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(NB: page numbers are those of the original publication)

The challenge of tighter budgets

Conservation conference at Northern Goldsmith's Corner, Grainger Town, Newcastle upon Tyne; left to right, city conservation officer David Lovie; Grainger Town development officer Peter Howe; Two Castles Housing Association director Sheila Phillips and English Heritage inspector John Edwards.

Imaginative solutions will be needed to fund projects in 1996. Jane Sharman, Director, Conservation Group, predicts a challenging year ahead

Planning next year's spend is an activity we must all undertake at this time of the year. We should think of this not as an annual chore, but as a challenge to refresh our thoughts and sharpen up our priorities to make most effective use of the available funds for the coming year. All the signals, however, for local authorities and for English Heritage, are that budgets will be tight, and that the settlements handed down from Government will leave little room for manoeuvre or for fresh initiatives.

All the more reason, therefore, for us to be as imaginative and effective as possible in securing the maximum impact for the community and the environment. Conservation and care of our built heritage enhance the quality of areas as places in which to live and work: their scale and sense of time and place helps residents and visitors to feel comfortable with their surroundings. They are also a critical element in economic regeneration and in social stability. It is important that this message is well understood at local levels, where some of the most difficult budgetary decisions are taken.

Conservation area partnerships are now at the very heart of our work with local authorities, not only to secure visible physical improvement in areas that have begun to deteriorate, but also to help those authorities to deliver a broader conservation service to the community, securely integrated with the many other services which influence the quality of

local life. This year has seen the launch of 111 partnership schemes. These follow the initial 16 pilot schemes which were introduced to test the new system.

Newly-restored early 19th-century wrought iron railings and gates in the Harrogate conservation area

The response to the invitation to bid for this year's round has been equally impressive, in terms of both numbers and the quality of bids. Of 163 bids, 83 were for areas where we have not previously provided funding, demonstrating that we are succeeding in an important aim of the new scheme: that of reaching new authorities and areas.

Though we have found ourselves unable to accommodate all the schemes which deserve our support, we still expect to be offering in excess of a further £3 million, bringing the total allocation next year to £11 million. This is significantly more than the funds previously allocated to the town schemes, which are now being superseded by the conservation area partnerships, and reflects the shift in funding away from individual buildings to area work.

Although it is too early to assess the overall effectiveness of the new scheme, some important messages are already emerging. These may have particular relevance at a time when authorities are looking at the provision of services after reorganisation, and making difficult decisions on the resources which should be made available for conservation.

First, our schemes are providing a vehicle for attracting other funding, often creating a package, or the prospect of future funding, very much wider than the conservation area partnership itself. This is particularly so in areas where funding is available for urban regeneration, but more rural areas can also tap into other Government schemes.

The ability to put together a scheme which will attract funding depends critically on the quality of resources available to frame the bid, and to secure its effective implementation. The advent of the National Lottery, which may be able to contribute to a range of projects for enhancing the local environment, has further raised the importance of a professional and realistic approach to constructing bids. Our own grants provide for some limited funding for project managers in the largest schemes, but without a long-term local commitment to supporting those posts, a partnership is not credible.

Local communications are very important. The more successful schemes have devoted substantial time and effort to involving local people and businesses in consultation about the proposals. This builds enthusiasm and considerable political support at local levels, and forms a vital ingredient for success in raising awareness of the issues and continuing commitment to the programme. This is especially important in terms of steady progress once the fillip of a special funding partnership may have disappeared.

English Heritage's schemes are not intended to provide permanent underpinning for local services – it would not in any case be equitable to fund some conservation areas permanently at the expense of the rest. Rather they are intended to tackle demonstrable problems in a closely defined area, against clear targets for necessary and immediate remedial action. Once these problems have been attended to, it then becomes possible to allow the less urgent work to take place, if necessary, on a more relaxed and cyclical timescale, without the support of our grants.

The skills required to compete successfully for a conservation area partnership are, of course, very much a subset of the overall resources required by authorities to provide a conservation service commensurate with the needs of the area.

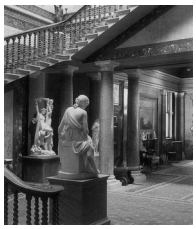
The guidance note to local authorities on conservation of the historic environment following local government reorganisation, previewed in the last edition of the *Conservation Bulletin*, has now been issued. While aimed specifically at new authorities, it provides valuable general guidance on how to assess the conservation requirements of an area, and the

right size and structure of the service required. The note invites new authorities to submit a management statement to the Department of National Heritage of their proposed arrangements for securing conservation advice within a year of their creation. It is, however, already evident that some existing authorities – particularly the counties – whose boundaries and budgets will be affected by reorganisation, will also need to address very seriously the question of the services they can continue to provide. If the conservation gains of recent years are not to be wasted it is essential that there is no reduction in the present level of provision, but it is even more important to appreciate that the expanding opportunities for the future will also be put at risk if conservation is treated as an optional extra.

Jane Sharman

Director, Conservation Group

Remembrance of things past



The inner hall, above, and the drawing room, below, at Brodsworth. Each generation left its mark: the inventory took two years and lists 17,000 objects, from oil paintings to household linen

An extraordinary example of a Victorian mansion, Brodsworth Hall in South Yorkshire, called for an innovative approach, based on conservation, rather than restoration

After an extensive programme of work, Brodsworth Hall opened its doors to visitors for the first time on 6 July 1995 amid much publicity. The house and gardens had been given to English Heritage in 1990, when the National Heritage Memorial Fund purchased the contents for £3.36 million. English Heritage agreed to spend an equivalent sum on repairs and other work in order to be able to open the property to the public. After the first three months of opening, the fruits of this labour and the initial public reaction to it can be assessed.

Brodsworth had suffered from a long period of lack of maintenance, exacerbated by subsidence and stone decay, which brought many attendant problems. English Heritage has taken a fairly robust approach to the exterior and gardens, about which others are more qualified to write. However, treatment of the interiors and the contents has been more gentle, an approach which has aroused great interest. Since this has been the core of my work in recent years as the HP regional curator for art, it is naturally the focus of this article.

Evolution of a philosophy

Our philosophy for the conservation and display of the interiors and contents evolved gradually in the early stages of the project as our understanding of them and the building grew. The house had been taken initially on its merit as, in Mark Girouard's phrase, 'the most complete surviving example of a Victorian country house'. We worked initially on the

basis of recording and keeping all the contents and decorative alterations as found, so that we could understand the complex entity which the house had become by 1990. Rectified photography of most of the interiors has been an extremely useful tool, and a computer-based inventory of the collections was started immediately and took about two years to complete, encompassing more than 17,000 objects, from oil paintings to household linen. We came to understand that, while the Victorian core remained, each generation had left its mark on the house: repairing, redecorating, introducing electricity and some furnishings and removing others.

At the same time numerous condition surveys of the collections were undertaken, which indicated that there was very general damage as a result of lack of care – causes being too much light, damp, dirt, use (and misuse by incontinent dogs!) and in particular insect infestation. What survived was all extremely fragile and faded, far removed from its original vibrancy. The best and most honest approach seemed to be to show the whole history of the house, including the effects of time, rather than try to recapture the appearance of its earliest years. Conservation rather than restoration therefore became the policy for the interiors and contents.

This approach reflects both the archaeological ethos of English Heritage and a reaction against previous practice (both within EH and elsewhere) of sanitising properties – often very quickly and on grounds of taste – of later accretions. It is also consistent with standard practice of museum conservation (eg minimum intervention and reversibility) and now seems to have struck a chord with visitors, who are generally appreciative. One recent comment was simply: ‘Thank you for not painting it’. However, while ‘the Brodsworth approach’ seemed right for this house at this time, it is only one of many ways of presenting a historic house.

The kitchen gives life to a Victorian vignette – it was decided to focus on the entire history of the house, accepting the ravages of time, rather than recapture its earlier years

Conservation

Conserving the contents and interiors of Brodsworth rather than restoring them necessitated much hard work, and we are by no means trying to present the house as ‘untouched’. The major building works (roof and stone repairs, renewing the electrical and other services, widespread plaster repairs) necessitated the removal of all the contents to a store. In the process the infestations were eradicated by freezing the textiles and carpets and fumigating more composite objects. A rolling programme of conservation of the collections began, but this had to be prioritised. The paintings, furniture, carpets, and most important objects for the principal rooms were dealt with initially. The basic aim was to make them safe to be shown to the public, which generally involved gentle cleaning. Although many things received full conservation, a large proportion, such as the silk wall coverings and upholstery, simply received ‘first aid’. Much also remains completely untreated, and it is hoped that details such as cushions and tasselled tiebacks (and the contents of four further bedrooms) will eventually be added to the displays after conservation.

The work achieved for opening the house to the public can therefore be seen as the first phase of Brodsworth’s preservation. It means that people see wallpaper damaged by rising damp where missing elements have not been reproduced, silk upholstery and wallcoverings held in place by netting, and losses in the painted marbling simply toned in but not remarbled. There are plumbed 1960s washbasins alongside Victorian mahogany

washstands. Rooms abandoned by the most recent inhabitants are shown as such – the old kitchen metalwork has been conserved but not brightly polished as if still in use, the 'lathe room' and former servants' bedrooms are full of lumber, and in one bedroom steel tacks previously used to hold up peeling wallpaper have been retained, since they are still effective. These rooms, perhaps because of their apparently romantic decay, are among the most popular in the house.

In spite of the desire to conserve and display the house as much as possible as it had been found, it has been necessary to replace some objects for practical purposes, such as health and safety. Careful replicas were made of the extremely worn carpets in the entrance and inner halls and first floor corridor, important circulation areas where we wished not to channel the visitors too tightly. Window blinds were replaced to restrict light levels, and historic light fittings rewired to modern standards. There are also, of necessity, ropes, stanchions, and protective drugget over historic carpets; Brodsworth, like all houses, has seen much change in order to accommodate visitors.

The first season

We have received very positive reactions from the press and visitors in these first three months of opening. Numerous letters have been received complimenting us on both the presentation of the house and the helpfulness of the custodians and volunteer room stewards. The house has received a steady 3,000 visitors a week, so that the target of 40,000 in the first short season will certainly be reached. The arrangement of having pre-booked guided tours in the mornings and free-flow visits in the afternoon seems to meet most needs. The shop is taking good sales (an average of £1.56 per head), and recruitment of members has been impressive (1,800 so far). There have been inevitable teething problems, such as people getting lost upstairs or not managing to find the public toilets, but these are gradually being smoothed out.

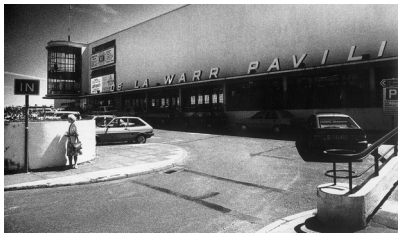
There is, however, no room for relaxation, as there is much still to be done on the property as a whole. Education is a major area for development, although one of the education rooms with a model of the house is already enjoyed equally by general visitors and schools. An exhibition is being planned on the conservation undertaken to date.

