adjoining the new plant room services block that was being provided for the station. As well as being the only available site, logically this made sense for another reason. The scheme also proposed to convert the original station taxi entrance, reached through an arch on the main front, into the hotel foyer. That brought the centre of hotel circulation closer to the centre of the building, lessening some of the walking distances that bedevilled Scott's layout. The new wing would be reached in one direction and the original reception rooms and bedrooms in another. The old taxi rank was also an ideal place to create the hub for servicing the building (Fig 12).

That outline strategy was subsequently refined, including the production of a conservation plan

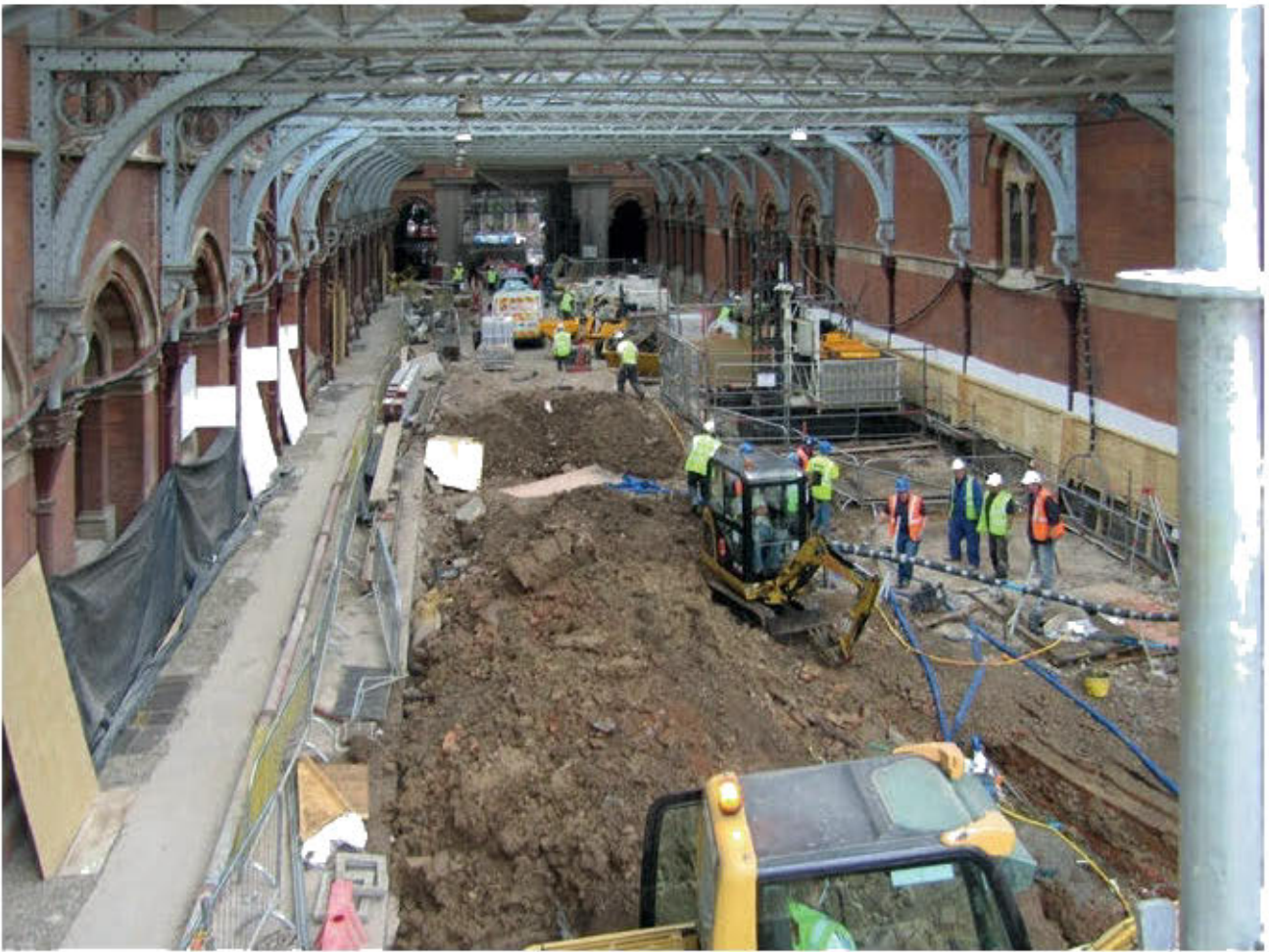


Fig 12 Creation of the hotel reception in the former taxi road

which refined the understanding of what had survived and how it should be treated. Analysis of selected areas revealed that more of the 1870s stencilling and some of the original wallpapers had survived beneath subsequent layers and, as is often the case, some of the later layers were in themselves of interest. As a result of these investigations seven rooms were identified as meriting the full uncovering or recreation of their historic decoration, including the Venetian scheme of the entrance hall, the aesthetic peacocks in the first floor corridor and the fleur-de-lis stencilling on the main staircase. Remarkably the conservation strategy was adhered to, and indeed augmented in areas where new discoveries were made during the works.

The fact that the interiors were going to be treated with such care did not make the case for adding a new west wing of hotel bedrooms any easier. Planning authorities, in this case principally English Heritage, are right to be suspicious of

building owners who claim that the only way to save their historic building is through the gains to be made from enabling development – a new extension or new construction in the grounds. The Midland Grand got caught in that net of suspicion, despite having been essentially out of use for as long as it originally had been in use as a hotel. This was too high profile a project to be let through on the nod, so it became the subject of a prolonged exercise of economic justification which added almost a year to the planning process.¹³

But the nervousness about the proposed west wing was perhaps less to do with the precedent that it might set than a concern about its scale and architectural treatment. As first proposed it was presented as a neutral rectangular box sitting on top of part of the ground floor of Alastair Lansley's Scott revival station extension. Behind that apparent neutrality lay the fact that RHWL had designed it as a modernist block. The rigid demands of hotel design – every room of an identical size,

double-backed off a central corridor – lent itself to a modernist solution, yet inevitably this appeared discordant alongside Scott's design and Lansley's homage to it. The problem was how to find a more sympathetic idiom which would still obey the hotel requirements, and one which could be built in a non-traditional way to fit the triangulated steel frame demanded by the station works.

Richard Griffiths and his colleagues took on this conundrum. Starting with Scott's language and materials, but recognising that the new wing should not fight for attention by being as elaborate as the main frontage, they explored the various forms of

window opening and floor hierarchy which he had used. The eventual choice, which has been built, refers to Scott's forecourt frontage with a vertical hierarchy of round-headed arches at platform level, the first and second floors linked within pointed arches, triple lancets on the fourth floor and two levels of dormers in the zinc-covered roof (Figs 13-15). At its north end, the block terminates in two stepped gables, echoes of the gables on the main hotel frontage. The relief which greeted this design, far more than the scrutiny of the economic case for the new wing, was the key to the project gaining permission.¹⁴

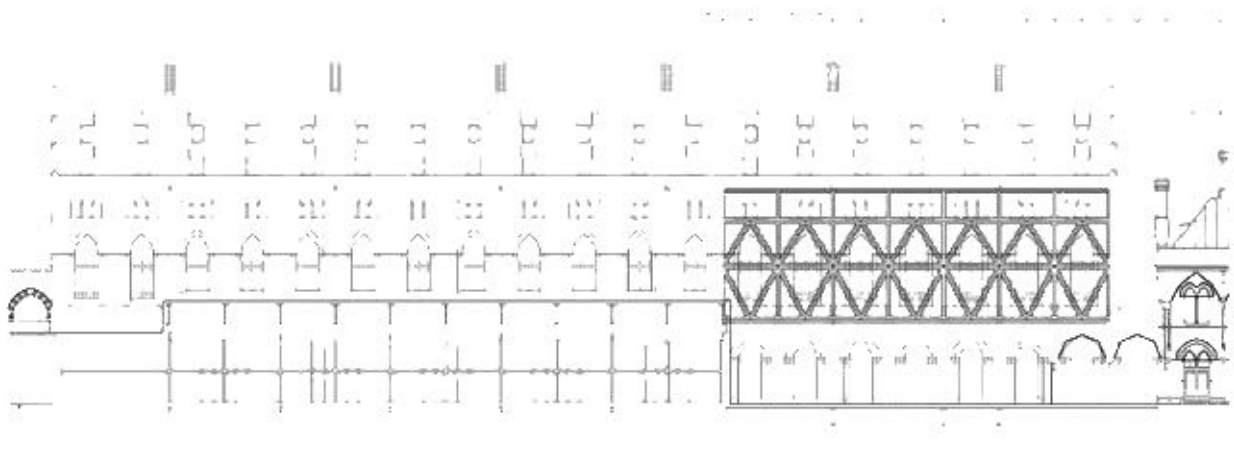


Fig 13 The hotel west wing: steel framing

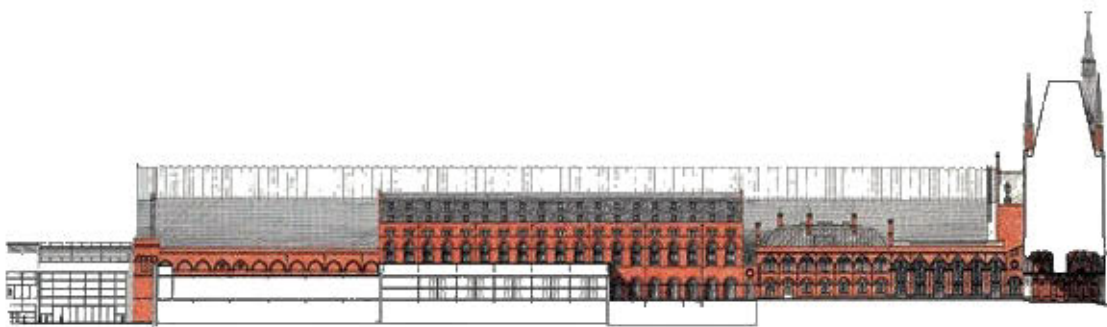


Fig 14 Richard Griffiths' proposal drawing for the hotel west wing

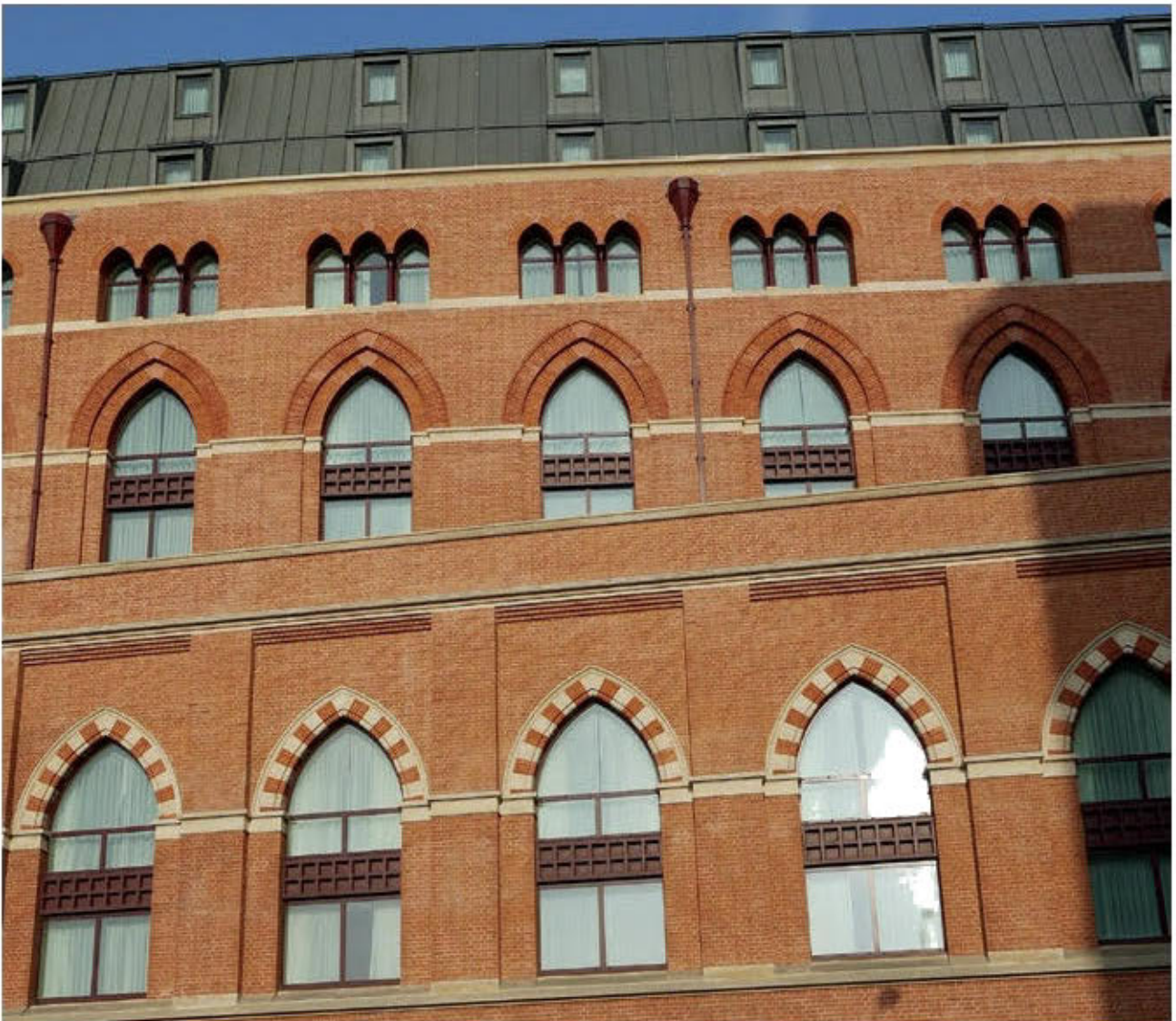


Fig 15 Elevation of the new hotel wing

Taken separately or together what is interesting about the station and hotel projects is that they both represent a similar approach to the language of building reuse. For that they may be recognised in future years as standing for a new maturity in the treatment of historic buildings. In both projects there has been no timidity about being explicitly modern in areas of less sensitivity, or where the intervention deserves to speak for itself. At the other extreme, in both station and hotel the most valued parts have been meticulously conserved. And where inevitable adaptations have been called for, their design has caught the spirit of the original buildings, without recourse to exact replication. Even more than in the way Barlow and Scott worked together there is a degree of accord to be seen in every aspect.

CONCLUSION

The recent history of King's Cross-St Pancras as summarised here is not the whole story. Nothing has been said about the equally prolonged evolution of proposals for the redevelopment of the King's Cross Goods Yard, which are only now beginning to take shape on the ground, and the later history of King's Cross Station leading to the completion of the new western concourse must await a separate appraisal. But there is enough food for thought in what has happened at St Pancras to provide some general conclusions about the treatment of conservation in large infrastructure projects.

The decision to make St Pancras the London terminus of the Channel Tunnel Rail Link has undoubtedly been the salvation of both the station and the hotel. The choice of St Pancras was only

arrived at after a hard fought campaign against an alternative, immensely destructive and over-engineered proposal. It is clear in retrospect that the St Pancras option should have been considered from the start, not forced onto the agenda by outside bodies, including the beleaguered local community. When set against that false start of the whole process, the subsequent parliamentary bill procedure for the station and the planning procedure for the hotel may be counted as moderately successful – even the heritage deed mechanism for vetting works to the listed station.

WH Barlow was right to claim that he had designed one of the most flexible stations of his day, but he had to work within severe constraints which he could only partly alleviate. Similarly, today's designers have had to work within the legacy of Barlow and Scott which, quite apart from its historic significance, has dictated limits to what could be achieved. Within those circumstances the designs for the reuse of both station and hotel, pragmatic and largely unpretentious, represent a successfully consistent architectural approach.

As for the future, the Midland Grand will continue to be put to the test of whether people want to stay there, to which the answer will probably be positive now that the station is such an international landmark. The station itself already feels under pressure, even though the surrounding area is far from fully developed and the international platforms are not yet fully used. The number of international trains is predicted to grow by at least 30 per cent over the next ten years.¹⁵ As its capacity becomes more stretched the problems of circulation which have resulted from the constraints of the historic site will become yet more evident. The station is being squeezed to the limit and there is now no room for further adaptation, in railway capacity or architecture. In due course it may be realised that it has been asked to do too much, and another round of infrastructure decisions will be needed to bring it relief.

ACKNOWLEDGEMENTS

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Illustration credits:

Margaret Davies (Fig 7), Gemma Fowlie (Fig 1), Richard Griffiths Architects (Figs 12–15), National Railway Museum (Fig 5), Robert Thorne (Figs 8–11, 15).

Robert Thorne MA FSA worked in the GLC Historic Buildings Division and then in E H London Division before joining Alan Baxter & Associates in 1990. He was part of the team which developed the scheme granted planning permission in 2006 for the Midland Grand Hotel. He has edited (with Michael Hunter) a collection of essays on the evolution of the King's Cross area (*Change at King's Cross*, 1990) and is the author, with the late Jack Simmons, of *St Pancras Station* (3rd edition, 2012).

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King's Cross, London – The Islington Side of the Tracks

ALEC FORSHAW

Alec Forshaw started working for the London Borough of Islington in 1975 and was Principal Conservation and Design Officer from 1988 until 2007. Heavily involved with the planning and development of the King's Cross area, this is his personal account of the Islington side of the story. It does not express any official views of the London Borough of Islington.

Robert Thorne has very ably described the background and evolution of railway development at King's Cross and St Pancras, the proposals for a low-level terminus for the Channel Tunnel Rail Link beneath King's Cross Station and the eventual solution to bringing the line into St Pancras. The development of the redundant railway lands north of King's Cross and St Pancras Stations by the developers Argent is a fascinating and ongoing project. The following is an account of what

happened on the Islington side of York Way and how that area has been regenerated over the past 25 years.

Despite their best endeavours, the London Boroughs of Camden and Islington have rarely worked together particularly closely at King's Cross, not sharing quite the same problems, timescales, political or community pressures. The parish boundary, now the borough boundary, is indeed a long-established and natural one (Fig 1). York Way, known formerly first as Maiden Lane and then as

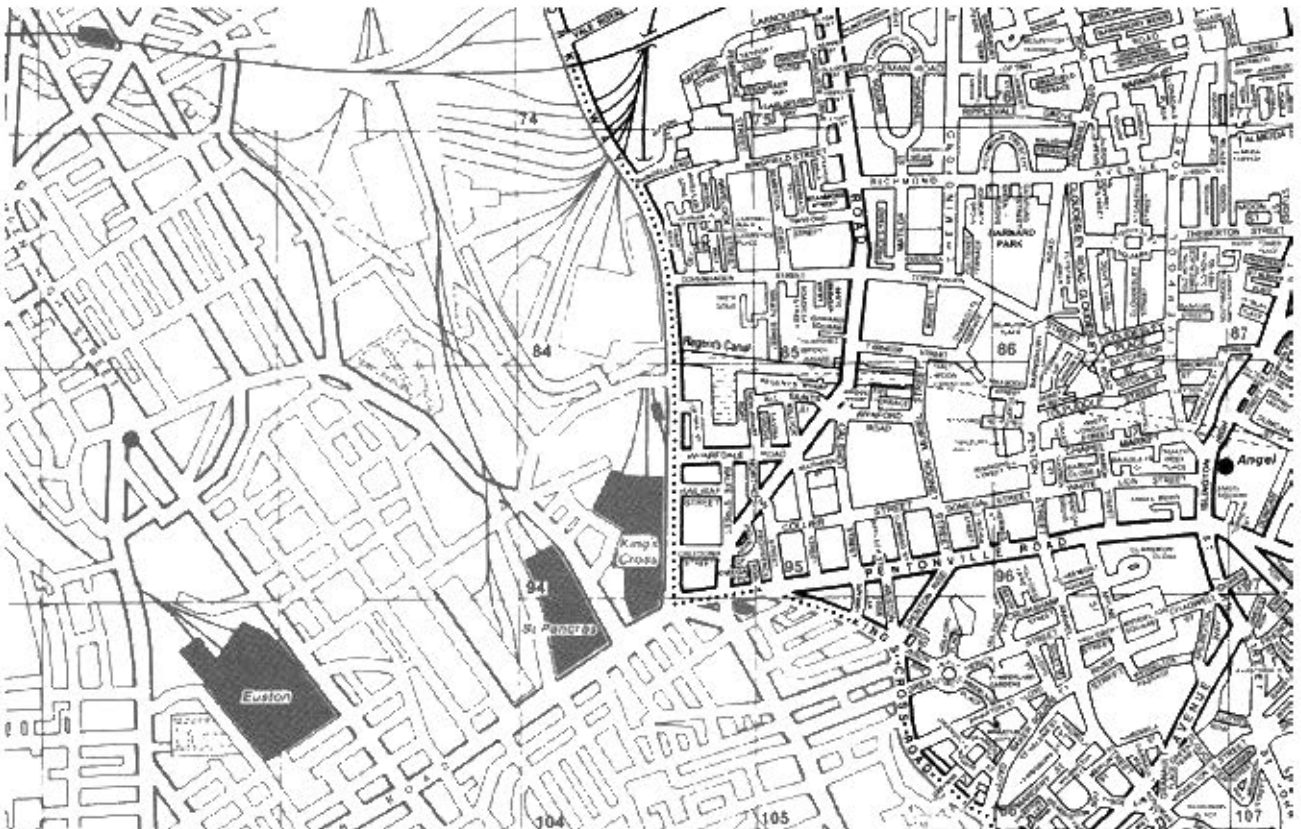


Fig 1 Street map, the dotted line is the Camden/Islington borough boundary

York Road, was an ancient country track winding its way southwards through open fields from Highgate village, descending down the hill to the area known as Battle Bridge (apocryphally where Boudicca fought the Romans) and continuing towards to the City of London along what is now called King's Cross Road, where it joins and follows the valley of the Fleet River.

The New Road (now Marylebone/Euston/Pentonville and City Roads) had been constructed in the 1750s, essentially as a new bypass for London, a way of taking the enormous and sometimes unruly herds of livestock bound for Smithfield Market and other goods to the City without trampling through the smart new suburbs of the burgeoning West End. Where the New Road met Maiden Lane became known as King's Cross.

Much of the development on the Islington side pre-dates the railways. The suburb of Pentonville soon followed the New Road; first smarter houses for the respectable classes up the hill towards the Angel Islington but during the 1830s and 40s, poorer quality terraces further down the hill towards King's Cross, multi-occupied by artisans and labourers, many employed in the construction industry. King's Cross was already attracting various obnoxious uses, white lead and blue works, saw mills, brick and tile kilns, not to mention the great dust and waste tips further north. The opening of the Regent's Canal in 1820, linking the Grand Union Canal in Brentford with the Thames at Limehouse, was also a spur to more commercial activity. The Horsfall Basin, later renamed Battlebridge Basin, was one of the largest on the Regent's Canal and was soon lined with open wharves and warehouses, handling all kinds of produce. Gatti's Wharf, for example (now the Canal Museum and venue for the ASCHB Conference), received and processed huge blocks of ice, transported by sea and canal from Norway. The deep storage pits are still there. On the Camden side the Gas Works were a major development beside the canal.

When the Great Northern Railway Company built their new terminus at King's Cross, with Lewis Cubitt's magnificent station and its marshalling yards, engine sheds and warehouses for grain, coal, fish and potatoes, it was almost entirely on land within Camden, leaving the Islington side virtually untouched. The industrial nature of the Islington

side, east of York Way, became further reinforced with the Pontifex Brass and Copper foundry, St Pancras Ironworks, Porters Bottling Works and a host of other enterprises.

During the Second World War, while the railways must have been an intended target for German bombers, the most severe damage in Islington was north of the canal and further east up the hill towards the Angel. The streets immediately east of King's Cross Station were left relatively unscathed. Nevertheless, the industrial and warehousing activities rapidly fell into decline in the 1950s and 60s, together with many other traditional industries in central London. The surviving Georgian and Victorian terraced housing continued to provide cheap unimproved privately-rented accommodation, as portrayed in the classic Ealing comedy *The Lady Killers*. Much of the commercial property, vacant or let on short term, low value tenancies, was acquired by Stock Conversion, a development company owned by the Levy brothers who were in the process of building the Euston Tower and Tottenham Court Road underpass half a mile west along Euston Road. King's Cross seemed like a good candidate for the same treatment.

The first positive step in conservation was the designation in 1970 of the Keystone Crescent Conservation Area, which included the early/mid 19th century residential properties of Balfe Street, Northdown Street, Caledonian Road and Keystone Crescent, some of which had been statutorily listed in 1972. In 1978 the Regent's Canal Conservation Area was also designated, part of a cross-borough initiative led by the London Canals Committee, covering the waterway, basins and towpath but very few of the adjoining buildings. At that time the commercial streets south of the canal were considered by Islington Council (including its then conservation officer) to be of insufficient architectural or historic merit, too fragmented and incoherent, to warrant conservation area status, even though experts in industrial archaeology were already arguing that the area contained a significant and unique concentration of historic fabric. None of it, unfortunately, was or appeared capable of being statutorily listed. Many planners and local councillors regarded the buildings as grubby, redundant and ripe for demolition.