There also continue to be pressing conservation needs. The house and its contents remain extremely fragile, and it is vital to assess the impact of this first season and whether the projected visitor figures are sustainable; current research promoted by the National Trust is increasing our knowledge of the mechanics of visitor wear and tear and means of controlling it. Housekeeping or preventive conservation will also need to be reassessed now that Brodsworth is refurnished: for example, is the staffing level of two part-time object cleaners adequate? The condition of the collections and interiors needs to be monitored the English Heritage Conservation Audit of Collections reached Brodsworth this summer and provides a useful overview. On this basis, maintenance and future conservation must be planned and implemented, even in this era of uncertain funding, so as not to jeopardise the work already carried out at such expense and effort. A balance needs to be struck between the two current aims of English Heritage – of conservation and ever-increasing visitor figures and income.

Caroline Carr-Whitworth

Regional Curator, Works of Art

Restoring a Modernist masterpiece



Mendelsohn and Chermayeff's stunning De La Warr Pavilion – Britain's first welded steel-frame construction – met with great critical acclaim

Architect John McAslan describes the problems faced when they undertook restoration of the De La Warr Pavilion at Bexhill, a building that many believe is Britain's finest example of Modernist Movement architecture

The history of the Pavilion and its commissioning is well documented. The project started out as a tentative town council motion to erect an entertainments building in the redbrick seaside town of Bexhill in 1930. The town's dynamic socialist Mayor, the ninth Earl De La Warr, took control of the project and initiated an open competition in 1933 for its design with the Modernist architect Thomas Tait as its senior assessor. The winning entry, designed by Erich Mendelsohn and Serge Chermayeff, engineered by the pioneering Felix Samuely with quantity surveying by Cyril Sweet, shocked and delighted the town's local residents when it opened in 1935.
Mendelsohn, one of Europe's leading Modernist architects, had recently arrived from Berlin. Like many German emigrés, he spent time in England before moving on to the United States. His greatest achievement during his five-year stay in England was the De La Warr Pavilion – a steel and concrete construction with striking white rendered surfaces. However, he left for Jerusalem without completing the project and it was Chermayeff who finished the work.
During the early 1960s, the Pavilion suffered from insensitve internal alterations and decay.

Listing and phased renovation

In 1986, the Pavilion received a Grade I listing and in 1989 the locally-run Pavilion Trust was established to protect the building from further insensitive alteration. These steps paved the way for the major restoration programme which is now well under way.
The first stage of this programme began on site in 1992, when Troughton McAslan produced the strategy for the De La Warr's long-term use. This led to the repair and restoration of the building's external fabric as Phase I of the works, generously supported by a substantial English Heritage grant, and the preparation of a maintenance plan for future repair cycles.
In 1994 the practice was asked to extend its proposals for the building's future use into a series of phaseable packages. From this emerged a strategy which will lead to the completion of the Pavilion's internal and external restoration in five years. The first stage of this process, Phase II of the works, comprising the renovation of the first floor conference hall, bar and facilities room (the former library), has been completed. The majority of funding for this came from grants, including £55,000 from the European Heritage Fund. Funding for future phases is now sought to pay for the ground floor café and entrance renovation (Phase III), auditorium and backstage (Phase IV) and external landscaping (Phase V), with the final Phase VI to consist of a linear extension to the north of the east wing (similar to Maxwell Fry's 1963 proposal), housing arts, education and office accommodation on its upper level and an enlarged kitchen at ground level. Clearly a major

proposal of this nature will need careful consideration to produce a sensitive intervention to this magnificent listed structure.

The tubular steel rails of the spiral staircase and the ultra-modern pendant light

The strategic planned approach adopted by Troughton McAslan, supported by Rother District Council (the owner) and English Heritage, is beginning to produce benefits and added value as the renovated and enhanced interiors of the Pavilion take shape. One can begin to appreciate the delight of this Modernist classic and look forward to the Millennium for its enhanced use and completed renovation.

External walls

Original construction The walls were rendered with a top coat of white spar and colouring material designed to sparkle, on reinforced concrete wall panels hung off a concrete encased steel frame and vierendeel trusses. The internal walls were constructed in breeze blocks restrained by the steel frame.

Condition Water had permeated the render and freeze/thaw action had caused it to blow and corroded the steel reinforcement. The render had been painted and was stained. The ground level kitchen extension boundary wall had deteriorated. The west elevation annex had been partly rebuilt in blockwork and its render was in decay.

Restoration Walls were redecorated with high polymer based masonry paint. Blown render was cut back and repaired. Where the reinforcement was corroded it was cut back to steel, blast-cleaned and painted with epoxy corrosion-inhibiting paint. The wall to the kitchen extension was reformed and the blown render to the two-storey west elevation cut back and replaced.

Columns

Original construction The external balcony columns were constructed out of steel flats welded up into a box section. A rainwater pipe was fixed to the fronts of the columns and the assembly encased in concrete and finished in buff vitreous tiles.

Condition There had been partial corrosion of the steel, leading to concrete expansion. The original tiles had spalled away and been replaced with mosaic.

Restoration The column concrete was stripped back and the steel box sections wet-blasted. The steel was primed. Steel reinforcement was shot-blasted to the front of the columns to form the bullnose profile. The steel boxes were drilled and filled to provide fire resistance. The surfaces of the columns were coated in render to provide a cementitious base upon which new faience tiles to match the originals were fixed.

Terraces

Original construction The terraces were finished in smaller concrete tiles with an exposed aggregate, laid in a rectangular pattern. Steps were finished in cast concrete matching the finish of the tiles. The margins of the terraces to the building were finished in terrazzo.

Condition Many original tiles were broken and the levels had become uneven. Part of the original paving had been replaced with inappropriate tiles and the concrete paving had become cracked.

Restoration Original tiles were used to repave the north terraces. The south terrace was repaved with concrete tiles with the exposed granite aggregate matching the original tiles and laid to the original grid. The *in situ* terrazzo margins were reformed with dividing strips.

Balconies

Original construction The balconies were constructed in a welded steel frame encased in reinforced concrete laid to falls. Parapets were formed in cast stone. Bitumen DPCs were laid over the concrete. The balconies were finished on the top face with concrete paving tiles with an exposed aggregate laid in a block grid, identical to the terraces below.
Condition Major cracks had appeared in the concrete due to apparent corrosive expansion of the reinforcement. Many of the paving tiles were cracked and the balconies were structurally unsafe.
Restoration Concrete was stripped off the original frame and the existing welded RSJs were wet-blasted. The steel was painted and the tops of the steel sections finished with waterproofing compound. The steel was encased in reinforced concrete laid to falls and incorporating a cast-in drip to the leading edge. A three-layer performance membrane was torched on the top surface and the balconies finished on the top face by pre-cast concrete pavers with an exposed granite aggregate. The inner upstands to the balconies and the margins were finished in *in situ* cast terrazzo with dividing strips. The parapets, concrete fascias and balcony soffit were finished in a resistant coating.

The entrance hall was once cluttered with signage and tacky artefacts

Balustrades

Original construction Handrails were supported on continuous T-sections with intermediary rails formed in galvanised steel. External metal work was primed.
Condition The low-grade steel balustrades were corroded, and did not satisfy current criteria to resist lateral loads.
Restoration New balustrades were fabricated using galvanised high-yield steel with pocket fixings cast into the concrete. All welded joints were filled and the assembly primed and decorated. The handrail to the inner balustrade on the curved balconies was made in polished aluminium with stainless steel kicking rails installed at low level.

Glazing

Original construction The café, library and first floor bar were constructed with steel section sliding glazing panels which opened. Weatherproofing was provided by draught excluders. There was no upstand between the external and the internal areas. Elsewhere all the windows were glazed in steel section. The north and south stairs were glazed in a curved steel-section curtain-wall system. On the south stair the glass was supported by steel mullions carrying horizontal rails.
Condition The slim steel sections to the sliding glazing on the south elevation were corroded. These were replaced with unsuitable fixed timber section windows. The glazing to the stair enclosures is consistent with the original design, although some sections have been replaced. Elsewhere the majority of the windows have been replaced with timber section glazing.
Restoration The sliding steel section ‘walk through’ glazing will be reintroduced to the south elevation in Phase III, giving access to the balconies and terraces. A high grade galvanised toughened glazing system will also be sealed with weathering strips and buffers.

Above and below: the glass cylinder of the great spiral staircase

Fixtures and fittings

Original construction Fixtures and furnishings designed included a 22ft pendant light in the centre of the south stair with fluorescent tubes fixed between matching discs, a steel flagpole to the front of the north stair glazing and two roundels fixed to the south and east elevations.
Condition The pendant light had been altered, and the flagpole relocated to the roof of the north stair. The two roundels had been lost. Many of the chairs had been replaced, although a few remained in storage.
Restoration The pendant light has been restored. All the discs and original suspension rods have been retained and re-chromed. A galvanised, powder-coated flagpole has been made and reinstated on the north stair enclosure and it is intended the roundels will be reinstated when funds have been raised. A number of the original chairs are being restored.

John McAslan

Troughton McAslan, London

Choosing industrial monuments

Grinton Lead Smeltmill, Swaledale – a Scheduled Ancient Monument with a claim to protection and preservation which few would question

The diverse nature of England's industrial heritage makes decisions on what to recommend for protection a difficult task. David Stocker describes the methodology for selection

In the context of the Monuments Protection Programme English Heritage has been reviewing the industrial archaeology of England in order to make recommendations to the Secretary of State for the designation and management of such sites into the next century and beyond. At times this has seemed a daunting task, with announcements of the closure of one plant after another, and requests that sites be considered for statutory protection. The changes in the deep-mined coal industry since 1992 present challenges on a scale not encountered in other industries.

Chatterley Whitfield Colliery, near Stoke-on-Trent; the only complete group of mine buildings left in England which illustrate the range of activity at the pithead during the industry's heyday at the time of the First World War. Parts of this site are now scheduled as an Ancient Monument, while other buildings are listed

A step by step approach

In such an atmosphere it would be easy to lose one's sense of direction and respond to each site *ad hoc*, as redevelopment threatened. Having anticipated this, we developed a methodology for reviewing the industrial remains of England industry by industry (*Conservation Bulletin* **17**, 68), so we would have a strategic background against which conservation decisions could be made. This is the so-called 'Stepped Approach'.
Unlike most categories of archaeological site, there is no organised database documenting industrial archaeology, so the selection of sites of National Importance has to follow a different route from that of evaluation through the County Sites and Monuments Records. First, we need the agreement of conservation professionals and academics on what makes the remains of a particular industry important.
These concepts of importance then need to be related directly to the Secretary of State's criteria for National Importance. We need to define our terms, so that, for example, when we say we are intending to protect a mining 'adit' the meaning is clear. (There are regional variations; in some places it is a horizontal tunnel opening to the surface, in others it is an underground drainage channel.) We need to understand what expertise and which record sources may exist in the wider community, including the industry, and we need some general statements on the role of statutory and other protective measures in the preservation of the industry. These are considered in the 'Step 1 Report'.