Meanwhile Stock Conversion was refining its ideas and proposing a comprehensive redevelopment

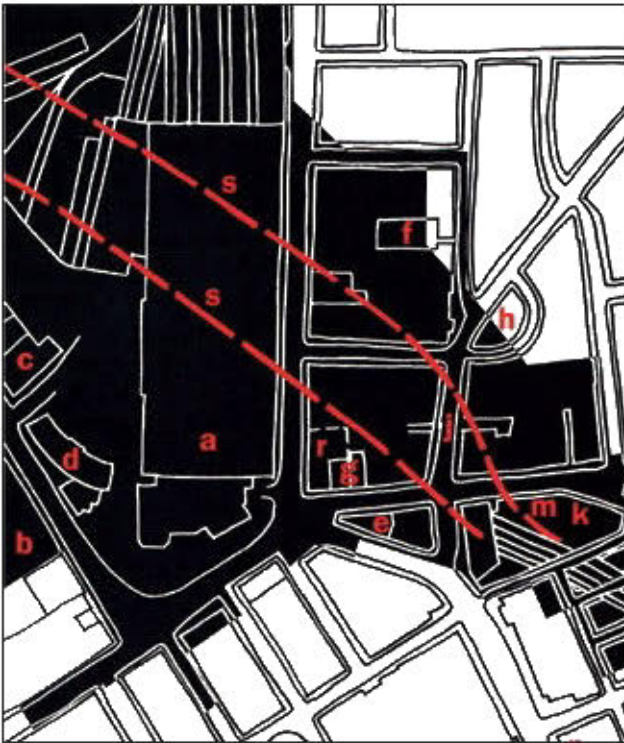


Fig 2 Land shown in black was threatened by the 1987 low level Channel Tunnel Rail Link station proposal

for offices, on similar lines to that already achieved at the Euston Tower/Tottenham Court Road underpass and the Euston Station redevelopment. In 1983 outline planning permission was granted by Islington Council. When the Greater London Council's Historic Buildings Division decided in 1986 to use its powers to designate the King's Cross Conservation Area (one of the last things the GLC did before its abolition), Islington Council actually objected!

It came as a shock when in December 1987 British Rail announced that its preferred option for a new London terminal for the Channel Tunnel Rail Link (to supersede the temporary terminus which Nicholas Grimshaw was building at Waterloo) would be a low level station running beneath King's Cross Station, approached by a new tunnel from the southeast. This would require the acquisition and demolition of most of the Stock Conversion site, extending well into the Keystone Crescent Conservation Area (Fig 2), digging a 15 metre deep hole for the station which would be covered with a slab to accommodate new offices above. Perhaps British Rail was inspired by the apparent success and profits of the air rights development at Broadgate above the tracks of Liverpool Street Station.

The low level station at King's Cross required

the demolition of 88 houses and 168 workplaces, including 59 shops of which 38 provided local services. 326 people would need re-housing and 1,620 local jobs would be lost. Not surprisingly it triggered an enormous backlash from the local community and a change of heart within the council and its planning department. A consortium of local activists and campaigners set about challenging the Railway Bill on all possible fronts. A new conservation team at Islington embraced the GLC designation and set about using conservation arguments to help refute the railway proposals, with determined and vocal allies in the local community.

A new and detailed planning brief was produced by the council for the commercial area owned by Stock Conversion. This comprised the three street blocks south of Wharfedale Road and north of Pentonville Road. They became known, rather unimaginatively as Blocks B, C and D, Block A being the Lighthouse block south of Pentonville Road in Camden. The brief was based on the model successfully adopted in the recently approved Clerkenwell and Smithfield Design Policy, identifying dozens of individual buildings of local architectural and historic merit which should be kept (there was only one statutorily listed building, at 7 Caledonian Road) and requiring mixed use throughout, including residential, retail and restaurant/bar uses as well as offices. A further key requirement was pedestrian permeability, creating new traffic free east-west and north-south routes through all the three street blocks covered by the brief. This was a radical and controversial change of tack. The draft brief was subject to public consultation and received strong support from local community groups.

Meanwhile, the blight caused by British Rail's proposals for the low level station had a devastating impact on the area. While the notorious Goods Way west of York Way had long been a kerb crawler red light district, a wave of prostitution and drug crime now hit the residential and commercial streets in Islington, infesting the derelict alleyways and even the front basement areas of people's houses. The reputation of King's Cross seemed to be at rock bottom. In order to try to reverse this misfortune, in 1989 Islington Council began a three-year Conservation Area Partnership grant scheme for Caledonian Road and those neighbouring streets not

blighted by the railway proposals. This was jointly funded by the council and English Heritage. It was renewed for a further three years, and then by two phases of Heritage Economic Regeneration Scheme grants. Over the resultant 12 years hundreds of grants were given to small businesses and property owners for shop front improvements and façade enhancements, but also ensuring that roofs and defective structures were repaired as well. Housing association schemes and flats over shops produced new residential units. Public realm improvements were also crucial, particularly new street lighting and CCTV to help tackle crime, as well as new York stone paving. The Single Regeneration Budget contributed to these works.

Following lengthy Parliamentary hearings in both the Commons and the Lords, in January 1994 the Government finally announced that St Pancras had been chosen as the CTRL terminal and that British Rail had been instructed to withdraw the King's Cross Railway Bill. The defeat of the railway proposals in Islington and the removal of the blight coincided with the sale of

Stock Conversions' holdings to P&O Properties. P&O largely took up the baton from where Stock Conversion had left off, and similarly proposed major redevelopment, primarily a monoculture of offices, but with a hotel near the station and a modest amount of housing thrown in on the northernmost block. A considerable battle ensued. Within the council there were senior officers who felt that the scheme should be allowed. After so many years of blight, inaction and decay, some felt that almost anything was better than nothing. Islington's conservation team together with many heritage and community groups thought that this remarkable collection of industrial buildings was still worth fighting for. At a crucial meeting of Islington's planning committee in February 2001 at which many objectors were allowed to speak, P&O's redevelopment scheme was deferred, despite a recommendation for approval by Islington's planning officer. Without actually being refused, P&O was asked to rethink. Happily it did so.

Up to this point English Heritage had taken something of a back seat. Although it had held the



Fig 3 Jahn Building with frontage gap for new office entrance



Fig 4 Former Pontifex Copper and Brass Works, converted to offices



Fig 5 Interior of former Pontifex Copper and Brass Works



Fig 6 Former St Pancras Ironworks, vacant in 1999



Fig 7 Former St Pancras Ironworks, after restoration and conversion

launch of its new *Power of Place* policy document in the derelict shell of the St Pancras Ironworks (fuelling the suspicion of some that EH was in cahoots with P&O), it had left the decision making to Islington Council. Now EH became more proactive, commissioning Richard Griffiths Architects to work up an alternative scheme (based on some rough sketches initially drawn up by Islington's conservation team and members of Islington's Conservation Advisory Committee) which would retain more of the existing commercial fabric. English Heritage evaluated the scheme to show that it could be economically viable.

This piece of work helped to change P&O's mind and, with close community consultation, a revised planning application was submitted and approved. This still involved some compromise, particularly to accommodate the hotel. A group of Victorian buildings on the corner of York Way and Caledonia Street was lost, including the so-called

Boot Black Brigade hostel at No 28 York Way. A hole was punched through the street elevation of the Jahn Building on York Way to create a main road frontage for the new office block built mainly on vacant land at the rear (Fig 3). However, the Pontifex Copper and Brass Works was saved, and converted into offices for a firm of architects which moved from Clerkenwell (Figs 4 and 5). Saved also was the Varnish Works in Block B, making for excellent restaurant/bar use on the ground floor with studios above. The robust St Pancras Ironworks was refurbished and re-roofed as offices, although many of the original iron windows were replaced, probably unnecessarily (Figs 6 and 7). The wonderful warehouse at 34b York Way, which had eventually been listed in August 2001 because of its spectacular roof (Fig 8) was converted into the Hub, a very successful rent-a-desk space and internet café.

Permeability was achieved with a series of new



Fig 8 The roof of 34b York Way, now the Hub



Fig 9 Entrance to Albion Yard from Balfé Street, derelict in 1999



Fig 10 Albion Yard, converted to residential, with new offices behind

publicly accessible spaces linked with walkways, perhaps in retrospect the most important part of the brief. These are open every day from dawn to late evening and provide an intimate collection of courtyards and alleyways, away from the maelstrom of traffic on the main roads. There were arguments about the retention of original granite setts and how these could meet disability requirements, and in Albion Yard (Figs 9 and 10) there is perhaps too much ground floor residential where livelier use, as in the Varnish Works, would have been better. P&O, curiously, remained cautious about the value of residential use. In the event, all the private units were sold within the first day on the market.

There is no doubt that, given the starting position, the so-called Regent Quarter, or rather the two blocks B and C completed so far, have been considered a great success if not a triumph for conservation. Excellent new uses have been found for the many old buildings which were retained. The scale and design of the new buildings filling the gaps has been contextual and generally sympathetic. The public realm is a real asset and is well managed. Block D, north of Railway Street up to Wharfdale Road, is now on site. Even Block A, the so-called Lighthouse Building on the Camden side south of Pentonville Road, is now under refurbishment at long last.

Inevitably, however, there is a knock-on effect on rents. The colony of artists who for several years had short term lets in the King's Cross Laundry, a fine 1906 Arts and Crafts building on Caledonia Street (Fig 11), did not return after its renovation. The development and refurbishment of Block D is welcome news for the historic buildings on the site, but there is a worry that the long-established dance school on the corner of York Way and Railway Street may make way for office use which could afford a higher rent. The ambition for this area to become a 'cultural quarter' could be jeopardised by gentrification. That would be a shame, given the relocation of the Central St Martin's School of Art to the Granary complex on the Camden side in 2011.

A less expected fillip to the cultural ambition of the King's Cross area came from a private non-institutional development. In 2002 a developer, Peter Millican, acquired the Westinghouse site, north of Wharfdale Road, with a long frontage on to York Way and facing both the canal and Battlebridge



Fig 11 King's Cross Laundry, converted to offices

Basin at the rear. Here an imposing Victorian factory had sadly been demolished in the early 1970s and replaced by an unprepossessing single storey red brick warehouse and a large open service yard and security compound. This probably employed more Alsatian dogs than men!

Peter Millican's unusual vision was the creation of a new arts complex, requiring no public subsidy, to be funded by offices on the upper floors. He had been impressed during pre-application meetings with Islington's enthusiasm for his project and by the obvious signs of improvement in the area with P&O's Regent Quarter and the council's own grant schemes. The longer term prospects were clearly good, with the St Pancras Eurostar station and the Camden Railway Lands development. Peter Millican employed Dixon Jones, well known for its work at the Royal Opera House, as his architect.

King's Place is almost breathtaking in its concept. With a commitment to maximising public access into and through the new building and also to the waterside of the canal and Battlebridge Basin,

the design solution was to locate the arts facilities largely below ground (well insulated from sound disturbance). This leaves the ground floor atrium almost entirely clear for public use and circulation, including generous seating areas, bars and cafés, with stairs and escalators descending to the two concert halls, galleries and studios below. The offices are above, on the first to seventh floors.

Initially there were some concerns among Islington planners and local residents, particularly those living immediately north of the canal, that the scale of the new building was too big. Jeremy Dixon was a sympathetic listener and skilfully modified the design to break the building into several separated pure forms including a circular drum on the corner of the canal and Battlebridge Basin. On York Way a triple-layered wall of glass is curved in a series of shallow waves, broken in the middle to indicate the main entrance. Viewed obliquely along York Way, the waves coalesce into stronger sculpted curves that resemble the rippling of water and reflect the sky (Fig 12).



Fig 12 King's Place, the wavy glass front to York Way and the rotunda at the corner of the Regent's Canal and Battlebridge Basin

A crucial part of the development was signing up the Guardian and Observer newspapers and Network Rail as pre-let tenants for the offices, which provided the financial security to enable construction to proceed, well before the economic troubles of 2008. The transfer of Guardian journalists from their old stamping ground in Farringdon Road to York Way was almost a symbolic sign that the qualities of Clerkenwell could move up to King's Cross. They would clearly be a catalyst for further change in the area. Others would follow. As it has turned out, in terms of the scale and design of the new building, King's Place sits comfortably in the streetscape and alongside the canal. The larger residential and commercial developments now under construction on the Camden Railway Lands west of York Way are putting everything into perspective.

Most importantly King's Place has made a substantial contribution to the public realm and cultural life of the area. Internally the quality of materials, design and finish are exemplary, a tribute to the meticulous attention to detail by the architects and their contractors. For the public there is a sense

of welcome and activity which lift the spirits. With its resident orchestras, The London Sinfonietta and the Orchestra of the Age of Enlightenment, galleries, restaurants, outreach to the local communities, and the diverse programming of its halls, in which Peter Millican takes great personal interest, King's Place is a new kind of building type for London. As Jeremy Dixon has said, it suggests that developers and their buildings can be more adventurous and positive in the contributions they make to the cultural and urban life of the city.

The 30 year battle to save the Islington side of King's Cross, involving three successfully fought campaigns by the local community against the proposals of Stock Conversion, British Rail and P&O, has recently been recorded in a new book. *King's Cross: A Sense of Place*, by Angela Inglis and Nigel Buckner was published in July 2012 by Troubador and includes articles by several of the key players involved, and an excellent detailed analysis of the industrial archaeology and legacy by Malcolm Tucker. It is recommended reading for those who want to delve more deeply into this fascinating corner of central London. To some extent, King's Place has been the icing on the cake, but nevertheless is a pioneering scheme which has set standards to which others will aspire. From my own point of view as a conservation officer with a strong personal interest in the performing arts, and having spent many years securing the successful restoration of St Luke's Old Street as a major concert, rehearsal and education venue for the London Symphony Orchestra, the opening of King's Place as a new cultural centre was an occasion of great satisfaction.