Data collection

We can then venture into the industrial areas looking for the sites, structures and other remains that meet our preconceptions of importance. This work is usually done in two stages: a data-gathering exercise (Step 2) and visiting and documenting sites that appear to match the criteria set. The resulting report (the 'Step 3 Report') is a large document; it describes the principal remains of each industry site by site, usually for the first time. It is the statement of the relative and absolute importance of the sites reviewed. These reports also collect a minimum of management information and, like the Step 1 Reports, are prepared by specialist consultants.

Public consultation...

The Step 1 and Step 3 Reports then go to public consultation (either separately or together) and the results are themselves reported on. We have found all of the public consultations so far most valuable, both in correcting inconsistencies and in revealing new sites for consideration. In the lead industry, for example, nearly 10 per cent of the sites eventually reviewed for protection arose through the public consultation on the Step 3 Report. With both the Step 1 and Step 3 Reports, modified by the consultation exercise, we are able to formulate our conservation position, both on the industry as a whole and on each site individually. This is the 'Step 4 Report', which states our preferred future management for each site and, on the back of the management proposal, indicates any statutory protection we view as necessary. The Step 4 Report, then, is the blueprint for future conservation action.

...to conservation action

In the industries reviewed we have found four main directions for action. Scheduling suggests, by the nature of the controls it introduces, that we will work towards the

conservation of the site or structure ‘out of use’ as an object of cultural value. Listing, which is (and will remain) the most commonly-used regime for modern structures, is more appropriate when we wish to encourage retention of a structure as a working building; this does not always imply that it need remain in its original use. Conversion for an alternative use is often more likely. Designation of Conservation Areas is another method; or we can indicate that sites be dealt with through the planning process, following policy guidance (eg PPG15 or PPG16). Once we have agreed the Step 4 Report, our proposals for management are supported by the proposal for appropriate statutory designation. The owners of sites and buildings are consulted before proposals are finalised.

Current work

Work is under way on the 18 industries listed (see table). This list needs to be supplemented by work on specific industrial building types through the thematic listing programme (*Conservation Bulletin* **26**, 34).

Lead

As the table shows, the lead and coal industries are the farthest advanced. We started with the lead industry, because it represented a large (an estimated 10,000 sites nationally), diverse, even if largely defunct industry, with many features that we anticipated would recur in future studies. The lead Step 4 Report recommended a range of conservation action, including some statutory protection for more than 300 sites.

Coal

The coal industry represented a different problem. The review considered coal mining from the prehistoric period to the present day, but the public’s attention was on the sites and structures of the modern deep mines, as they were rapidly closed down between 1992 and 1995. For this industry as a whole the Step 4 Report recommends action (including statutory protection) at 319 sites, some of which represent the later 19th- and 20th-century phases of the industry.

With the pressures on the industry, we needed to act rapidly, but also with care and tact. Though the public understanding that the rural ruins of 18th- and 19th-century lead smeltmills are valid objects for conservation has increased greatly since the War, only a small proportion has appreciated the likely interest to future generations of the massive monuments of modern industry. Public understanding is developing, as, for example, in the promotion of the redevelopment of the centre of St Helens by means of the conservation of the ‘Hotties’ furnace, but a generation or so is likely to pass between the disappearance of a working industrial plant and the adoption of the remains of that same plant as a symbol of a community’s historic identity.

There is a dilemma: we know the immediate outlook for the structures of the coal industry is not good; quite naturally, the generation involved in the closure wants the community to move on. But we also know that the next generation will want to conserve the symbols of the community’s identity on which their fathers turned their backs. Witness the Welsh experience, where the working coal mining museums at Big Pit and Rhondda are visited in great numbers by retired miners’ families, from extinct coalfields in the Midlands, in Durham and northern France, while facing indifference from more recently redundant miners in their own area.

Having defined which structures are of value in which combinations (the Step 1 Report) we have now reviewed all of the existing remains of the deep-mined industry. Part of the results, the complete air photographic survey, were published by English Heritage this year.*

In the Step 4 Report we have attempted to identify examples of particular structures and sites which are of national importance and where, as far as we can judge, there is

community support. Often this will come from a sympathetic local authority, such as Wansbeck Council in the North-east, which has created an impressive mining museum at Woodhorn. Sometimes the banner is carried by a Trust interested in a particular winding engine, as at Washington 'F' Pit near Sunderland. If there is even a spark of concern in this generation, the generation which saw the mines close, there may be just enough good will to ensure that the structures survive into the next generation – one which will not have known the heroism of deep-mined coal.

Woodhorn Colliery has been converted into a mining museum by a community keen to retain its identity.

'The Hotties', a late 19th-century glass furnace in the centre of St Helens, which, in less than a decade, has been transformed from 'eyesore' to a symbol of a community's regeneration effort

Selectiveness

We intend to be selective in the extreme. The costs of conservation of modern coal mine structures is enormous and there is little realistic prospect of financial investment in more than a few sites. We do feel, however, that it is important that one more or less complete deep mine survives to stand for the 'modern' industry: we had little difficulty in choosing it. It is at Chatterley Whitfield, Stoke-on-Trent, and, uniquely now, retains most of the structures of a typical coal mine of the period around the First World War, when output was near its peak, the entire world economy was dominated by Britain and coal dominated the British economy. Although the mining museum at Chatterley is still in a difficult period, the huge effort which has gone into resolving its problems in itself illustrates that there is public concern about its future – enough public concern, we hope, to keep this rare and important site intact into the next generation.

*S Gould and I Ayris: *Colliery landscapes, an aerial survey of the deep-mined coal industry in England*, EH, 1995

David Stocker

Conservation Group, Scheduling Branch

IMPP – Progress of work to March 1995

	step 1	PC*	step 2	step 3	PC*	step 4	steps 5 & 6
lead	done	done	done	done	done	done	
coal	done	done	done	done	done	done	
alum	done	done	done	done	done		
brass	done	done	done	done	done		
gunpowder	done	done	done	done	done		
iron & steel	done	done	done	done			
glass	done	done	done	underway			
tin	done	done	done	done			
zinc	done	done	done	underway			
copper	done	done	done	underway			
arsenic	done	done	done	done			

power	done	done	done	underway
dove farming	done	done	done	
ice	done	done	done	
salt	done	underway		
stone extraction	underway			
limeburn	underway			
water supply	underway			

*PC indicates Public Consultation

Saving our historic hospitals

Above and below: the Old Royal Free Hospital, Liverpool Road, Islington, London

With major changes in healthcare policy, many historic hospitals are coming on to the property market, though finding suitable uses for them may prove difficult. If buyers are not found, some of these fine buildings might be lost through decay

In July, English Heritage and NHS Estates published *Historic Buildings and the Health Service*, a document which provides a practical guide for those responsible for the management and care of historic hospitals and healthcare buildings. On its release, Virginia Bottomley, Secretary of State for National Heritage, said: 'I am immensely encouraged by this report. It shows that through careful planning, solutions can be found which meet both the conservation needs and healthcare requirements of the 21st century.'
With the abolition of Crown immunity for the NHS in April 1991, and increasing awareness of the depth of the structural changes affecting the health service, English Heritage approached NHS Estates in December 1992 to set up a working party to discuss possible problems. The working party is jointly chaired and meets quarterly. It includes representatives from English Heritage, NHS Estates and the Executive, the DHSS in Northern Ireland, two consultants and an observer from the Department of National Heritage.
With the publication of *Historic Buildings and the Health Service* the first phase of its work is now complete. The document is in two parts. Part 1 deals with healthcare buildings which will continue in use, and illustrates how common operational needs can be reconciled with the historic character of the buildings. For those hospitals in use, the accommodation of change and the provision of new facilities within tight budget constraints represents a considerable challenge, which in the past has not always been reconciled with the most sensitive treatment of the buildings.
Part 2 deals with surplus buildings which need to be adapted to new uses – either for healthcare activities, or for alternative uses under new ownership. The working party estimates that over the next 10 years about 120 large historic hospital sites, each in excess of 500,000 sq ft, are likely to become surplus naturally. And this is at a time when many other major public sector owners are also shedding buildings – from defence to education, local government and public utilities – so all those responsible for disposing of

historic buildings face complex problems and new responsibilities. The scale of restructuring in the public sector is unprecedented in recent times and it will have a big impact on the property market.

English Heritage believes it is important to plan for such change, to anticipate the problems which will arise and to devise a sustainable policy response, to ensure that fine historic public buildings do not become at risk from redundancy or neglect.

The introductory sections of the document set out the historical development of major hospital types: the process of listing, including certificates of immunity, advice on delisting and conservation areas, as well as guidance on listed building consent procedures.

The document stresses that when dealing with listed buildings it is important that those in control of the works obtain expert professional advice on architectural, planning and conservation matters. Early contact should be made with the local planning authority, and the advice of the conservation officer sought.

Part 1, which looks at property maintenance and alterations and extensions for buildings remaining in healthcare use, sets out seven key recommendations:

The preparation by health authorities or trusts of maintenance or conservation briefs for each historic building in their care. These can provide a framework for routine maintenance and reduce unexpected repair costs by prioritising individual repair decisions and planning effectively for change. Money spent on improving the quality and attractiveness of a listed building is not an optional extra. It can be justified as a major investment in improving the quality of environment for both patients and staff. Also, if eventual disposal is envisaged, this will be easier for a well maintained building.

When it comes to repairs, a stitch in time can be highly cost effective and avoid greater problems later. Where repairs are carried out, matching materials should be used, properly specified to avoid damage to the appearance of the building.

Alterations should be undertaken within an overall conservation brief or strategy to secure the long-term character of a building. These can provide a coordinated framework within which sympathetic change and development can take place.

Particular care needs to be exercised over external alterations to doors, windows, pointing and roof coverings. Matching materials and details are essential. UPVC windows, for instance, are unacceptable on listed buildings. Signs, security, safety, services, parking and disabled access all require sensitive handling.

Interiors are important and are subject to listed building control. Although large parts of many hospital buildings are often utilitarian in character and of no special interest, original and later features such as stained glass, tiles, murals, memorials, plaques, statues, ceramic floors, fine staircases and plasterwork are often an essential part of the character of a building. They should normally be retained, *in situ*, even if not specifically mentioned in the list description. Hospital chapels require particular care. Where possible, consideration should be given to reinstating original colour schemes and decoration in key areas where this is compatible with operational needs.

Regarding new extensions, contemporary design can complement buildings and may often be preferable to reproduction, but care, sensitivity and respect for the past are essential. High quality design need not be expensive.

Façadism (gutting a building but retaining its façade) is not normally acceptable. It can destroy much of a building’s special interest and create problems for the long-term stability and performance of the structure. In some cases, where the special interest of a hospital building resides solely in the external façade, extensive internal reconstruction may sometimes be possible.

The NHS and healthcare trusts have inherited a rich, diverse legacy of historic buildings ranging from Georgian infirmaries to Victorian city hospitals, county asylums and lodges, chapels and mortuaries.

Many hospitals comprise remarkable architectural compositions in prominent locations, often set in attractive landscapes. Some are listed. Many lie within conservation areas designated by local authorities because they occupy an important role in the architectural, historic and social heritage of the area.

Part 2 of the publication offers advice on the management, disposal and effective reuse of surplus buildings. Six key points are stressed:

While an historic building remains vacant, it should not be allowed to deteriorate. It should be kept wind and weatherproof and its condition regularly monitored. This will help to protect its potential asset value. Where adequate measures are not taken, the local planning authority can serve urgent works or repairs notices to enforce compliance.

When disposing of a redundant building, government guidance stresses that the maximisation of receipts should not be the overriding aim. Disposal strategies must be consistent with policies for the protection of historic buildings and areas. So the most appropriate long-term use for an historic building often may not be the use which generates the optimum financial return.

Early consultation with the planning authority is essential to explore options for the site. The preparation of an agreed planning brief can do much to clarify options and inform the valuation of the site, based on realistic assessment of the planning constraints. The brief should include an architectural analysis by the planning authority of large hospital complexes based on three recommended categories of change:

A Buildings which are critical to the special interest of the site and should be retained

B Buildings which are less critical to the special interest of the site and which might be demolished if this is the only way to preserve those in Group A

C Buildings of no merit, or which particularly detract from the site, and which should be demolished

In the event of any disagreement over such an analysis, in particularly complex cases or where requested, English Heritage can provide an expert view.

When assessing the potential value of a site, it is important to be realistic and to take full account of the planning constraints. Unrealistic proposals can blight sites and retard the release of much-needed funds. Some historic buildings may have a negative value. Where this arises from disrepair, it may be preferable to carry out structural repairs before sale to create a positive value. Alternatively a reverse premium – a ‘dowry’ – may need to be paid to the purchaser. This will need to be secured against the repair liability, as payment should be used to fund the repairs which have created the negative value.

Where phased disposal takes place involving enabling development, an overall strategy is vital to establish the future use and development potential of the historic buildings, to avoid these being isolated by new development and thereby becoming a potential liability. Where necessary, their future should be safeguarded by both planning conditions and a separate S106 agreement. Enabling development must always be designed and sited to be subordinate to the main historic buildings on the site.

Wherever possible, buildings should be marketed while they are still occupied, to minimise the period of vacancy and vulnerability to vandalism, neglect and theft.

The publication gives details of former hospitals which have been converted successfully to new uses such as housing, hotels, conference centres, educational uses, museums and shopping centres.

In parallel with this work, and in collaboration with NHS Estates, English Heritage has been carrying out a systematic listing survey of hospitals to identify hospitals which should be added to the list, and to clarify the listing on any given site backed up by clear location maps. The aim is to minimise the risk of late spot-listing and to alert those involved in the disposal process of the special interest of any buildings at an early stage in the development process.

Copies of *Historic Buildings and the Health Service* have been sent to each local planning authority in England and distributed widely within the health service. Copies can be obtained from HMSO, £35.

Philip Davies

Regional Planner and Head of Kensington and South London Team, London and South East Region

Defining our defence heritage

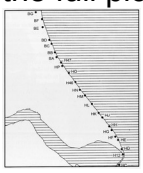
Above: Churchill visiting site A6 or A11 on the Kentish Gun Belt on 30 June 1944, with 3.7in mobile guns in the background

Our recent defence heritage has never been systematically reviewed. An initiative by the Monuments Protection Programme and the Listing Team aims to provide a full overview of important sites and remains

Following the celebrations and commemorative events to mark VE and VJ days, it is timely that the remains of both World Wars and the Cold War are being considered seriously as part of England's heritage.

It is also encouraging to see the launch of the Defence of Britain Project which aims to record the surviving remains of 20th-century defence in Britain and which involves amateur groups and individuals who contributed greatly to giving the archaeological study of defences professional credibility.

Recording the remains will help improve our understanding of 20th-century defences. However, for our purposes, and specifically in terms of producing a credible basis for strategic planning, further work is required. First, a review of the defence heritage between 1660 and 1900 is needed including the Royal Commission fortifications. Second, more information is required about the 20th-century sites and their original distribution (ie in addition to those which survive). We need to know how they differed by type, what the original figures were by type and by date, the nature of the site types (eg some were mobile gun positions and so would leave no trace) and their strategic importance. Without the full picture, informe d judgements on management and designation will lack credibility.



The map, right, shows Operation Diver sites in Holderness. At the top are sites recorded through the documentary survey; at the bottom, those located by fieldwork in 1992; sites BG, BF and BE lay outside the fieldwork survey area

20th-century defences surveyed

To provide the overview required, work is to be undertaken on about 17 classes of monument, ranging from the Royal Commission fortifications (1859–60), to town and dockyard defences (1660–1914) and World War I coastal defences. Several of the projects – all dealing with 20th-century remains – are under way. Five projects, undertaken by

Colin Dobinson at the CBA, are funded by the Monuments Protection Programme. These cover: Operation Overlord, bombing decoys, anti-invasion, anti-aircraft and Operation Diver. The Listing Team, in conjunction with the MoD, is examining military airfields.
In all we have defined 11 classes of 20th-century defences. For most of these, documentary records will form the basis of the report. Most files and papers are now available for study: those for World War II were opened by bulk release at the Public Record Office at Kew in 1972. Their scope and volume is huge: all aspects of the defence heritage are documented and for most site types the coverage is comprehensive. For many site types we can establish the location of every example built to the accuracy of a six-figure grid reference, and to refine chronology to weeks, even days. The picture presented by the documentary records is, to all intents and purposes, complete. We can present an overview of what was built, how, when, where, by whom and why. To give an indication of the nature of the reports, the research required to produce them, and the usefulness of the results, a summary of the Operation Diver report follows.

Operation Diver

Operation Diver was the name given to World War II British measures to counter attacks by the German flying-bomb. Conceived in spring 1944 and executed between June of that year and the following March, Diver employed anti-aircraft guns, searchlights, balloon barrages, fighter aircraft, bombers, radar, visual early warning and intelligence to achieve its aims. It was successful: more than 10,000 bombs were launched against British targets; about 20 per cent of these were destroyed by the anti-aircraft guns whose temporary emplacements, ‘Diver sites’, are described in the report. At least 1,190 heavy and light anti-aircraft gun sites – virtually all of those built – can be precisely located in the modern counties of Sussex, Surrey, Kent, Essex, Suffolk, Norfolk, Lincolnshire, Humberside and North Yorkshire. At present, only three Diver gun sites are known to appear on county archaeological records; all are confined to one of those counties.
The sources used in the projects undertaken by Colin Dobinson enable the survey to meet many aims. The first is a quantification of original site populations, synthesised in a series of distribution maps and gazetteers. This will make it possible to plot Diver sites known from the documentary survey against those located by fieldwork. This has been achieved for Holderness. Similarly, heavy and light antiaircraft (HAA and LAA) guns in the Kentish belt can be plotted for 25 and 27 June 1944, providing a graphic illustration of the changing threat posed by the flying-bombs, and the speed at which strategy had to be adapted.
Second, the structural variability of site types can be established and set within a tight chronological and geographical framework. In other words, the fabric of the sites can be documented. Early mobile gun sites within the Kentish belt, for example, are known to have consisted of these components: eight guns placed 30 yards apart, a gun control room, ammunition shelters, the command post, radar, troop accommodation (usually tented), roads and tracks, water tank, slit trenches, generator standings and camp structures, including latrines. Equivalent sites in the Diver Fringe (Humberside and North Yorkshire) and Diver Strip (Essex to Norfolk) areas, however, were generally more substantial, many being provided with domestic sites including quasi-permanent structures. Clearly the latter sites are the most likely to preserve structural remains. (However, it is interesting to note that the area most extensively built – the Diver Fringe – also saw the least action. Indeed the last flying-bomb had been launched before construction had even started at some of the sites.)
Third, each site can be placed in its historical context, both in terms of major political events and the more parochial strategic initiatives. This background is necessary, both because the defence heritage generally is less familiar to most of us than other aspects of the heritage, and because historical interest will often contribute to our rationale for further

academic study and protection. It is interesting to note papers recording the background to the ‘winterization’ programme, a project implemented in autumn 1944 to provide full camps in place of tented accommodation. The scheme was prompted by a Parliamentary Question over the welfare of ATS personnel destined to spend the winter under canvas. These sites represent the most substantial building programme in the Operation Diver campaign and form the largest group of installations where structures may be preserved.

Report

Each of the reports produced will contain a general historical and strategic background to the remains, a description of the types and components prevalent within each class, the chronological and geographical framework, an assessment of our understanding of the resource, and a discussion of some of the criteria by which discrimination might be achieved. Each report will also contain a list of sources and file reference numbers, and a gazetteer of site types, with grid references, chronological reference points and other details where appropriate. The gazetteer accompanies distribution maps such as the ones shown here.

Map of the Kentish Gun Belt: HAA (large spots) and LAA (small spots) distribution, 25 June 1944 (top) and 27 June 1944 (bottom)

Popular appeal

The recent defence heritage is an area of growing popular appeal. It is an emotive subject and will need to be handled and presented carefully. It presents us with many challenges and opportunities in terms of research, management and designation; to meet those challenges and opportunities we must develop a sufficient understanding of the resource. Only then can we approach sites with the confidence to ascribe value judgements and make decisions about their future. Requests are often made for us to schedule or list individual pillboxes, or sections of coastal defence. Once we have the relevant reports, we will be better placed to argue a case for their relative importance. As is often the case, the appropriate management regime for such sites is a further consideration, and will be made on an individual basis.

We anticipate that this initiative will integrate well with the work of the Defence of Britain Project, and will take account of those individuals who hold much of the available information. We also consider that it will form a basis for future publication. If this level of integration is achieved, the project will go much of the way towards providing a framework within which the recent defence heritage can become fully incorporated into the mainstream of British archaeology.

John Schofield

Inspector, Monuments Protection Programme

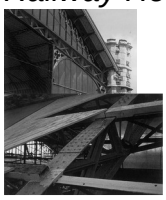
Jeremy Lake

Inspector, Listing Team

Railway trust celebrates 10 years on the right track

The Midland Grand Hotel, St Pancras Station, London

John Crossley's Ribblehead Viaduct, 1875, listed Grade II, has been restored by the Railway Heritage Trust*



There has been progressive restoration of Isambard Brunel's Bristol Temple Meads Station, built in 1840 and listed Grade I

The Railway Heritage Trust has been keeping a watchful eye on the conservation of Britain's rich heritage of railway architecture for 10 years. With increasing numbers of monuments and premises being listed, Richard Tinker writes a progress report

The Railway Heritage Trust brought part of the Midland Grand Hotel at St Pancras Station briefly back to life on 6 April 1995 when, to mark the completion of 10 years of our work, we invited our sponsors, guests and Advisory Panel members to a cocktail party in two of the former hotel's public rooms. Most of Sir George Gilbert Scott's magnificent building was dark, however, having been out of use as an hotel since 1935 and as offices since 1979. Like the Albert Memorial, St Pancras epitomises Victorian art and architecture. Combined with the engineering of William Barlow's trainshed, it exemplifies Britain's railway heritage at its best.