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Anthony Delarue: Fig 2

Angela Inglis: Figs 8 and 12

Alec Forshaw retired from the London Borough of Islington in 2007 and is now an independent planning consultant, lecturer and author. His book 1970s London was published in 2011, while New City, covering the redevelopment of the City of London post-Big Bang is due to be published by Merrell in Spring 2013.

Inhabiting the Ruin: Works at Astley Castle, Warwickshire

WILLIAM MANN

Until a fire in 1978, Astley Castle, near Nuneaton, had been continuously inhabited for more than eight centuries. Its growth from a fortified early medieval core is traced out in a series of additions, notably those of the 15th and 17th centuries, giving it a complex, multiple identity. Tasked by the Landmark Trust with the creation of a house that would make the most of the historic remains, much diminished after decades of decay, we determined to retain its ruinous character. In doing so, we faced a delicate balancing act between the raw, scaleless characteristics typical of the ruin and the warm, measured qualities associated with a house. The clues to the resolution of this conundrum we found, invariably, in the structural and constructional properties of masonry, carpentry and joinery, and in reconciling localised particularities with a constant search for elemental clarity.

RUIN

By the time we first visited in early 2007, Astley Castle was already in an advanced state of decay. Fire and 30 years of freeze-thaw had reduced it to a ragged masonry shell. Like a rotten tooth, its outer faces continued to resist, while the inner core crumbled. Behind the intricate silhouette and perforations of its outer walls, the inner cell divisions slowly merged with the piles of stones between them.

The occasional charred timber survived from the initial catastrophe, while a clutter of twisted scaffold poles showed that attempts to delay decline had been casually brushed aside. From inside, walking between the remnants, it was hard to perceive any order; it seemed, rather, a chaos of pieces and forms (Fig 2). From the fields around, with its tall west front rising out of an encircling wall and grass mound, it was a ruin in the grand tradition (Fig 1).



Fig 1 Astley Castle from the south in 2008, with stabilising work beginning



Fig 2 As found, looking up the west wall in 2007



Fig 3 The south courtyard, 17th century construction

As these contrasting experiences suggest, ruin is an ambivalent figure. The ruin represents disintegration and distillation: it is both anti-architecture and pure architecture. Decay strips away all that is superficial or ornamental, leaving only a structure in fragile equilibrium. The ruin internalises the complex order of natural forces, juxtaposing the irregular geometries of collapse with the rectilinear ones of construction. Abandonment blurs boundaries, as a room is furnished with plants, and what at first sight seems a garden reveals its decorative tiled floor; thresholds become ever more porous as doorways become wide gashes. Small traces of habitation, stubborn patches of plaster or flashes of colour evoke the comforts of previous inhabitants, now passed. Ruin has become more or less constant in the imagery of our anxious culture¹. Sensitised by these images and anxieties, we took it upon ourselves to retain Astley's ambivalent mix of pathos and resistance.

HOUSE

If ruination distils a building to an architectural essence, what evaporates in the process is precisely its humanity. Ruins are measureless, porous, hard and damp: their emotional power grows proportionately as human scale, subdivision, containment and comfort are erased. In many ways, therefore, the house is the polar opposite of the ruin. As critic Anthony Vidler writes, the ruin is unhomely, uncanny².

To place a house inside a ruin, therefore, threatens the essence of each. Two opposite dangers present themselves: the domesticated ruin, which has lost its emotional charge; or the uncomfortable, unsettling house. This was the tightrope we had to walk in making Astley Castle fit for habitation.

This challenge was eased by the ambitions the Landmark Trust set for the project and by the properties of the remaining structure. Firstly, the accommodation to be provided was modest compared to the extent of the castle, about one third of its area; secondly, this was a holiday house (for visitors with a passion for history) not a permanent residence, therefore conventional expectations of both comfort and privacy were not overriding; thirdly, about half the walls had fallen away (or conversely, half were still in place), meaning that neither the historical structure nor the new construction would dominate the whole.



Fig 4 Competition scheme, 2007, sectional perspective drawn on model photograph

MAINTAINING THE RUIN AND INHABITING THE CORE

We have not restored Astley Castle; we have, rather, maintained the ruin and inhabited its core. What is the difference? If restoration implies a form of completion, a return to a past wholeness, we have left the castle incomplete. We have left the huge gaps that we found in the fabric rather than fill them, treating the subtractions of the decades of decay with the same seriousness as the additions from centuries of construction. Where we have had to build, we have done so with economical contemporary materials, accepting the surface discontinuities that follow. We have embraced the unusual sense of enclosure, of scale, material and light, present in the ruin. We have maintained the deep discipline which underlies the majority of ruins, in which the durable masonry shell is independent of its combustible carpentry infill. New insertions are not pure geometric figures, but rather interlock with existing fabric and with other new work. In short, we have avoided completing or domesticating the remains, leaving the house at

Astley open-ended and somewhat unsettling (Fig 3).

Looking for a constructive understanding of the ruin in our hands, rather than the morbid Romantic ‘worship of ashes’, we drew on the sophisticated modernist interpretation of Le Corbusier. In a series of projects including the Pavillon de l’Esprit Nouveau – in which a cubic house volume is occupied and disrupted by a tree growing out of its terrace and through its roof – the garden and living spaces share the same enclosure, and are connected through gaping wall openings.

With the disproportion between the area required for the new house and the area at our disposal, and surrounded by an ancient landscape of abandoned gardens shading into fields, and of ponds and lakes, we chose three defining tactics: to inhabit the oldest core of the castle, the early medieval fortified manor, a two storey rectangular construction with walls two metres deep; to treat the rooms of the ruin as a roofed core surrounded by a series of partially-roofed external courts; and to make it an ‘inverted house’, with bedrooms on the ground floor and the living spaces on the first (Fig 4).

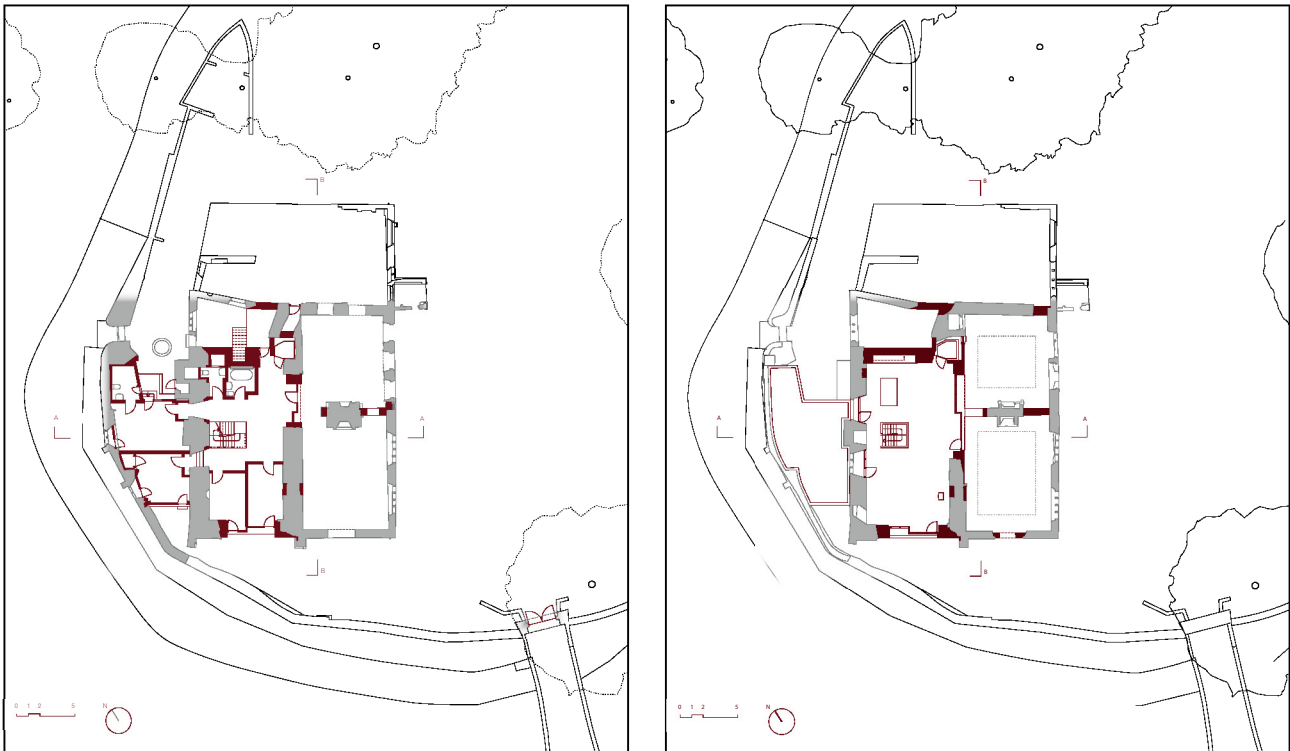


Fig 5 Ground and first floor plans, new work in sepia

CONTINUITY

Our work at Astley is a reflection on time in architecture, an assertion of continuity and change. It is a rejection of the ideas of ‘return’ and ‘rupture’ that condition too much action on buildings of the past: ‘return’ in the form of restoration, and ‘rupture’ in the form of self-consciously discontinuous new construction. As we wrote in our competition submission: *“These positions share the belief that history is past. By contrast, we are convinced that history is not what happened to other people, but a dimension of human nature, and a fundamental part of our working conditions, even in the modern age.”*

It was, I suppose, this belief in continuity that led us to graft the structure of the new house directly onto the old. The early medieval fortified manor remained an immensely strong presence in the landscape, and was still legible as the core from which the castle had grown: it seemed natural to re-establish its importance by making it the heart of the new house, enjoying the views from its dominant position. In conversation with our structural engineer, David Derby of Price & Myers, we quickly became aware of the practical advantages of our ‘graft’: the structure of the new house would bind together the freestanding walls of the old castle; the new roof would protect new and old alike; the

new house would bear on the existing foundations, using the capacity already there (Fig 5). The thought of building the new house completely detached from the ruin did not cross our minds, although there were several such schemes in the competition by which we were selected. Imagine having to stabilise the ruin as a stand-alone structure, to cap all its walls, to dig new foundations in the Scheduled Ancient Monument! Why? In the name of preservation, or of a self-sufficient modernity detached from history?

Our ‘full contact’ approach raised numerous questions, of course. What materials to patch with, how to land them on the existing walls? Our design for the initial six week competition established the spatial strategy that we have delivered five years later (maintaining the ruin, inhabiting the core, inverting the house). The tactics we proposed at the time, of tile brick edgings, reinforced concrete roof frame and wood windows and linings have all evolved, both in themselves and in relation to each other, as we increasingly understood the nature of the ‘host’ building we were grafting onto. These tactical judgements required a close understanding of the existing fabric. We had to look with great care at the existing walls, and in doing so, our perception of what we were dealing with changed fundamentally.