This heritage is the richest in the world, with every type of building and structure, and embracing every style and material used in architecture and engineering. It is still growing: buildings completed as recently as 1964 have been proposed for listing. In 1985, there were 681 listed railway structures in England, Scotland and Wales, as well as 45 scheduled as Ancient Monuments and 633 buildings in Conservation Areas. By 1995 the figures had risen to 1,383, 59 and 1,147 respectively.

Of some 500,000 listed buildings in England, 1,037 are owned by Railtrack plc and British Railways Board; of 15,433 Ancient Monuments, 46 are railway-owned, as are 994 buildings in 9,121 Conservation Areas. With the churches and the government, the railways are thus significant owners of historic premises and structures, most still in use for their original function. Though the tide has ebbed for many railway buildings, the degree of change is probably less than for textile mills, churches, chapels and defence establishments.

Founded in 1984, the Trust believes it is fulfilling the objectives for which it was established by the British Railways Board: assisting the operational railway in the preservation and upkeep of listed buildings and structures, and in the transfer of non-operational premises and structures to outside bodies keen to embark on their preservation.

The Trust's budget grew from £1 million from BR in 1985/86 to £1.8 million from Railtrack and BR in 1994/95. Its grants pay for between 10 and 40 per cent of eligible repair or restoration costs, excluding the provision of services, internal alterations, and professional and safety fees. Grants go to Railtrack Zone Directors or Property Managers, or to BR Property Board Estate Managers, not to individuals or outside parties.

The Trust expects applicants to approach as many other funding partners as possible. Since 1985, the Trust has awarded 467 grants, totalling £12.5 million, to projects in England, Scotland and Wales. To that figure, however, has been added £12.4 million in contributions from parties outside the railways, and it is this funding which gives the Trust most satisfaction. The railways are highly visible and many communities are now prepared to support the restoration of buildings and structures in their areas. Like Historic Scotland and CADW, English Heritage has worked with the Trust in a number of jointly-funded projects. The Trust is most grateful to all those who persuade organisations to commit funds to the railway heritage.

Despite its visibility, much of this heritage is little known. The inauguration of most lines and stations were very public occasions, with brass bands, mayoral delegations and lavish dinners. As the railways developed, they became huge enterprises, employing a wide range of trades and professions, and capable of manufacturing most products needed. As late as the 1950s the railways were extraordinarily self-sufficient, with the result that attitudes became very defensive and insular. These entrenched positions collided most vividly with growing public interest in the conservation of historic structures over the issue of the construction of the new Euston Station in 1963 when, despite widespread public protests, Philip Hardwick's noble Doric Propylaeum (1837) and his son's Great Hall (1847) were swept away. For a number of years after this unfortunate demolition, railway and conservation interests remained incompatible.

However, enlightened opinion eventually prevailed, and the railways increasingly accepted, rather than opposed, the conservation of their heritage. The Trust's establishment was a significant step in this change; there is now a consensus that historic premises are assets, onerous perhaps, but to be appreciated and maintained. The award-winning restoration of London's Liverpool Street Station is a tribute to the patronage of the British Railways Board and its private sector partners and to the skills of the in-house railway teams responsible for its design and construction.

Taking into account the three major railway reorganisations between 1985 and 1995, progress on repair and restoration of historic premises has been encouraging. The Trust supports a range of projects, striking a balance between buildings and structures, large projects and small: clocks, heraldry, gates and signal boxes feature in our reports. Projects include:

The restoration of much of Isambard Brunel's original Bristol Temple Meads Station (Grade I, 1840)

Great Malvern Station, Edmund Elmslie's delightful set-piece (II, 1860), to which the Trust hopes the missing clock tower can eventually be restored

Bury St Edmunds Station, Frederick Barnes' (or was it Sanction Wood's?) fine design (II, 1846)

Robert Stephenson's ventilation shafts (II*, 1838) at Kilsby Tunnel near Rugby

High Level Bridge (I, 1849), also by Stephenson, between Gateshead and Newcastle upon Tyne

John Crossley's Ribblehead Viaduct (Ancient Monument, II*, 1875)

The previously dilapidated stations at Bridgwater (II, 1841) in Somerset, Beverley (II, 1846), N Humberside, Gobowen (II, 1846) in Shropshire and Aylesford (II, 1856) in Kent, which have been transformed.

The Trust has contributed to rolling programmes of repair to much larger structures, such as Welwyn Viaduct (II, 1850), the Royal Border Bridge at Berwick-upon-Tweed (I, 1850)

and trainshed roof repairs at London's Paddington Station (I, 1854). It joined English Heritage and the Heritage of London Trust in supporting the specialist conservation of the ceiling paintings over the staircase in the Midland Grand Hotel at St Pancras Station (I, 1873–76).

The non-operational work has progressed slowly. Smardale Gill Viaduct in Cumbria was repaired and handed over to the Northern Viaduct Trust. Work is proceeding at Lambley Viaduct (II, 1852) in Northumberland and at Bennerley Viaduct (II, 1978) on the Derbyshire-Notts border, preparatory to being handed over to Trusts. A number of other projects have been carried out on BR Property Board premises, but the main focus is on non-operational viaducts. It is hard to kindle interest in these, and harder still to convert interest into projects with committed funding.

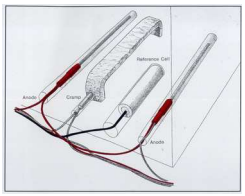
Future projects depend on the priority assigned to them by Railtrack and BR Property Board. These could include Knaresborough: its station, tunnel portals, signal box and viaduct make a particularly attractive group in a Conservation Area. Restoration of the stone work at Newcastle Central Station (I, 1850) and repairs to the Ouse Valley Viaduct (II*, 1840) at Balcombe are other possibilities.

The Railway Heritage Trust believes that the need has been proved for a consistent and sustained focus on Britain's historic railway premises and, to an extent, this need is being met. It looks forward to working with all like-minded partners in this rewarding field.

Richard Tinker and Leslie Soane

Secretary and Director, Railway Heritage Trust

Electrifying progress in conservation



Anode, cramp and reference cell layout for ICCP system at the Chiswick House archway

Successful completion of the Inigo Jones gateway project at Chiswick House has demonstrated the innovative blending of modern technology and traditional repair techniques

It was common building practice, until the middle of the last century, for large masonry structures to be tied together with ferrous metal cramps, dowels and tie rods. These fixings, buried within the masonry, have become rusted over the centuries as damp has entered the weathered structures. As the ferrous metal rusts it expands – up to four times its original dimensions in the case of wrought iron. The powerful localised forces imposed upon the masonry around the fixing are sufficient to fracture the stone, blow large lenses from the face of the masonry and in the worst cases destabilise the whole structure. The damage caused to England's historic buildings costs hundreds of thousands of pounds per year to remedy.

Traditionally, the remedy involves the partial dismantling of the afflicted structure, the removal of the offending fixings and their replacement with a corrosion-resistant metal, such as stainless steel. This method, while thorough and effective, can destroy invaluable historic material. Until recently, there were few options available when less invasive solutions were necessary.

English Heritage's architectural conservation branch has carried out pioneering work on the Inigo Jones gateway, demonstrating how 'keyhole surgery' – aimed at conserving rather than removing the corroding cramps – can be a realistic, low intervention option.
The Villa and grounds at Chiswick are a testament to the life and work of Richard Boyle, third Earl of Burlington. His aristocratic upbringing had groomed him to be a patron of the arts, and he developed a passion for architecture which culminated in the late 1720s in the building of the Palladian-style Chiswick Villa; in 1738 he moved the gateway – built by Inigo Jones for Beaufort House, Chelsea, in the 1620s – to Chiswick, a lasting tribute to one of his main sources of inspiration and one of only a handful of structures now standing that can be attributed to Jones.
Recent visitors to the gardens at Chiswick have seen the gateway surrounded by scaffolding, corrugated roofing and palisade. These fortifications served a dual purpose – to shield the seriously deteriorated gateway from the elements while the appropriate remedial treatments were defined and developed, and to protect the public from the gateway which was becoming unstable. (In one instance, a large section of detached masonry crashed to the ground and was put in storage.)
The Bath stone was soiled and friable and the iron cramps had corroded and were fracturing the stones. Previous repairs had centred around the rendering over of deteriorated stone surfaces with a dense, impermeable mortar. Dismantling the structure would have involved removing this mortar and losing a large amount of the underlying original material.

Technology transfer

Members of the architectural conservation branch were aware that similar problems existed in mainstream civil engineering where steel reinforcing bars set into concrete structures, such as motorway bridge decking, can corrode and disrupt the surrounding concrete. One method increasingly used to solve this problem is Impressed Current Cathodic Protection (ICCP).
ICCP transfers the aggressive anodic reaction of the corrosion process away from the metal requiring preservation to an expendable electrode, an anode. In civil engineering this is achieved by connecting the concrete and reinforcing to the positive and negative terminals of an electrical power source and feeding a low voltage current through the concrete to the reinforcing. A typical ICCP circuit is shown below.
Before ICCP could be applied to the Inigo Jones gateway two problems had to be overcome – how to locate and make connections to the numerous electrically discontinuous buried masonry cramps and how to design a visually unobtrusive anode system. Both of these had to be solved with the minimum disruption to the already destabilised masonry.

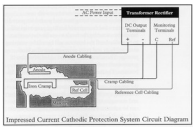
Radar survey

A non destructive survey was made of the gateway by GB Geotechnics of Cambridge using impulse radar to chart the location of all buried fixings. Then an ICCP system with strategically placed anodes was designed with the help of Taywood Engineering to protect all the cramps. However, site trials using metal detectors and limited drilling into the masonry showed that the radar survey had not been able to pinpoint the location of the cramps with sufficient accuracy to allow the installation of all fixings plotted on the survey. It did, however, provide enough information for work to proceed in areas of masonry distress. This reappraisal of the project criterion necessitated a redesign of the ICCP system from a blanket to a discrete system with anodes assigned to individual cramps. The branch was assisted in this redesign by Rowan Technologies Ltd.
To instal the ICCP system small holes were drilled in the masonry to the cramps to enable loop in connection from a colour coded ring main made from fine wires. Cramp

connections were made with special tools. Holes 2.1mm in diameter were drilled into the cramp and pre-wired, push-in plugs inserted. Some half of the plotted cramps were located at the first drilling but there were some near misses where the masonry drill bit had passed to one side of the cramp. These cramps were located with a metal detection probe and new holes drilled to them from the original points of entry.
Anodes were placed close to individual cramps. The anode was constructed by drilling a hole 200mm long and 12mm in diameter. This was filled with a graphite paste and a platinised titanium pin, 100mm long and 3mm in diameter, was bedded into it. Each pin was loop in connected to the colour coded ring.
Ring main wires are fed through the masonry through mortar joints between stones and chases cut into the render and collected wires exit the structure into an underground conduit. This runs for about 60m to Chiswick House, where the wires resurface for connection to the power source – in this case a mains feed Transformer Rectifier unit. The Inigo Jones TR is discreetly tucked away behind an existing false door at the end of the building's Link corridor.
ICCP can be classified as an active conservation treatment; once the system is activated it is usually set to run continuously. However, study of concrete protecting ICCP systems has shown that after some time the area around the metal may be re-alkalised and the metal pushed to a level of passivity sufficient to warrant switching off the system. These possibilities will be evaluated in future monitoring of the Inigo Jones ICCP system. To allow setting of TR power output and monitoring of the building's condition, five Silver/Silver Chloride/Potassium Chloride reference cells are buried in the masonry. Colour coded wires from these are fed to monitoring terminals at the TR. Readings on the TR meter indicate metal condition. The team is examining ways of refining this smart building technology by fitting data loggers which continuously record the output voltage of the TR and cramp potentials in relation to climatic change and consequential masonry wetting and drying cycles.

Traditional methods

After installing ICCP, more traditional methods were used for a series of repairs. Anode and cramp connection holes and joints between the stones containing wiring were pointed with a soft lime putty-based mortar. The stone work that had fallen from under the pediment was reinstated. A few indent stone repairs were made, to enable safe rehanging of the wrought iron gates. A low pressure micro particle air abrasive system, developed from equipment used by museum conservators, was used to clean stone surfaces gently. Stone was consolidated by 40 applications of a limewater mix, made by adding calcium hydroxide to water. A casein, lime putty and stone dust shelter coat, blended to suggest the warm colour of the underlying Bath stone, was applied to shield stone surfaces from the elements and visually pull the structure together. A new lead roof was installed to protect the upper surfaces of the pediment and prevent water ingress to the core. Finally, the wrought iron gate and overthrow were cleaned of contaminants, painted and rehung.
The successful application of cathodic protection at Chiswick demanded a multi-disciplinary approach, calling for the blending of practical expertise in metals and masonry conservation with materials science and modern technology transfer skills. The low levels of structural intervention achievable through this keyhole surgery may provide an answer to many of the problems associated with rusting ferrous metal in historic buildings, be they stone, brick or concrete. The Inigo Jones project has emphasised the tremendous potential of the system and development work on other possible areas of application continues at English Heritage.



Impressed Current Cathodic Protection System Circuit Diagram

Electrical circuit diagram of the ICCP system

Keith Blackney

Architectural Metals Conservation Studio, Architectural Conservation Branch

Bill Martin

Architectural Conservation Branch

Businesses to the rescue

Repair work on the waterwheels at Abbeydale Industrial Hamlet, Sheffield gets under way with the help of a Pairing Scheme award.

Barry McKenzie, from Pairing Scheme award-winners Silentnight Holding plc, points out the badly-eroded stonework around the windows at Fountains Hall. The award was given for Silentnight's sponsorship of the National Trust's 'Music by Moonlight' restoration fund-raising evening at Fountains Abbey

The Department of National Heritage is encouraging businesses to sponsor the built heritage by funding a new incentive scheme

The concept of sponsorship is relatively new for listed buildings and ancient monuments. Yet there is a history of fundraising and patronage for buildings, dating back centuries, when wealthy individuals either donated artefacts or provided the funds to build, conserve and repair. The Department of National Heritage (DNH) is nurturing this trend by funding an incentive scheme to encourage businesses to sponsor the built heritage.

The scheme is managed by the Association for Business Sponsorship of the Arts (ABSA) and is based on ABSA's highly successful Sponsorship Pairing Scheme for the Arts. This has brought in more than £84 million of new money into the arts that would not otherwise have been available. The DNH was keen to see if the principles of the scheme could be applied to the built heritage. To establish whether such a scheme was feasible, the DNH initiated a Pilot Project, from April 1995 until March 1996, in the North of England covering Cleveland, Cheshire, Cumbria, Durham, High Peak, Humberside, Greater Manchester, Merseyside, Lancashire, Northumberland, Tyne and Wear, and North, South and West Yorkshire. Under the Pilot Project the term 'built heritage' is defined as buildings that are listed, scheduled ancient monuments, and parks and gardens registered with English Heritage. Anyone who owns or manages the above is eligible to apply under the Scheme; this includes local authorities, civic trusts and building preservation trusts.

The Scheme acts as an incentive for businesses to sponsor the built heritage for the first time or to increase their financial commitment with new sponsorship money being matched pound for pound. The owners and managers of heritage properties will benefit by attracting the funds to enable their project to be realised and the business will benefit by receiving

extra publicity and press coverage, as well as local prestige. The scheme also has the added attraction of government endorsement – a valuable asset for any business. The matching Award money given by ABSA must be partly used to provide additional benefits to the sponsor, such as printing more brochures or extending a series of concerts, benefits that help owners and managers of heritage properties as well. Projects can be submitted under one of four categories: repair of the built heritage, fundraising events, widening access, and community programmes. All applications need to be completed and sent to ABSA no later than four weeks before the start date of the sponsored event. If all the correct information is received ABSA will be able to give an answer within the month.

The scope for sponsorship opportunities within the remit of the Pairing Scheme is extensive. Eligible projects could include gala fundraising evenings set in the grounds of the listed building, a project for schools introducing children to the skills of stonemasons as they work on repairs to the building, or perhaps a leaflet explaining the building's history. Owners and managers of heritage properties will need to think of suitable ideas that offer relevant sponsorship opportunities for businesses, while remaining sensitive to the needs of building in question.

ABSA began looking at applications from 1 July and has already made four awards under the Pairing Scheme. The successful projects included the sponsorship of repairs for a waterwheel at Abbeydale Industrial Hamlet, for a series of lectures on furniture, porcelain and paintings belonging to Harewood House, and for an outdoor concert at Fountains Abbey, organised to raise funds for repairs to the mullions and transoms at Fountains Hall. The initial response from owners and managers of heritage properties has proved very positive.

One of the purposes of establishing a pilot project is to ascertain any difficulties that may arise. The question of additionality has inevitably arisen, but owners and managers of heritage properties applying for funds from other sources are still eligible to apply under the Built Heritage Pairing Scheme. This also applies to grant allocation by English Heritage. For the purposes of the Pilot Pairing Scheme, English Heritage has agreed not to take any Awards into account when making their assessments. The issue of long-term building projects has also been raised. Many owners and managers of heritage properties have wondered how the Scheme would accommodate a three-year build for instance, but as long as the start date of the programme of works is before 31 March 1996 then ABSA could consider an application.

It is essential that owners and managers of heritage properties understand what sponsorship means and have thought through the nature of the sponsorship opportunities they can offer a business. Once this is established, the next step would be to undertake research of the local, regional and national business community and then make a targeted approach. 'Round robin' letters rarely work. Even though there have been major improvements in recent years, businesses are still inundated with badly-prepared requests for funds. Owners and managers of heritage properties also need to think about the value of what they are offering, whether it is billboard space, a quantity of flyers or a hospitality opportunity. All of these have a cost and it must be remembered that sponsorship is about selling a promotional opportunity, not holding out a begging bowl. If owners and managers of heritage properties enter sponsorship fully prepared, they will give themselves every opportunity to succeed.

To assist owners and managers of heritage properties to gain maximum benefit from the Pairing Scheme, ABSA is running sponsorship training sessions across the North of England. These look at the principles and practices of obtaining sponsorship, the rules of the scheme, the criteria for assessing applications, the ways in which awards can be used, the incentives the scheme offers to businesses, and the crediting of awards. Those that have already taken place have proved very successful and have acted as an incentive to heritage organisations to think about sponsorship for their projects.

The Built Heritage Pairing Scheme is an unique opportunity; if the pilot year is seen to be effective it will open up a whole new source of funding for the heritage in future years. To receive further information about the Scheme or to discuss your project contact Ceris Morris, Manager for the Built Heritage, ABSA North, Dean Clough, Halifax, West Yorkshire HX3 5AX, tel 01422 367860, fax 01422 363254.

Ceris Morris

ABSA North

Planning consultants for historic parks and gardens

New arrangements for local authorities to obtain specialist advice on planning applications affecting sites on the English Heritage Register of Parks and Gardens came into effect in June 1995

Planning authorities will now be required to consult English Heritage on planning applications affecting Grade I and Grade II* registered sites and to consult the Garden History Society on applications affecting all registered sites, irrespective of their grade. Procedures, already in place in some areas, have now been codified, in response to recommendations by the House of Commons National Heritage Committee.

The relevant provisions are to be found in Article 10(1) (o) of the Town and Country Planning (Development Procedure) Order 1995, covering consultation with English Heritage, and in the Town and Country Planning (Consultation with the Garden History Society) Direction 1995, reproduced as Appendix C of DoE Circular 9/95 and described in Article 81 of that document.

Coupled with clear guidance in PPG15: *Planning and the historic environment*, these welcome new arrangements will help to ensure that planning authorities have available the relevant advice for reaching informed decisions on applications for development affecting registered sites. The consultation procedures do not impose controls over the management of gardens or estates, but English Heritage and the Garden History Society now have the opportunity to advise specifically on the implications of proposals affecting designed landscapes, whether or not a particular application also affects the setting of listing buildings.

English Heritage advice on planning applications affecting historic parks and gardens is given by multi-disciplinary regional conservation teams, thereby ensuring integrated consideration of the historic environment within the planning system. An important aspect of our work is to ensure that development proposals pay due regard to the historic dimension of the landscape and that relevant physical and visual implications are considered objectively in suitable surveys and assessments.

We are monitoring the new consultation procedures and have undertaken to review their effectiveness after a couple of years' experience. Meanwhile, we are preparing for publication fuller guidance on planning issues affecting historic parks and gardens to appear in our series of conservation advisory leaflets.

Anthony Streeten

Head, Historic Parks and Gardens Team, Conservation Group

English Heritage policy for industrial archaeology

The Europa Nostra Forum, 'Conserving Europe's Industrial Heritage', held in Manchester on 16 September 1995 was marked by the publication of an English Heritage Policy Statement on Industrial Archaeology. In an illustrated booklet, we have reviewed

achievements in this important field and have identified some key issues which need to be tackled in the next few years

David Stocker's article in this issue on the selection of industrial sites for protection explains our approach to defining the industrial heritage and developing appropriate conservation strategies. The English Heritage *Policy Statement* sets this work in the broader context of recording, research, preservation and appreciation of industrial archaeology in England.

Over the years, our grants for industrial archaeology have made a significant contribution to the preservation of industrial buildings and monuments, befitting Britain's unique international importance as the birthplace of the Industrial Revolution. To accompany the *Policy Statement* we have published an analysis of grants offered for industrial archaeology since the formation of English Heritage in 1984. Our commitment has risen steadily, particularly after the specific allocation of additional government funding for industrial archaeology in the mid-1980s, from £80,000 in 1984–5 to more than £2.5 million in 1994–5.

This new booklet, *Conserving the inheritance of industry*, reviews ways in which public money has assisted the conservation of industrial sites by promoting continued and new uses for important buildings and preserving often extensive industrial remains within their associated landscapes. Illustrated by case studies, the analysis underlines the particular relevance of partnership funding and collaboration with local authorities in the conservation and regeneration of industrial areas. It emphasises, too, the benefits of investment in terms of public access to, and appreciation of, the industrial heritage.