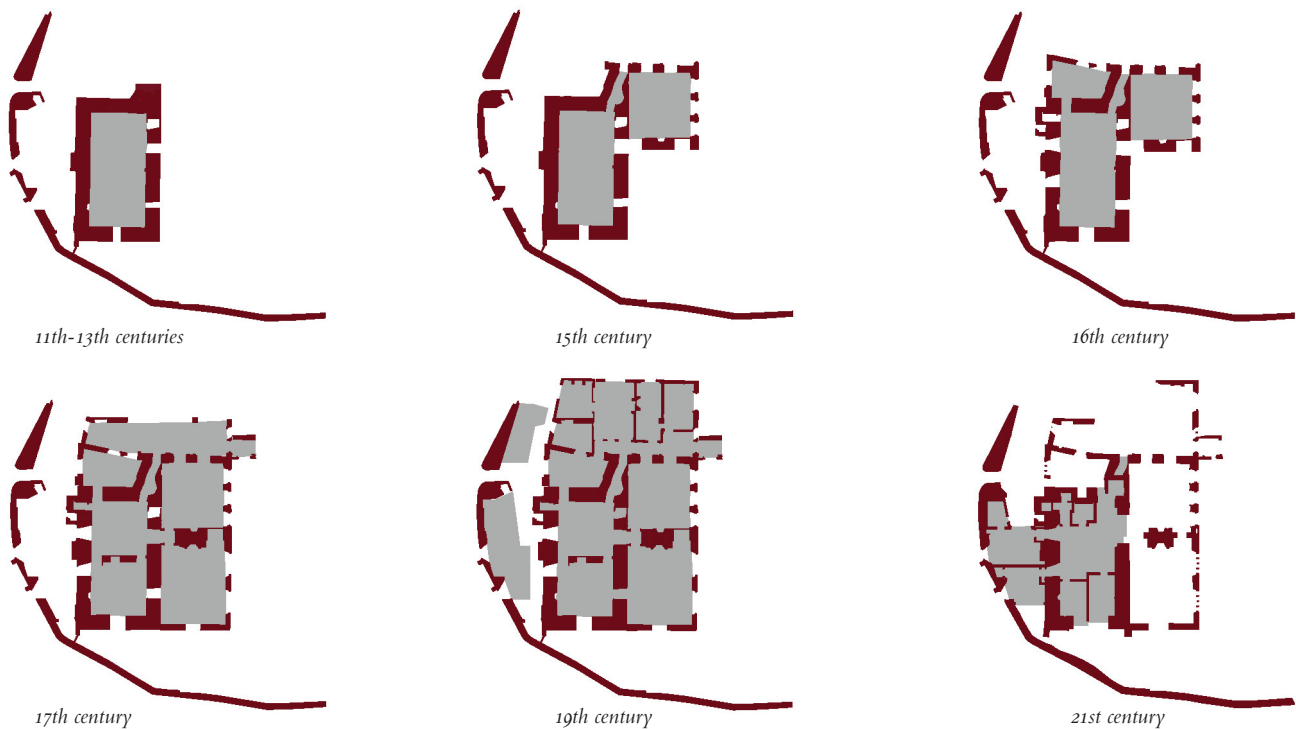


Fig 6 Historical development

CELL STRUCTURE AND TECTONICS

Under close scrutiny, a singular 'ruin' revealed itself as multiple remains. The logic and illogic of the castle's incremental expansion over the centuries became apparent to us through recording and interpretation, through simplification in physical models, through the clearance of the ruin of both rubble and unsound structure, and through the 'call and response' of strategic and detailed design. Our interpretation of the castle's growth pattern brought home its insistent cellular logic. It had started as a single, rectangular structure, somewhat in the manner of a keep, with a spiral stair in its northeast corner. Rooms were added in the 15th, 16th and 17th centuries until it formed a cluster of four stone volumes grouped around the spiral stair. Each of the masonry 'cells' was built in two-storey high masonry construction, which because of the wall thickness was independent of the carpentry for its stability – a wise and widespread strategy when fires were common. Later constructions proved more fragile: the mid-17th century jettied timber-framed wing, a long gallery on the north side, was reduced by fire and rain to a jumble of timbers, while the slender 19th century walls were unable to survive without the bracing of their roofs and floors (Fig 6). The fundamental lesson we absorbed from this exercise

was the need to follow the existing cellular structure closely, only adding new masonry where walls had previously existed. On this basis, we restricted the concrete structure to the wall lines, moving from a frame bearing directly onto the stone walls to lintels bearing on new edgings.

The junction of the 15th century wing with the original castle core, where the two oldest parts met in a 'T', should arguably have been one of the stronger parts of the castle – it was the meeting of two thick masonry walls which should therefore buttress each other. Instead, it proved one of the weakest, both walls crumbling to form a hollow at the heart of the castle. Not understanding the deep structure of the architecture, our first response, in the design competition, was to propose the demolition of what had become a free-standing chimney stack: its removal would create a single large walled courtyard beside the new house. Once we understood its position in the sequence of the castle's construction and structure, we knew we had to keep it – yet the chimney stack stood bang in the middle of the large new window opening formed by the collapse of the medieval wall. The clue to its resolution came from studying the work of another modern ruin artist – Gordon Matta-Clark. His work, consisting mainly of openings cut with a chainsaw



Fig 7 T-shaped lintel at the junction of early medieval, 15th and 17th century work



Fig 8 Junction of medieval and new brickwork

into derelict buildings, offers many examples of cutting out the corners, serving simultaneously as an assault on the strength of architectural compartments, and a unification of previously separated spaces into a newly perceptible whole. By reforming the walls around and over the opening, aided by a giant concrete lintel cast in a ‘T’ form, we focused the energies of destruction in one moment, at precisely the point where the different ages of the castle met. The resulting opening draws early medieval, 15th and 17th century rooms into a single experience, with this encounter framed by the 21st century construction in brick and concrete (Fig 7).

Accepting both the cellular masonry structure and the three-dimensional gashes within it led us to a settled and clear position on the respective roles of the masonry and carpentry. Broadly, the crumbling, toppling ancient masonry walls are internally stabilised and strengthened by resin anchors, tied to each other by new concrete lintels and are edged, capped and buttressed by new brickwork. In other words, the masonry is stabilised by new masonry work alone and new carpentry is a relatively lightweight and independent insert into this shell. The masonry additions maintain the unsettling scale, while the carpentry brings subdivision, human scale, warmth and tactility to the interior: the masonry follows the character of the ruin, while the carpentry and joinery establish its habitability. The tightrope act of the project depends on both tension and complementarity between these primary elements.

MASONRY: EDGING AND INFILLING

Covering and protecting the exposed edges of the stone walls and their rubble cores was essential to prevent further deterioration. Seeing old tile brick infill to a damaged buttress on the neighbouring St Mary’s church had already prompted us in this direction at competition stage. An extensive trawl of suppliers led us to the Danish Petersen brick selected, which is 37mm thick. Tests on site with varying sizes showed that the thinner bricks fitted the random edge of the ruined stonework much more closely. The charcoal-fired bricks echo the reds and greens of the sandstone and limestone, achieving a close tonal and colour harmony at the same time as their texture distinguishes them clearly (Fig 8).

The new brickwork walls are built to the full depth of the existing stone walls, directly onto

them. The inner and outer skins, which are up to 1.8m apart, are bonded together by diaphragms of clay block every 900mm, tied in by a header every fourth course of brickwork (Fig 9). The brickwork is laid in lime mortar in a quarter-lap bond, partly to accommodate these headers, partly to soften the rhythm of the bricks, meeting the broken stonework edge gently, not abruptly. The window openings in the south wall and spine wall (between the new house and courtyards) are simple in the extreme, two storey high cuts in which the brickwork approximates and regularises the gashes formed by the castle's decay. The small module of the brick coursing also disrupts any easy or domestic reading of their scale.

The reinforced concrete lintels were prefabricated from templates taken on site. They are boot lintels with an etched finish and an in situ structural core, enabling them to be craned into place from beyond the moat despite their large size. The visible 'boot' is three courses high, with the full structural depth concealed behind the brickwork, suppressing their muscularity behind a light, taut appearance (Fig 10).



Fig 9 New brickwork and clay block diaphragms under construction



Fig 10 Installing the 'T' lintel



Fig 11 Stepped embrasure to the kitchen niche



Fig 12 The roof in progress, showing upstand construction

Most of the north wall of the medieval castle had collapsed, giving us the opportunity to use some of its depth to accommodate the bathrooms and kitchen, with reduced impact on the interior. Retention of the medieval shaft of the spiral stair, to accommodate the new platform lift, squeezed this space further. Finding ourselves with the need to angle walls, and with the bricks already ordered with just one special, we were obliged to improvise, and developed a stepped reveal with a touch of the brick Gothic. While we have edged existing walls in relatively deadpan manner, the creation of a wall full of domestic scaled openings pushed us to challenge their mundane scale into figurative forms. James Gowan talks eloquently of the difficulty of integrating bathroom and kitchen windows in a considered composition in social housing³; here, the stakes were higher, since the existing windows are exceptionally large. The bathroom windows are reduced to minimal sizes (the smallest is 450 x 450mm), placed flush with the outer face of the brickwork with their embrasures widening out internally to distribute the light more widely. The low kitchen niche on the first floor is asymmetric, narrowing on the right as it goes up, in the manner of a medieval fireplace. This is achieved through a series of lintels ‘corbelling’ inwards (in fact, they work in torsion, in the same manner as a cantilever staircase.) This integrates the mundane scale of the kitchen units and the long, low niche into the masonry order of the room (Fig 11).

The idiom of stepped reveals served us further in edging existing window and door openings whose surrounds were unstable and uneven. In each case, the rough stone and brick surrounds could be brought to a relatively crisp edge – enough to fit carpentry or joinery to – through the use of a mix of new and reclaimed bricks, enabling us to patch into existing coursing.

CARPENTRY

Once we had rejected the precast concrete primary roof structure of the competition scheme, the carpentry was straightforwardly difficult. With 7m spans, sawn timber was never a possibility, so we focused on laminated timber. After considering oak and sweet chestnut, both beautiful but too expensive, pine remained as the default option, although its paleness and cool colour both appealed as a neutral



Fig 13 The castle from the south after completion

background to the rich reds of the stone and brick walls. A prefabricated cassette system would in fact have worked out cheaper, but the resulting flat soffits felt as if they would offer little tolerance to the uneven walls. Both the first floor and the roof have been executed with the primary structure in upstand, that is, with their underside level with the joists (Fig 12). This makes the ceiling tauter, less heavy in feel, and avoids the knock-ons of pushing the roof higher in relation to existing stone walls.

Under constant pressure of costs, we were unsentimental about the need to work with standard materials. Until they were installed, the roofs over the courts were always vulnerable to being cut: in fact the project was tendered with two alternatives, with and without the court roofs. They protect the inner faces of the walls from the weather, and therefore from further deterioration; they also brace freestanding walls that would otherwise be unsupported (or would require hidden reinforcement). Crucially, they make the retained 15th and 17th century wings feel like rooms, with balance and focus. There was considerable anxiety at the Landmark Trust about the daylight and sunlight that would penetrate into the courts, but a session at University College London's artificial sky gave us daylight measurements that were sufficient to give reassurance. This exercise also revealed to us that the sun would enter the core of the house through the ruinous outer shell with astonishing variety: the ruin becomes a kind of sundial.

JOINERY

The rhythm of the roof structure is a quietly insistent bass line against which both the melody of the masonry and the harmonies of the joinery are set. The windows respond to the predominantly Gothic proportions of the castle openings in which each masonry cell has windows representative of the period of their construction: single round-arched openings in the medieval core, three-light Gothic pointed arch windows in the 15th century wing, and four-light mullion and transom windows in the 17th century wing, as well as three-light windows cut into the first floor of the medieval core. We responded to the plurality of existing conditions, and their difference in emphasis, with distant, rather abstract echoes. The window to the first floor dining area is eight lights, that to the living area five. While they have a measured, proportionate quality, they are repetitive, open-ended – they defer to the masonry gashes, as if a smaller or larger gap could be filled in the same way.

In the west-facing wall and the curtain wall, we set the new windows as deep as we could, avoiding the abrupt encounter of crumbling masonry and crisp joinery, suppressing reflections and the inhabitation they betray. The large new windows in the south and spine walls step in plan, alternately close to the face of the brickwork and deep in the reveal (Figs 13, 14). This avoids the shock of a single large reflecting plane, breaking up the play of shadows. They also qualify the scale of the first floor hall,



Fig 14 The castle from the southwest, showing stepped windows

a vast 14 x 7 x 4m, creating intimate niches with diagonal views outside the main volume (Fig 15). By laminating the perpendicular pane, it works as part of the structure of the glazing, allowing the corner mullions to be reduced while absorbing the wind loading at the centre. These windows are an interesting illustration of the tightrope we trod: is it possible that they can be both weak (visually) and strong (physically), abstract (there are no clues of scale) and intimate (forming inviting niches)?

As with the stepping brick reveals, the long gestation of the project allowed us to draw lessons from the stepping glazed screens and apply them elsewhere. Although at competition stage we had suggested rendered masonry partitions, lined in wood on the inside, it quickly became a principle that all partitions within the original volumes should be carpentry, with a fine joinery lining. We dropped the idea of lining the rough masonry outer walls of the bedrooms, preferring to keep masonry and joinery in tension with each other: there would be no lining out, structure would be apparent (more or less). The partitions are therefore timber studwork, stepping both to gain stiffness and to accommodate existing openings, furniture and bathroom fittings. The studs



Fig 15 The first floor hall dining area, with the eight-light window



Fig 16 The stairs within the entrance hall

are faced with dense fibre panels for sound and fire resistance, and with fine birch plywood. The linings echo the windows, with panels 800mm wide, double the rhythm of the joists, and with joints covered by slender sycamore beads.

The stair is realised as an open studwork structure in oak, with open treads. Because it sits at the centre of the entrance hall, we have eroded its volume in order to ease movement into and around it. We kept removing structure until the engineers shouted ‘stop!’ – then removed a bit more. This means that, as well as the steel stringer that keeps the centre of the stair open, the middle flight is hybrid steel and timber construction, the studwork aided by steel hangers and braced by plywood panels. It would be too much to claim that the stair is a ruin, but its transparency and its impure figure, interlocking with other elements and spaces, make it part of a common family of material responses to the ruin (Fig 16).

Hanging stair aside, the crisply repetitive joinery is deliberately unsentimental and somewhat utilitarian. It may seem a role reversal from their conventional constructive characters, but following on from the nature of the crumbling masonry shell, we have treated the timber as hard, ordered and assembled, while we have treated the masonry as soft, chaotic and crafted. It is in this counter-intuitive line that the timber meets the masonry. Both the woodblock floors in the bedrooms and

the joinery screens are joined to the rolling profile of the walls by means of a terracotta tile border which forms a straight edge at a distance from the wall, accommodating movement in the floors and keeping the wood finishes away from the walls, still profoundly damp after 30 years in the open.

MAKING ROOMS

A consistent concern in our work at Astley has been to make rooms: simple enclosed spaces that are harmonious and focused, places where it is satisfying to remain. Our insistence on the tension between ruin and habitation, and on the tectonic consistency of the masonry and carpentry that express these, has made this work substantially harder. Equally, the wide range of states of decay of the stonework, and the wide variety of wood species utilised for the simple reason that they do a particular job well and economically, has found us using more varied materials than we would have chosen. Achieving balanced rooms has, then, come down to careful harmony of tones and hues: between stone, brick and tile; and between stained softwood, limed oak, bronze anodised aluminium and bronze-painted steel (Fig 17). This palette has been further echoed and expanded on in John Evetts’ furnishing for the Landmark Trust, using deep copper and green curtains and rust coloured fabrics.



Fig 17 A south facing bedroom looking out on St Mary’s church

THE EMOTIONAL CHARGE OF THE RUIN

Much of the appeal of this project for us has been in the rigour and suppleness forced on us by the primary importance of caring for the artefact, the remains of the castle. In other circumstances, conventional or expedient ideas of comfort, taste or constructional ease might have advocated demolition or tidying to establish an easier starting point. However, our concern for rigour in the 'full contact' work of maintaining and inhabiting the ruin is not completely detached from the emotional resonance of the finished house. From the beginning, our way of working has been discursive, moving between the deep structure of the building and the way the whole is experienced, and between the logic of interventions and the cultural ripples these might generate. We have mapped the remains with lavish care, written story books explaining the project to ourselves and others, sketched and modelled every room and opening several times, measured light, and made and judged numerous samples, mock-ups and tests. This partly explains 'how', but doesn't explain 'why'.



Fig 18 Dinner in the courtyard

Preserving the emotional charge of the rich, interrupted life of this house was our goal. While ruins can variously evoke the passing of hegemony, the restoring power of nature, the separation of the modern age from the reassurance of traditions, our individual mortality, they speak simply and directly through the house and its mundane routines. Carrying out research for the project, we noticed how many visitors to Landmark properties hired them for occasions, like 50th birthdays or an annual trip of a society, involving extended families or groups of friends; they hired them, you could say, to mark and measure a kind of collective time. This sense is clear in the entries in the visitors' book since the house opened (Fig 18). When houses have increasingly become the expression of an atomised society of nuclear families, this 'unhomely' house is a temporary throwback to a more collective form of living. There may be grander or more vertiginous ruins, but there can be none as immediate or personal as the ruin that is simultaneously a house.

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Figures 3, 11, 13, 14, 15, 16 and 17 are by Philip Vile, courtesy of Petersen Bricks.

Figure 18 is thanks to Oliver Wainwright. All other images are copyright Witherford Watson Mann.

William Mann RIBA is a director of Witherford Watson Mann Architects.

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Conformity or Revolution: Two Model Churches, St George Hanover Square and All Saints Margaret Street, London

COLIN KERR

The recent interior conservation and restoration of St George Hanover Square and All Saints Margaret Street provided the stimulus for this study of the background and influences which brought these two most significant churches into being. In adjoining parishes, one is a model church of the Queen Anne 1711 Act, the other of the Ecclesiologists. The architecture of both was radically new, derived from briefs which embraced visions of society as well as being manifestations of theological and liturgical understandings, the outward and visible signs of a 'high' understanding of the place of the church in society.

Carried out by the same practice, the projects present both buildings afresh. St George remains eclectic, combining original work from 1724, three 19th century re-orderings and work of the 1920s, 30s and 60s, although it may seem to the untutored eye all to be the work of one hand. Conversely, the touchstone for the interior of All Saints is 1895, the year in which Butterfield carried out his second restoration of his own building, and except for Comper's work of c1910 and later, it is presented now as in 1895.

London's great expansion in the 17th century took the population to 600,000 by 1700 and 750,000 by the end of the first quarter of the 18th. By the mid 19th century the population of 'Greater London' had risen to three million souls. The figure for 1725 correlates with the building of St George Hanover Square, built as a result of the 1711 Queen Anne Churches Act. Three million corresponds with the building of All Saints Margaret Street, opened in 1859. Both were conceived as 'model churches', responding to ecclesiastical and theological insights, social concerns and the political ideals of their respective times. One, St George, is the product of an act of parliament, whereas the other is the product of a movement within the Church of England, the Catholic Revival. The Hanover Square church could be said to show the state in action, whereas All Saints Margaret Street marks the coming of age of what started as enthusiastic societies in the universities of Oxford and Cambridge, movements which were often treated with suspicion by the state. So, given their very different genesis, is one church about conformity and the other about rebellion?

King James II is now little regarded, having failed to restore Roman Catholicism to England as a 'state' religion and lost his throne. The so-called Glorious

Revolution was a coup d'état which placed the joint monarchs William and Mary on the throne. He was a Dutch duke and she, as James II's first daughter, had in effect been to war with her father. The dual monarchy was unique, with Mary legitimising the regime and perhaps dispelling some of the fears in the hearts of royalists with their high view of kingship. As it turned out, William and Mary were relatively liberal monarchs and parliament was secure in its authority, but they left no issue and the throne passed to Anne, James's younger daughter.

Anne gets little attention in general history, as if the Stuart dynasty ended with James II, but it was in her reign and with her encouragement that the Church of England gained architectural models which ever since have been major influences on the shape of the Church of England and beyond within Anglicanism. In 1711 the state's conundrum was how to first achieve and then secure conformity, there having been religious and political turmoil for the preceding century and more. That need was compounded by the rapid population growth of towns and especially by the rapid expansion of London, where there were fears that social order could be undermined. Anne was childless and the last of the line, unless one looked to James II's Roman Catholic son, Prince of Wales,

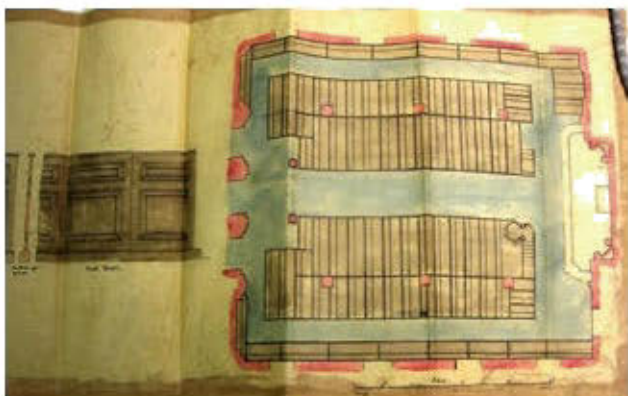


Fig 1 St George Hanover Square, the plan in the late 18th century

popularly referred to as the Pretender.

But for Queen Anne and the state there was a basic problem of definition. Just what was the Church of England? It is not the Church *in* England, or in Scotland, Ireland or Wales for that matter. Roman Catholicism by contrast existed without reference to jurisdiction. How could the Church of England demonstrate legitimacy? By 1711, the Church of England had endured 150 years of turmoil and identity crises. Dominant theological perspectives within the church at different times had supported either monarch or parliament and popular sentiment seems to have swung widely through that time. The Church of England could quite easily have been set on the path of Calvinism (Presbyterian) rather than maintaining Episcopal order. That possibility was in effect only despatched in 1662 by Charles II's reinstatement of the *The Book of Common Prayer*. The Church of Scotland by contrast rejected *The Book of Common Prayer*, remained Presbyterian, and so it is that the Queen heads denominations with different theological outlooks, depending upon which side of the border she happens to be.

The 1662 *Book of Common Prayer* remains in place 350 years later as a foundation document of the Church of England and at this distance we can assess if it did achieve the objectives of both church and king. It confirmed a vernacular liturgy, first established in 1549, that is the use of English for all services rather than Latin, and it also set out an order of society under a monarch. "No bishop, no King", was a slogan of restoration royalists who were concerned at how legitimacy could be bestowed on a monarch. The coronation ceremony was seen as key, although it should be noted that that exalted ceremony is not included in *The Book of Common*

Prayer. The prayer book did however clearly express the idea of an established church under a monarch who was head of the church. There is in fact precious little else to express what establishment actually is; there is no such thing as an act which establishes the Church of England, yet the Church of England rests seemingly secure in its 'establishment'. The long-term success of Charles II's strategy could not have been guaranteed, but it certainly did succeed since it substantially persists into the present.

ST GEORGE HANOVER SQUARE AND THE 1711 ACT CHURCHES

Although the formularies of the church were now set down in *The Book of Common Prayer* of 1662, in 1700 the church throughout the country was by and large still served by the buildings of the middle ages, which were built and equipped to serve a society, culture and religion which had since changed radically. They remained at the centre of life, the place where the parish met and worshipped, the naves being kept up by the parish, but had been subject to several phases of iconoclastic destruction, restitution and internal re-arrangement reflecting the phases of political and theological conflict.

By the early 18th century, with the expansion of religious freedom, there was considerable growth in non-conformity in larger centres of population and non-conformist chapels were springing up. Such religious freedom was a threat to the position of the Church of England and due Episcopal order. Conformity, always a significant concern for the state as for the church, was in danger and it was the Church Commissioners Act of 1711, the instrument of the new Tory administration with a sympathetic queen, that sought to reinforce conformity and to form an architectural model which would set forward the theology and values of the Church of England as the national church. This was a completely new idea. The commission which the act brought into being was a sophisticated client body which both devised the architectural brief and approved the details of the church designs which were presented to it. A most diligent body, it saw clearly the relationship between order, society, theology, liturgy and architecture. The architectural model which the commission brought about distilled erudite learning so that it coalesced into a new physical manifestation of the English church.

The commissioners included along with the

politicians the finest intellects in church, science and architecture: Archbishop Sancroft, Sir Isaac Newton and Sir Christopher Wren were among them. Given the complete rift with the Church of Rome, which had been the single repository of Christian faith in the west until the 16th century, the Church of England needed to demonstrate its legitimacy as a reformed and Catholic church and to proclaim from where it derived its authority. The commissioners addressed these matters, as had the authors of *The Book of Common Prayer*, by appealing to the model of the early church, the early fathers, the creeds and the councils up to that of Nicea in 325 AD. These authorities were deemed all to contain true doctrine before 'error' had crept in.

Wren, whose uncle was bishop of Ely, set out his ideas quite clearly and of course he had wide experience of rechurcing London after the fire, rebuilding on the sites of medieval churches. The commission intended 50 new churches for London to a new brief, surely with wider application in mind. In the end only 12 completely new churches were built, six by Hawksmoor, two by Archer, one by Gibbs, one by John James, which is St George Hanover Square, and two which were Hawksmoor/James collaborations, but other churches were repaired and improved. The commissioners' churches were required

to be 'auditory' churches, that is everyone should be able to hear what was being read, prayed or preached. It was not acceptable to merely hear 'the murmur of the Mass'. That set maximum dimensions, which Wren suggested as being 50 feet in front of the pulpit, 20 feet behind and 30 feet to the side.

Furthermore, the commissioners' churches were to be raised on undercrofts, which were not to be used for burials/internments, for which burial grounds were to be provided at the periphery of the city. The churches were to be clean and sanitary and the undercrofts were to be considered for use, potentially as spaces for education of children. In practice, education use seems not to have been possible, but the social foresight and concern expressed is an interesting pointer to the future when the church did become the main provider of education well into the 20th century - the first time the state became directly involved dates from the Education Act of 1870 and not until 1876 was a duty placed on parents by the state to ensure the elementary education of their children.

Within a commissioners' church a simple plan was required, oriented east - west, with the altar in the east raised within a sanctuary. Great emphasis was placed on the eastward orientation. All pews were to be 'low' (in practice about a metre high), all pews should face the altar, a font big enough to dip a child in should be placed near the door, there should be no difference made in the pews and the poor were also to be welcome and provision made for them. There were to be galleries, drawing on the early church practice of galleries for women, and this allowed designers to maximise occupancy, all within reasonable hearing of the priest or minister. The pulpit was to be set to the side and not on the axis, so as not to exalt preaching over sacramental worship and there was to be a separate reading desk and minister's stall. The central passage aisle provided for processions. There was to be a robing room and a meeting room for the vestry, which was the basis of local government. These requirements, seemingly prosaic and practical, enshrined a 'high' understanding of church and sacraments and set forward the idea of Christian society. These churches were emphatically not preaching boxes but models for dignified liturgy, sacramental worship and for preaching. They were not for one class in society, at a time when class difference was becoming more marked, but for all. (Figs 1, 2)

Externally, the buildings were required to be



Fig 2 St George, the interior in the mid 19th century



Fig 3 St George, an ornament to the city

faced in stone, built 'insular' (that is not up against any other building), have handsome porticoes as ornaments in the city and each to have a spire. The model in general presupposed a classical mode of design and construction (early Christian churches were not gothic) but the English fondness for the vertical in architecture, exemplified by the medieval steeples of great churches, was not to be denied, and so steeples for bells were required even though they were costly to build.