The English Heritage commitment to industrial archaeology is witnessed in many areas, from the presentation of historic properties, through research and education, to the advice and grants available from the regional conservation teams. These two booklets point confidently to significant achievements, but we recognise equally that important challenges lie ahead.

Advice from the English Heritage Industrial Archaeology Panel has helped to identify four key issues:

Obtaining appropriate protection for important machinery

chieving adequate coverage for the timely recording of industrial buildings and monuments which are not capable of conservation

Coordinating the archival recording of industrial processes

Meeting the special (revenue) funding needs of certain selected outstanding sites

These issues can only be tackled in partnership with others and the *Policy Statement* sets out our aims for developing coordinated approaches in collaboration with government, local authorities, the Royal Commission on the Historical Monuments of England, the Science Museum, the Museums and Galleries Commission, and other key players in the field.

Copies of *Industrial archaeology: an English Heritage policy statement and Conserving the inheritance of industry: English Heritage grants for industrial archaeology 1984–1993* are available from English Heritage Customer Services (tel 0171 973 3434).

Anthony Streeten

Head, East Midlands Team, Conservation Group

BOOKS

Nine hundred glorious years

900 YEARS: the restorations of Westminster Abbey by Thomas Cocke, with contributions by Donald Buttress, 1995, published by Harvey Miller for the Dean & Chapter of Westminster, £25 (hardback), £10 (softback)

In September, the Queen and Prince Philip, together with the Dean and Chapter of Westminster, gave thanks at Westminster Abbey for the completion of the great works there over the last 22 years. At a cost of £25 million, the most extensive repairs carried out since the time of Christopher Wren have continued a grand tradition of conservation, rebuilding, restoration and maintenance that started long, long ago – from the building being first dedicated by Edward the Confessor in AD 1065.

To celebrate this tradition and the current works a catalogue, *900 Years: the restorations of Westminster Abbey* has been published by the Dean and Chapter; it also coincides with their exhibition at St Margaret's Church Westminster and in the adjacent Abbey Masons' Yard during May and September 1995.

Written and edited by Dr Thomas Cocke, Secretary of the Council for the Care of Churches (who also devised the exhibition), with contributions from the aptly named architect and current Surveyor of the Fabric, Donald Buttress, FRIBA, FSA, the publication illustrates how Westminster has been transformed over the last nine centuries by some of the nation's greatest patrons, designers and craftsmen without losing its essential identity and character as a royal peculiar and principal place of worship. Dr Cocke should know: he is an acknowledged authority on the survival and revival of the Gothic style of architecture from the medieval period to the 20th century, and he has devised notable exhibitions on similar themes in the past.

Words are chosen with great care: for example, the book throughout makes an old-fashioned use of the term 'restoration'. This is no apology for the acknowledged loss of original fabric over the centuries. It is a chronicle of repair and maintenance and of change in a living building. Materials wear out and are replaced, and time and nature will always play their part. This is not a book for the faint-hearted conservationist, for in part, as Cocke quotes from William Morris, 'we have nothing left us but a mere outline, a ghost' of the original external medieval fabric.

For all that, it is a pretty impressive ghost. Using a wealth of colour and black and white illustrations, many of which are rarely seen in print, Cocke shows us the continuing splendour of the Abbey and points to the pioneering aspects of past repairs and rebuildings that have echoes for modern good practice. For example, in the second half of the 14th century Henry Yevele, the King's Mason, undertook the completion of the nave in the then outdated Early English style to complement the existing work: a remarkable case, Cocke suggests, of 'architectural piety... keeping in keeping'. This respect for the past was to recur much later with Wren, Hawksmoor and James in the late 17th century, when the external shell was overhauled and the two west towers were completed in the Gothick style.

However, the conservation battles of Blore, Scott and Pearson and their adversaries in the 19th century are not described in detail. Snippets of technical, ethical and political interest from Asa Briggs's *Goths and Vandals* and Jane Fawcett's *A future for the past* would have borne repeating here. But Dr Cocke takes the insider's viewpoint, recounting instead the patronage of the Dean and Chapter and their financial difficulties in times of the building's distress.

Mr Buttress has a concluding chapter on the increasing levels of work this century. Micklethwaite and Lethaby, by inclination, and Tapper, because of economic restrictions, one suspects, during the interwar period, did little but general cleaning and maintenance. But more controversial were the changes wrought by Stephen Dykes Bower to furniture, fittings, chandeliers, monuments, paving, etc, including the discarding of the last medieval roof trusses with the resultant reemergence of public concern for the conservation of national monuments that continues today.

Since then Peter Foster and now Donald Buttress as Surveyors of the Fabric have trodden an increasingly difficult fine line between scientific preservation and pragmatic artistic license in the welfare of the fabric and its continuing adornment as a living, working piece of architecture.

There will always be tension between those who have an intimate working knowledge of, and responsibility for, major works of art and their welfare and those further removed, who care equally for such monuments but take a more tentative view. The problem seems to be that little time and effort has been made in the past to explain and justify technical and artistic judgements to the wider public so as to carry everyone along in support of, or with empathy for, such works rather than in outright opposition to them.

At Westminster all this is changing. With many years of teaching behind him at the long lost and lamented conservation course at Manchester School of Architecture, and particularly in view of his mastery of the Gothic idiom in terms of design, Mr Buttress is well equipped to explain and defend his ethical and technical stance on repairing the Abbey (which he did on the television programme *One foot in the past*). Whether you agree with Westminster's stance, the current impressive works are ably described in the book and in the well-organised Masons' Yard exhibition.

John Fidler, RIBA

Head of Architectural Conservation

Water works

Waterjetting technology by David A Summers, 1995, published by E & FN Spon, £95

Waterjetting technology, at just under 900 pages, is one of the best presented technical books available – the clarity of the text is matched by the diagrams, and relevant information can be found easily. It will interest historic building professionals who wish to know more about the basic principles involved in waterjets, pressure water cleaning and abrasive cleaning.

The first chapter, on waterjetting fundamentals, introduces basic terminology. The definition of terms such as 'impact pressure', 'traverse speed', 'round jet', 'soluble abrasives', 'pulsating water jet', and 'cavitation' begins to introduce the complexity of the subject. Much of the book deals with high pressure industrial waterjet cutting and the use of waterjets in civil engineering, mining, rockcutting and drilling systems, beyond the realm of the smaller systems in historic building work, which principally involve cleaning. However, interesting theoretical information is dotted through the book and concentrated in the last three chapters.

Chapter Three, which discusses the use of waterjets in cleaning applications, concentrates on industrial cleaning, rather than on historic building cleaning. Nevertheless, some important basic principles are presented. For example, in the normal use of abrasives for cleaning, two factors are of utmost importance: the velocity and concentration of the particles which impact on the surfaces. These are in turn controlled by the pressure and

volume of the air flow used and the concentration of abrasive fed into the line. So, those of us who have been latched onto specifying pressures have been partly barking up the wrong tree.
Parameters for the selection of a nozzle for abrasive cleaning include nozzle length, shape, diameter and nozzle materials. Each is described in detail, increasing awareness of the wide range of operational aspects that are encompassed by the term ‘abrasive cleaning nozzle’. For example, on nozzle shape, the book points out a fan jet provides a very rapid breakup of the waterjet spray after it leaves the nozzle, whereas a round jet is better at overcoming the reduction of cleaning effectiveness with distance.
Definition of the term ‘hydro demolition’ is also sobering, reminding us of the ultimate effect that high pressure jets can have. At the other end of the scale, ‘droplet impact’ reminds us of the wide range of details which must be appreciated to adequately understand an abrasive water or water and abrasive stream.
Differentiation between ‘pump pressure’ and ‘impact pressure’ reveals the depth of misunderstanding that can surround abrasive cleaning. While the book does not describe abrasives in great detail, it does contain sobering comments, for example, ‘highly aggressive materials such as aluminium oxide’.
This book will be of use to technicians and professionals dealing with the cleaning of historic masonry who have a particular interest in technical details. Clearly, its main market is beyond this. It is certainly worth looking at this volume to learn how a technical book should be written.

Nicola Ashurst

Technical Consultant

Getting to know lime

Lime in building: a practical guide by Jane Schofield, 1995 (revised second edition), published by Cullompton Press, £4

This revised edition of Jane Schofield’s *Lime in building: a practical guide* is yet another indication of the renewed interest in lime-based materials in Britain, especially among those involved in the care and conservation of historic buildings. The author has devoted a lifetime to understanding traditional building practice in her part of the world, and has been a solid advocate of the use of lime, particularly so far as the interested homeowner is concerned. Her locally published booklet has sold 2,000 copies, aimed at those who ‘would probably never involve an architect or a surveyor before embarking on repairs’.
As a primer for people who know little about the material, the booklet contains useful basic information. In a simple format, illustrated with clear drawings in an imaginative personal style, Ms Schofield offers advice on materials and equipment, the slaking and preparation of lime, mixes and mixing, and application techniques for mortar, plasters, renders and limewash. She also gives a list of suppliers of lime-based material by region and a short bibliography for further reading.
The book is aimed at home-owners and builders who might otherwise use inappropriate materials in the repair of old buildings. Thus, it attempts to make the use of lime seem relatively uncomplicated in the hopes of winning converts to traditional building materials. As the author writes in the introduction: ‘There is little mystery involved: a grasp of the basic principles combined with common sense and perseverance is all that is required. After using lime, most people... become converts to “the cause” and start to encourage others to try it for themselves.’

But here is the classic dilemma: while the availability of such basic information certainly has its merits, it can also be somewhat misleading, especially if the advice is misapplied. Like most DIY guides, *Lime in building* contains a great deal of oversimplification. Lime is undoubtedly an important and valuable building material, which has been used for centuries, but its preparation and use can be far from simple, especially for builders and craftsperson who are used to working with modern cement binders. If used too wet or with the wrong aggregate, or inadequately protected or in the wrong context, lime mortars and renders will fail spectacularly, doing little to promote 'the cause'.

In this respect, the discussions on hydraulic binders and on additives are particularly worrying. The author mentions hydraulic limes, but indicates that little is now available in Britain, Shillingstone being cited as the lone source. She also states that it is 'generally only used on specialist projects'. While it is true that British hydraulic lime production is presently rather limited – though there are other producers besides Shillingstone, notably Somerset Stone, which is again burning stone from the Blue Lias area – there are now a large number of imported hydraulic limes in the marketplace, from France, Italy and elsewhere. Though these products tend to be restricted to specialist projects at the moment, there is great historical precedent for their use in the UK and elsewhere, especially in conditions of extreme cold and/or damp where the slow setting process of lime can be problematic.