In the commissioners' brief there is a clear concern with townscape and the presentation of the buildings to the inhabitants of London as impressive, enduring, secure temples. The commission's careful choice of architects ensured that all that would be achieved but perhaps it is ironic that an act of parliament setting out to advance conformity gave the opportunity to a group of architects to create a radical church architecture exemplified in the 12 churches. Nonetheless, the churches did become models to a greater or lesser degree for many others throughout 18th century England and beyond. There was no overt symbolism in the buildings themselves and direct Christian decoration was restrained. For example, not one of the commission's churches displayed a cross on either its outside or inside. The church buildings were

the result of 'high' doctrine laid out for 'apostolical' worship, without the overt symbolism which would have been seen as Romanist. (Fig 3)

ALL SAINTS MARGARET STREET AND THE CATHOLIC REVIVAL

By the middle of the 19th century London was a teeming metropolis and other British cities had undergone staggering growth in a few decades, especially Manchester, Liverpool and Birmingham. In 1832 the Great Reform Act was passed, extending the vote to about one sixth of all adult males. Then in 1833 the great churchman John Keble preached a sermon on National Apostasy, which accused the government and parliament of being hostile to the church. The significance of Keble's position is clear when one takes into view the entire output of the Tractarians who came to be known as the Oxford Movement. Keble, Newman, Pusey were central figures of the movement and their theological and religious enquiries persuaded many that the Church of England had to recover the true apostolical and Catholic position of the church. Their concerns and arguments were theological, and about church order, not architecture, but in the other university, Cambridge, church architecture was the focus. While Pugin published in favour of 'medieval' design, the Cambridge Camden Society was founded in 1839. The society, which became the Ecclesiologists, concerned itself with the correct building, furnishing and ritual of a Christian church. The concerns and interests of both Tractarians and Ecclesiologists became uniquely represented in the church of All Saints Margaret Street.

Pugin was neither a university man nor an Ecclesiologist and because he converted young to Roman Catholicism he undertook almost all his work for Roman Catholic dioceses in England and Ireland, but his books and writings, especially *Contrasts* (1836), made him famous, even notorious and stirred interest and controversy very widely in church circles, especially among Anglicans. According to Pugin, the good society could be seen in the architecture it produced and to him 14th and 15th century gothic architecture exhibited that society to perfection, whereas the classical output of the 18th was not only dull and false of itself, but evidence of a debased society. He seems to have missed the point that he was living in a time of urbanised teeming masses and sincerely thought that

all could be redeemed through a remade architecture in the service of God and the church and that England could again be Roman Catholic. He was a problem for the Church of England. His prominence was such that he was influential and yet he stoked fear of Romanism and Popery.

The Ecclesiologist, meanwhile argued for 'correct' style, meaning 'second middle pointed' architecture and the Ecclesiological Society became influential beyond imagining. At the height of its influence it was judge and jury in the realm of church architecture and fittings. The society studied medieval churches and wished to see perfection in new churches: second middle pointed style (Gothic categorisation having been conveniently standardised by Rickman in 1817) was deemed the zenith of English church design. It also wanted ornaments and fittings. In fact it wanted a restored Catholic use of liturgy within a correct architecture in the Church of England. It saw the state of the church in the early 19th century as decayed and was as one with Pugin on that. William Butterfield joined the society shortly after setting up his practice and he provided drawings for the Ecclesiologists' publication *Instrumenta Ecclesiastica*, initially for church ironwork but then for buildings including a school room and a cemetery chapel. It was practically his only paid work for a while. His big chance as a church architect came with All Saints when he obtained the commission at the age of 35 from the MP and Tractarian, Beresford Hope. Butterfield continued as architect to All Saints from 1848 until 1895 and died in 1900.

All Saints stands on the site of the Margaret Street Chapel, which was established as a proprietary chapel in the 1760s. It became a centre for Tractarian worship from 1839. The chapel flourished and drew some leading figures; a church was proposed in 1848 to be the model church of the Ecclesiologists. The finance was raised privately. The enterprise most certainly did not conform to the pervading use of the Church of England at the time, which had settled for the most part, by the end of the 18th century, to a generally more Protestant position than that of the nuanced theology of 1711.

The All Saints project was intended to show how the church should really be, embodying the Tractarians' theology and Ecclesiologists' principles, modelled on English medieval architectural precedents, proclaiming the faith in iconography and through design focussed



Fig 4 All Saints Margaret Street, the City of God

on and fitted for sacramental worship. Instead of monthly or even quarterly Communion services there was to be a daily celebration of the Holy Communion. The building itself was to be a sign and symbol as was imagined that the medieval church had been and if the 1711 churches avoided overt symbolism, even to the extent of not using the cross, All Saints was to employ every means to incorporate symbols and aids to contemplation within a design focussed entirely on a prayer book Catholic understanding of worship.

Butterfield achieved what the Ecclesiologists had dreamed of. When opened in 1859, All Saints was much approved of. On a very difficult tight small urban site approximately 100 foot square with only one open side, his masterly plan accommodated church, clergy house, choir school, ancillary rooms and an entrance courtyard. Externally the buildings were grouped like a citadel with a sublime tower and spire rising 227 feet proclaiming the building from afar. Set in an area of some poverty, the church reached out to the poor, through the work of the Society of All Saints Sisters of the Poor. The nuns looked after orphans, ran a school and provided basic health care (they only left central London about a decade ago). The Catholic emphasis on the Incarnation, the doctrine of God made Man, that all are equal in the sight of God,

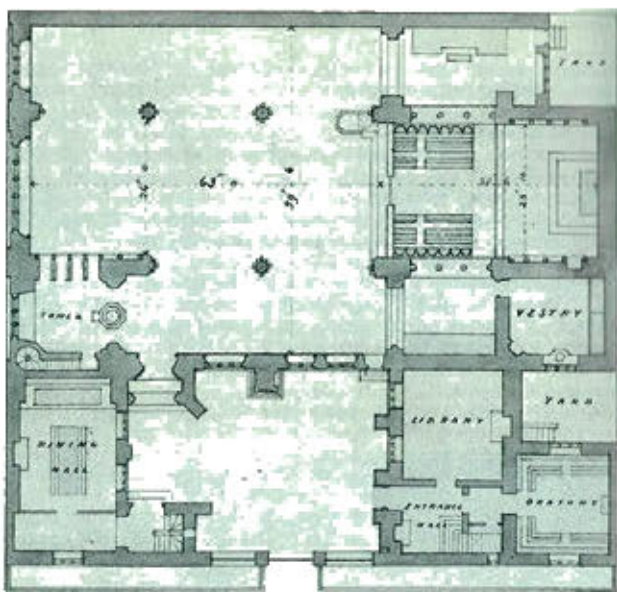


Fig 5 All Saints, plan of the group

and the duty to the poor led directly to this practical expression. (Figs 4, 5)

Internally, All Saints was aglow with colour and alive with designs. Ruskin said it was the first 'honest building of the age'. It was kept open all week and that was seen as a purpose of the building, simply to be open for people at all times. By contrast St George was for church services at particular times but All Saints was to be there at the heart of a new community.

Butterfield, in making the building, was guided by personal architectural insights to achieve his result and ignored, in this model church, the Ecclesiological Society's dictums on many points. Not that he was left to his own devices: on the contrary the principal client, Beresford Hope, was much involved. Nonetheless, the building is certainly not 'middle pointed'; it is built of brick and not stone as was preferred; it was for the most part not English in precedent and was in fact novel and a truly contemporary building, as was recognised by Ruskin. Here was a model church, built for a cause, the Catholic cause, in the Church of England, which challenged both mid-19th century mainstream church and society, with a high doctrine of God and Man rather than God and King. In 1725 the Royal Arms had been put up in St George but no Royal Arms went up in All Saints: the iconography was to entirely serve the Christian religion.

The architectural expression of Church of England churches between 1724 and 1859 had changed not because of architects' concerns with style but

through renewed theological enquiry and changes in society. Without the radical shifts in church and society the architecture of All Saints would not have been possible. In carrying out his task, Butterfield may not have followed too closely the precise brief of the Ecclesiologists but he understood their aims most profoundly and did provide the answer which they were seeking: architecture to provide for the best worship that could be offered – focussed on daily sacramental worship. In doing so he created a building which from its inception was and is a vital place in the Church of England, foremost in re-establishing Catholic practice and expressing social concern. The building never has had pews and therefore no pew rents – only simple chairs for all; the design made its point about all being placed equally before God. Society of course remained unequal but a greater noble truth about the true nature of Man was expressed.

This model church was hugely influential, but less in setting an architectural pattern to be followed than in providing an ideal for what worship should be. There were no direct imitations. The church quickly became a place of inspiration for many, an exemplar for clergy and inspiration for laity. The model of worship was carried around the Anglican world and it remains a lodestone for many. It can claim to be the most influential church of the 19th century in the Church of England and throughout the Anglican Communion. It became and remains something of a place of pilgrimage. Simply as architecture it is a staggering achievement, one of the most intellectually concentrated of buildings to be the work of one architect.

CONFORMITY OR REVOLUTION

The architectural expressions of these two buildings are very different, but both have as their starting point *The Book of Common Prayer* 1662, All Saints being the Tractarians' interpretation of the prayer book. Both churches conformed to what can be considered the founding deeds of the Church of England. In 1725 St George Hanover Square and the other commissioners' churches were setting the standard of crown and parliament and made the sacraments of the altar and the font absolutely focal. In 1859, All Saints came after a period when the doctrinal clarity of the 1711 commissioners had become obscured and the Church of England had generally become a

conventional State-Protestant church. With the work of the Tractarians, the Church of England's counter-reformation began, taking it back to 1711 and further into the forgotten riches of its earlier heritage. Not that this counter-reformation from below was without self-consciousness and awareness of its challenge to the status quo. This can be summed up neatly by quoting from the appeal for funds for the 1885 restoration of All Saints:

"To all who have profited by that great movement of which this was the conspicuous centre in London, whereby the worship in the whole Church of England has been raised, and her Catholic inheritance has come to be more fully appreciated throughout the land; and to those lovers of Christian art..."

The two churches built 135 years apart stand only a short walk away from each other in Central London. Their making brought together exceptionally energetic and creative minds from the worlds of politics, church and architecture, and resulted in distinctive new architectures which nonetheless appealed to history for architectural and ecclesial validity. Bound up in their making was the idea of the good society. Both churches are the results of profound theological reflection and intellectual endeavour from their initial conception to their completion as built form. Both were radically new in their time.

The model of 1711 was the work of the state and was organised from the top of society, but All Saints, although within the Church of England, emerged from a movement from below which challenged church, state and society, a challenge which came in radically different times to those pervading in 1711. Saint George was built before the birth of what can be considered the modern democratic age, but All Saints is the product of the complex urban society which was establishing modern democratic practices. The church too was redefining its role in society; church and society were intertwining in new ways.

The active working out of the Catholic revival in the Church of England took surprisingly radical turns and revivalist architecture cannot be understood as a comfort blanket for challenging times. Within the church it was frequently the setting in which new social thinking about relationships within society was taking place and practical support was worked out in areas such as health, welfare and education. During the building

of All Saints in 1854, the Christian Socialist theologian FD Maurice (1805-1872) founded the Working Men's College in Red Lion Square and in 1857 the All Saints Sisters of the Poor was founded. In 1859, the year of All Saints' opening, William Butterfield was nominated by the workmen to act as an arbitrator in the Great London Building Strike.

CONSERVING OR RESTORING THE INTERIORS

There are similarities in the making of the two buildings, both had one architect who designed the work as a whole, including their fitting out, both worked to a brief, albeit that the commissioner's brief was perhaps more prescriptive and both buildings were the result of one major building campaign. We were able to draw upon some previous research on St George and a published church history to understand the main changes within the building. This was supplemented by research to find old images and plans of the building which was carried out on the church's behalf by the Architectural History Practice. Paint research was carried out for both, including sectional analysis of the schemes that had been previously undertaken. Our conservation plan for All Saints identified the development of the interior by Butterfield and also the works carried out subsequently, most significantly by JN Comper and Laurence King.

The architectural history of both buildings can be readily summarised:

St George Hanover Square

- Completed 1724
- East window glass inserted 1845
- Reordered by Benjamin Ferrey in 1871. Reduced height of box pews and reading desk, new decorative scheme, gilding introduced
- Major reordering by Sir Arthur Blomfield in 1894 Tractarian chancel created, organ enlarged, revisions to decorative scheme
- Reordering by Reginald Blomfield in 1926 and 1930 (the sanctuary) steps, northeast chapel, east end screens and new baptistry at the northwest corner
- Various other minor reorderings and adjustments to decorative scheme including names on the panelling through to 1960s
- Redecoration early 1970s. Gilding extended to nave ceiling plaster enrichments

Apart from several reorderings, the building is remarkably unchanged, retaining most of its primary fabric. Where changes have been made, for example to the pews, the original panelling has been recut and used to form the backs of the pews still in use.

All Saints Margaret Street

- Opened 1859
- First tile painting wall decoration 1873
- Butterfield's first restoration 1882
- Butterfield's second restoration 1895
- Completion of tile painting wall decoration 1895
- Comper's redecorations and embellishments of chancel and creation of Lady Chapel 1910 and 1930
- Laurence King's decorative scheme and south aisle screen early 1970s

There was a clear distinction between the work of Butterfield, Comper and King.