There is similar oversimplification regarding the use of pozzolanic materials, such as crushed brick powder and Pulverised Fuel Ash (PFA). Again, the leaflet makes it seem as if the creation of an appropriate pozzolanic mortar or render is a relatively straightforward task which involves adding a bit of one of the pozzolans mentioned to some prepared coarse stuff in a more or less standard amount, as specified in the booklet. However, published research by English Heritage (the Smeaton Project) and other work has shown that the situation is not quite so simple. The reactivity of a brick dust will depend on many factors, including particle size, firing temperature and type of clay. High Temperature Insulation powder (HTI), which is mentioned as one of the pozzolans to be used, is very inconsistent in conferring hydraulicity, probably due to the variability in its firing temperature. The amount of pozzolan required in the mix will also depend on many factors, such as the nature of the aggregate, the binder: aggregate ratio, the reactivity of the pozzolan, etc. So though the booklet alerts the reader to the existence of hydraulic materials, it does not provide much useful guidance on when or how to use them or whether they will actually work.

Granted, the focus is non-hydraulic limes. It does contain useful, easily digestible information on the nature, preparation and application of lime-based building materials. However, it provides very little context for their appropriate use (ie when and where they are appropriate and when they are not) and to my mind gives a rather false idea of the ease with which they can be adopted.

Lime is presented as an alternative to cement, and limewash as an alternative to plastic pa int. On the most basic level, this may prevent damage to many historic buildings. However, if lime is to be used intelligently, without losing credibility, both its advantages and limitations must be understood. It must be seen not as a unique 'wonder material' but as one of a number of traditional building materials, including hydraulic limes and various additives, which, when utilised properly in appropriate situations, will give very satisfactory results both in terns of aesthetics and durability.

The intelligent advocacy of traditional practice is a worthwhile goal. The challenge for all of us involved in building materials decay and its treatments is to remain objective, lucid and convincing in what can be an extremely complex field.

John Fidler, RIBA

Head of Architectural Conservation

A very British edition

Journal of Architectural Conservation, volume 1, number 1 (March 1995), published by Donhead Publishing, three times per year, annual subscription £75

The publication of the *Journal of Architectural Conservation* by Donhead with De Montfort University and under the patronage of Sir Bernard Feilden is certainly welcome. The architectural conservation profession has suffered from a lack of appropriate and accessible publications in which to exchange fully developed technical information and ideas. Most existing journals are based on membership of particular organisations (ICOMOS, ASCHB, etc) or are aimed at particular disciplines, with the result that information is often scattered in a variety of publications or lost in conference proceedings, which reach a limited readership. So the appearance of a new peer-reviewed journal, open to a large readership, is certainly encouraging and deserves to be supported.

The journal seeks to be wide-ranging in subject and to include discussion on issues from philosophy and aesthetics to repair techniques and management. It intends to be international and to appeal to a wide readership of academics and practitioners involved with the conservation of buildings and their settings.

That said, for an international journal, the first issue is decidedly British, with a number of articles by representatives of the UK academic establishment. The contributions do address a wide range of topics from theoretical issues to more technical concerns. For this reviewer, the articles by Patrick Baty on historic paint analysis and the contribution by CR Moynehan *et al* on the cleaning of architectural terracotta were of particular interest. Other less technical contributions included articles on the listing of historic parks and gardens, a reconsideration of historical attitudes toward conservation in Britain, and a case study regarding works carried out by Sir Norman Foster & Partners at the Royal Academy of Arts in London.

While the attempt to be so inclusive in scope is laudable, it does make for somewhat disparate papers. Perhaps this is unavoidable in a field which is so diverse and which involves so many disciplines. But it also means that readers will have to accept that a number of articles in any issue may be of peripheral relevance only to a particular area of expertise.

Compared with other recent Donhead publications, the *Journal* tends to he rather conservative in format. However, the quality of the illustrations is generally very high and the layout makes for easy reading. The colour section, which accompanies the article by Patrick Baty on historic print analysis, deserves particular note. Hopefully, funds will continue to be found for more of this form of printing.

The *Journal of Architectural Conservation* has made a promising start towards providing an open forum for exchange and debate in the field of architectural conservation, at least in the UK. Future issues will determine whether the journal will eventually become the international publication it aims to be. Similarly, as the journal defines its readership, the subject matter may be more clearly focused. Without question, though, this new publication fills a gap and is a welcome addition to the literature.

Jeanne Marie Teutonico

Architectural Conservation Branch

Owning a piece of history

Living with a listed building by Josephine M Cormier, 1995, published by Courtland Books, £14.95

The initial impression of this book is that it is a very sensible work, and, unlike many of the buildings to which it applies, the first impression is confirmed on better acquaintance. There is, however, not very much of it: some of the potential readership may think that £14.95 is expensive for a large print text of 50 pages, which might be easily read in the public library. Nevertheless, it would be the ideal introduction to the subject for a Conservation Officer to recommend to a nervous first-time historic property buyer.

The book is subtitled *The Essential Guide* [author's capitals] *to owning, maintaining, repairing and improving your historic property* and Miss Cormier is certainly well qualified to write such a book, having worked for a local authority and practising as an architect and recorder. But the book is not what it claims to be: such a book would be hard to lift, let alone write. At almost every point an experienced reader will think 'Ah, but...', and there are a few points where the ferocious effort to keep the length down has resulted in significant issues not being set out even at the necessary minimum length.

Two such points perhaps betray the Thames Valley origins of the author: the firm prohibition on painting external timberwork and the refusal to consider total rethatching. In each case there may be good reasons for disputing the practices, but they should not be excluded from discussion.

This criticism applies mainly to the second half of the text, which deals with common defects. The first half covers the reasons for listing, the scope of the controls, how to apply and appeal, and the sticks and carrots. This material is all admirably clear and concise. Unfortunately the list of addresses is faulty, with the incorrect address for the Royal Commission in London, the wrong number for the Department of Environment, and an address for the Georgian Group that will be out of date very soon.

The tone is brisk but sympathetic, to the building and its owner, but to the first in particular. The text pulls no punches, and concludes the section on the legal side with the words 'other than the pleasure of owning and using an interesting, historic building, the advantages for the individual owner of a listed building are few', a sign of the times since most of the earlier works on the subject refer hopefully to local authority or English Heritage grants.

The writing is plain and clear, and the architectural advice carefully worded within the limits of the format. In one respect the advice is a little coy, probably to avoid the charge of self-promotion: the need to retain a suitably qualified professional is not emphasised, and the tendency of the rest of the book, while clearly it means to empower the owner to understand what is being done in his or her name, might be to suggest that such a person could be dispensed with. Anyway, that may have been in the mind of person who wrote the blurb on the back cover: 'This clear jargon-free guide explains... how to choose the right builders'. This is a book to be recommended, but not to everyone.

David Brock

Conservation, South-East

Archaeology on video

A helicopter was used to get the shots of crop marks in the Looking for the past video

To film a resistivity survey at West Heslerton in North Yorkshire the camera operator, Roger Tooley, is using Steadicam equipment, which allows him to follow the archaeologists at work

Videos available in the 'Archaeology at work' series are: Investigating towns (30 mins, product code XT10666, £15.95), Looking for the past and Uncovering the past (one tape, 58 mins, product code XT10505, £15.95) from English Heritage, PO Box 229, Northampton NN6 9RY or ring 0171 973 3442 for a full catalogue of our publications and videos

Archaeological evidence is a key source of information for pupils studying history in schools. English Heritage provides a useful resource in a series of videos entitled 'Archaeology at work'

The introduction of the National Curriculum has brought about a significant change in what pupils are required to learn about the past. Although the original versions of this curriculum made specialists purple with anger and produced mountains of paperwork for teachers, the newly revised National Curriculum – introduced in September 1995 – has met many of the teaching profession's demands. A significant omission is the continuing refusal to accept that the prehistoric period should form a part of the requirements for teaching history. However, we welcome the fact that a key element in the history curriculum for all pupils is 'historical enquiry'. For example, for pupils aged 7–11 the curriculum states that 'Pupils should be taught: how to find out about aspects of the periods studied from a range of sources of information, including documents and printed sources, artefacts, pictures and photographs, music, and buildings and sites.'

Promoting English Heritage's concerns

Although we are often seen as a schools' service for the historic properties we open to the public, our job in the Education Service of English Heritage is to help teachers to make the best educational use of the historic environment. Providing resources for teachers and tutors is a key part of our work. In the last 11 years we have produced hundreds of different kinds of resource materials, from posters to books and leaflets to videos.

Video resources

Among these resources are 39 videos produced by English Heritage and another five produced with other organisations. Many of the videos are for teacher training, some are for primary school children, and others are for sixth-form or adult education groups. The range is wide, from a series about places of worship to National Curriculum teacher training programmes. Several are in production at present and we have just completed two teacher training videos with the BBC to be broadcast during this autumn and repeated next year.

If there is one common theme that runs through the majority of our videos it is that we want pupils, students and teachers to look at the evidence of the past through the eyes of an archaeologist, to ask questions about that evidence, and to understand that the past has been interpreted in different ways by different people at different times.

Archaeology at work

In the 1970s there were very few resources to help teachers of archaeology in schools and very few films that explained what archaeology was really about, but two films did stand out. One was *Wigber Low*, made in 1976 by Sheffield University Archaeology Department about the excavation of an Anglo-Saxon burial in Derbyshire. The other was *Dalton Parlours – the archaeology of a West Yorkshire landscape* made in 1980 by the University of Leeds Audio-Visual Service.

Even in the 1980s there were no films that explained the nature of archaeological work to pupils in primary or secondary schools. This lack of resources has led us to make our own videos under the title 'Archaeology at work' with freelance producer Alan McPherson. This series aims to explain the techniques used by archaeologists in a clear and concise way. I established the following guidelines to govern each film in the series:

each video would portray real archaeology at work
we would work with professional archaeological units
there would be a recognisable structure which could be transferred to each video
we would aim for an audience of pupils in school aged between about 9 and 14.

Excavation and fieldwork

We started with a video about excavation because an ideal site was available to us. West Heslerton, in North Yorkshire, is complicated archaeologically but ideal for showing how archaeologists discover, excavate and record features without the confusing complications offered by an urban site.

The last section of each video repeats the main points of the programme. This allows teachers to go over the techniques again – techniques with which they and their pupils will not be familiar. In the video about excavation, *Uncovering the past*, the 'revision' section looks at the urban site of Deansway in Worcester. This allowed us to repeat the techniques and present archaeology in action in a different environment.

Our second video, *Looking for the past*, is on fieldwork and includes aerial photography, documentary research and on-site scientific techniques, such as resistivity surveys. We worked mainly with the Worcestershire Archaeological Unit and filmed them doing part of a rapid survey for English Heritage on the Long Mynd in Shropshire.

Archaeology and towns

The most recent video in the series, *Investigating towns*, is about the work of archaeologists in towns. Although it introduces the work of the 'digging' archaeologist, it looks mainly at upstanding archaeology in buildings and townscape. We filmed in two places. In Liverpool we investigated the evidence for housing, trade and civic architecture, while in Shrewsbury we looked at one building, Rowleys House Museum, and presented the evidence for the discovery of the building in the 1930s from documents, photographs, paintings and maps, as well as the evidence of the building itself.

Coming next

We are now working on the next video in the series, on the techniques used by archaeologists in laboratories. This will include dating methods, conservation and environmental archaeology. It should be ready by spring 1996, which will allow us to move back into the field (literally!) to begin work on a video about landscape archaeology.

Mike Corbishley

Head of Education