There is a distinct contrast between the types of interventions in the two buildings. Those at Hanover Square are essentially practical and liturgical with decorative embellishment following on from them; all the work that was undertaken at each stage was of good quality, for example, the creation of the ritual choir, the chapel and the baptistry.

At All Saints the overall layout and furnishing of the building has remained in place but the interior had been architecturally reinterpreted by superimposed decorative schemes. Having had a positive review in the first instance, it was by the early 20th century between fashions, misunderstood and sometimes subject to unsympathetic criticism including from Sir John Summerson.

Given these contrasting attitudes, reverence for the Georgian having been established by the 1930s, but the opposite for Victorian, it is easy to see how the interior of All Saints, because of its appearance, could have been thought suitable for radical revision. Comper, it is said, wished to whitewash the entire church apart from the chancel. Even in the early 1970s Butterfield's nave and aisle roof decorative schemes were replaced by Laurence King with work that made neither architectural nor decorative sense: the main load-bearing nave roof trusses were painted cream with subsidiary rafters which bear onto the trusses left dark brown. The purpose of Butterfield's decorative scheme

was not perceived and understood.

Our approach to the conservation of Saint George was significantly influenced by recognition of how thoughtful previous reorderings of the church had been, leaving intact practically all the primary fabric of the building. The interior had been reinterpreted so that it suited choral services with the choir situated at the east end rather than singers in the west gallery, which is also a layout suited for concerts and recitals. Apart from the 1845 reglazing of the east windows, it is the floor of the building and not much else that was gradually rearranged, and refinished in oak wood block, by Bloomfield – father and son. Taking all the interventions together, including the most recent gilding of the early 1970s, almost all contributed to making a convincing interior which, although eclectic, was coherent. On the part of the client body, there was no need to depart radically from the existing general scheme: it was and is a much loved interior.

Having studied all the documentation available for St George and assessed the structure as a whole in as comprehensive a way as is possible by site inspections, the good judgement of previous generations gradually became more apparent. We had no predisposition to make the building into a replica of what it once had been. If that was to be the starting point, the ideal period, what would be done with the late medieval Flemish gothic glass which was adapted and fitted in the east windows in 1845, or the enlarged organ case (centre section Fr Smith 1740s extended massively to the sides by Blomfield), the Tractarian chancel arrangement and the beautiful classical screens of the 1920s? Would one remove the gilded names of wardens and rectors adorning the balcony fronts, which went up in the 1960s? The more I looked the more it became clear that each generation with its designer had enriched the space in a manner which was faithful to the use and spirit of the place, so that the liturgical purpose of the building could be realised convincingly in a contemporary manner. Use, plan, arrangement and decoration were essentially coherent.

Having established this approach, all that was needed was minimum intervention and a hierarchy of works was made: repairs, services (electrics, lighting etc), redecoration. The budget was limited and the works had to be carried out between St George's Day (23 April) and Advent (late November), just over six months. Renewing all the electrical services was a major part of the project, especially relighting.



Fig 6 St George Hanover Square, the interior after conservation

The lighting scheme was devised with Simon Mills to eliminate holes in the principal ceilings, thereby dealing with fire risk and allow the late 18th century chandeliers to take their place. There are no light fittings in illogical locations such as above entablatures. Repairs to the fine plaster ceilings were carried out so that none of the original was lost. The only gilding to be removed was from the fillets of the pairs of fluted oak columns which flank the altar reredos with its contemporary painting by William Kent. The capitals and bases of the reredos were gilded from the outset, as was the picture frame; the fillets were only gilded in 1972. This gilding was removed, not because of its date but because it weakened the architectural expression of the east end and had been a misjudgement. Fortunately the DAC and the consultees agreed. Otherwise gilding was cleaned and painted up to. The colours used for redecoration were based closely on the early colours but balanced slightly towards the tones to which the wood has settled. (Figs 6, 7, 8)



Fig 7 St George, the gallery seating



Fig 8 St George, re-gilding detail

At All Saints the approach was quite different. The conservation plan identified as much of the building history as could be found from documentation; there are no original papers from Butterfield's archive which has been lost without extant copies. The complex interior uses a vast range of materials to make a unique space, but one which had also been much misunderstood, understandably so because of repeated comments in standard texts, with talk of dim religious light and anthropomorphic references to Butterfield's assumed angularity of character equated to 'ugliness' of the building. Over some years the church archivist, the late Christopher Rawl, supplied me with many cuttings and references to contributions in the parish paper (a continuous record) about the building. Here one found clues of how the building was first perceived, all favourable, including descriptions of Butterfield's electrical lighting installation of 1895.

A few years ago the thick covering of dirt on all surfaces did indeed render the interior gloomy. A trial clean of one tiled panel on the north wall revealed stunningly bright colour. Because there were

no documents for the building, we had to proceed by studying it most carefully. I often dropped by and sat for a while. By getting to know the building in detail, questions arose in one's mind about the surfaces; what one assumed was tile often was paint, but when did the paint go on? What might have been paint was often inlaid mastic; what one might have assumed to have been left as stone by Butterfield was painted by 1895. It became clear that the story was not straightforward; if it was not 'religious gloom', the assumption that up to 1895 the story was 'honest' structural polychromy simply did not stand up either. (Fig 9, 10)

How then to devise the overall conservation strategy? The dirt was an obvious problem but what to do beyond cleaning? The touchstone which was proposed and agreed upon was to respect all Butterfield's work up to 1895 so that the expression of 1895, his last word so to speak, would be what we should strive to find. That was very important because a surprising amount of the interior had since been over-painted or repainted so that Butterfield's schemes

were significantly reduced in impact and architectural conviction lost. This was in three ways in particular, the use of paint where there should be no paint, for example over-painting of stone, over-paint of a different colour or tone or design and over-painting of decorative detail in expanses of one colour so that the rhythm of the design was destroyed.

In the chancel, Comper had overlaid his scheme on Butterfield's, but his work was considered a significant scheme in its own right, so the approach was to respect Comper's work. Other interventions post-Comper, including the extensive decoration by Laurence King, were considered to be of negative value, so the task was to reinstate Butterfield's scheme of 1895 where King had overpainted.

Phase I of our work was the nave restoration including repair, cleaning of all surfaces and releading of the clerestory grisaille windows.

Phase II was the aisles restoration and repair, cleaning and releading of the great west window, incorporating painted plated glass to recover loss detail (to eliminate the Mr Blobby effect!).

Phase III was the restoration, repair and cleaning of the chancel and sanctuary. This included the redesign of the missing grisaille glass which Butterfield based

on the grisaille at Salisbury Cathedral.

The work as a whole has regained the building's long lost integrity and has literally brought light into it so that the surfaces now reflect glowing colour. The form of the building is clearer and the rhythms of the surfaces have been regained as decorative detail has been reinstated. All the ugly tungsten halogen car-park type fittings, once necessary to enable people to see in a dark interior, have been removed because they are not needed in a building which takes light gratefully from both daylight and artificial fittings. Poorly fired glass which had faded very badly was plated with new and the design painted on the new glass.

Rediscovering the design and colours of roofs and surfaces was a fascinating if worrying experience. Being so high, the roof could not be reached until the scaffold went up and only then could detailed investigation commence and decisions had to follow on quickly from the investigation - each phase of this complex work could only run from late April to November. Butterfield's colours were bold; he did not hesitate to use the recently invented chrome orange in his later decorative schemes. There were generally three overlaid painted decorative layers which could be attributed to Butterfield, although they themselves



Fig 9 All Saints Margaret Street, before restoration c2000

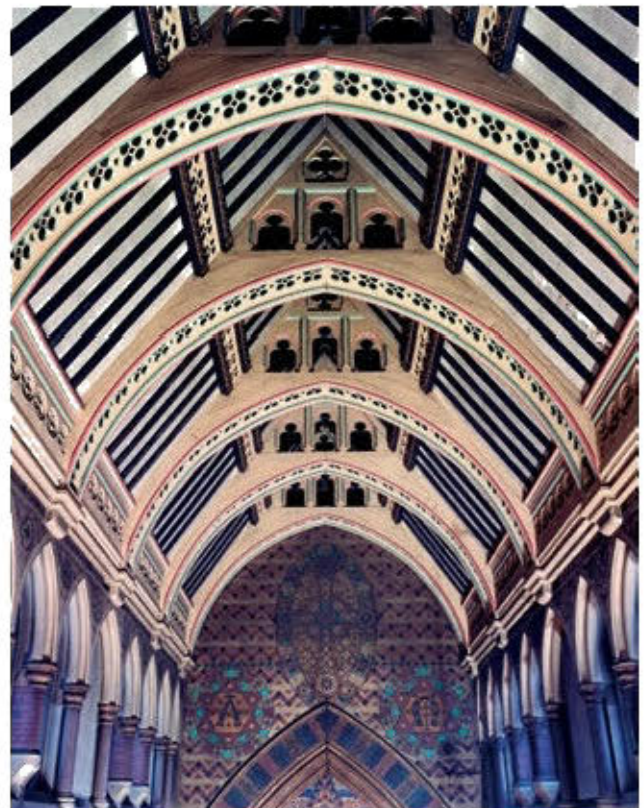


Fig 10 All Saints, the nave roof before restoration



Fig 11 All Saints, the nave roof and chancel arch restored



Fig 12 All Saints, restored aisle roof

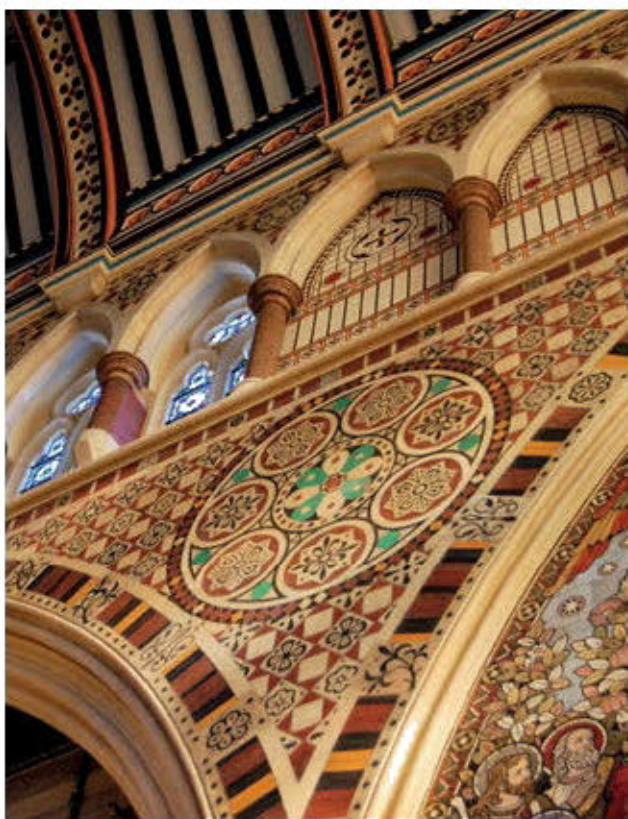


Fig 13 All Saints, restored arcade spandrel



Fig 14 All Saints, restored clerestory window

had been over-painted at least a couple of times. In the nave and aisles we developed with conservators a method of removing the post-Butterfield paint to allow his layer to show; there is much of this in the spandrels of the nave arcades. (Figs 11, 12, 13, 14)

Comper's work at the east end is of exceptional refinement, but suggests perhaps that he was fighting against Butterfield's creation. The background of the chancel vault (limestone webs and alabaster ribs) was 'white' in Butterfield's schemes and the background to the saints in their canopied niches on the east wall was also a pale colour. Comper changed the light colour to a blue-black, thereby changing day to night and he put gilded stars on the vaults. Butterfield's vaults had used the same inlay patterns and colour as elsewhere, thereby uniting the entire building in colour range, materials and scale; Comper's overlay separated nave and chancel in a way that Butterfield did not design. From the bird-cage scaffold at the chancel vaults we could trace the evidence of Butterfield's schemes and the conservators (Taylor Pearce) were able to determine the materials and colours behind Comper's thick paintwork. We now know what the original scheme looked like. There is a twinge of regret that Comper reinterpreted Butterfield's scheme; perhaps he did diminish a great work? Comper's work is

decorative and splendid but Butterfield's is robust and completely at one.

Before Comper's intervention, the critic Coventry Patmore considered the building and wrote on the art of architecture. James Mordant Crook in *The Architects Secret: Victorian Critics and the Image of Gravity* (2004) examined the perceptive critical writing of Coventry Patmore on All Saints. Patmore makes the case that the principle which lies behind great architecture is the expression of gravitational thrust. Crook's book, which deals with All Saints, provided an essential clue to understanding its architecture and was a way into thinking through how to approach the restoration of the interior in the absence of documentation on the building. Butterfield's decoration was devised to maintain a balance between horizontal and vertical to express the space and control scale, rhythm and forms so that all the parts relate dynamically to each other. The restoration has sought to regain the integrity of Butterfield's work.

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