1 Perspective

Neil Cossons

This book of essays is published to coincide with The International Congress on the Conservation of the Industrial Heritage (TICCIH), held in the United Kingdom in August and September 2000, the first occasion that it has taken place here since the inaugural congress in Ironbridge in 1973.[1] Much has transpired in the field of industrial archaeology since then, not only in the preservation and conservation of industrial buildings, monuments and landscapes (Figure 1.1), but also in moves to record and interpret them. New values and meanings are being ascribed to industrial landscapes and to their key distinguishing features. Some of these have emerged from improved knowledge resulting from the steadily growing corpus of research and scholarship. Other values reflect increased merit conferred by antiquity coupled with the virtual disappearance in many areas of what might be called traditional industrial activity. And all of this is taking place within the framework of the continuous and wide-ranging historical reassessment of the epoch that for over a century and a half we have called the Industrial Revolution.

On one hand historical and archaeological importance is now widely recognised and understood. But equating that understanding

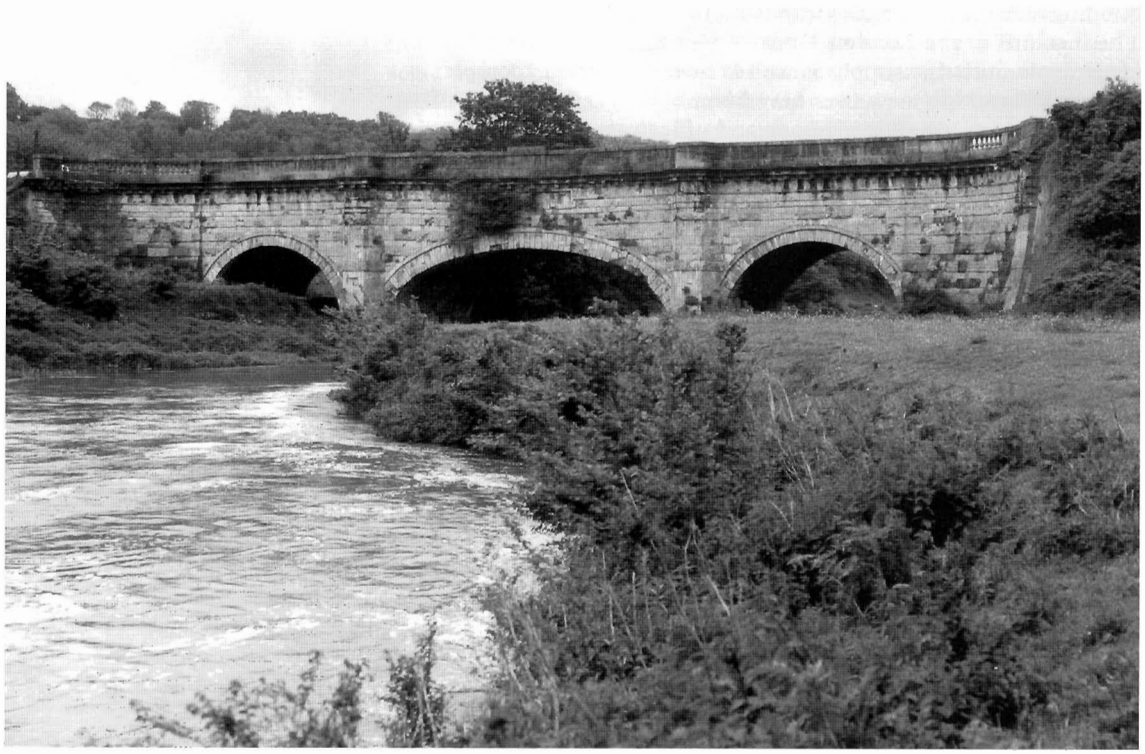

Figure 1.1 Avoncliffe Aqueduct is currently under restoration as part of a £27 million scheme to renovate the Kennet & Avon Canal (1996). Financed by the Heritage Lottery Fund, the canal has received the largest single grant from the Fund. (Neil Cossons)

with the well-established approaches to preservation already accepted for earlier periods is elusive. In fact, such are the practical, financial and cultural obstacles to preservation in the conventional sense that industrial sites and monuments can still be said to deserve new and innovative thinking, from historians and archaeologists, conservation architects and scientists, as well as the agencies that employ and fund them. More important still is the need to re-examine the nature of the financial and legislative arrangements. And, before success can be achieved on any of these fronts, the climate of public and political opinion still needs to be sensitised to the necessity of valuing buildings and places that until recently have been generally regarded as worthless.

Regeneration through conservation

However, while there is an increasing recognition of historical importance, such is the nature and extent of the industrial landscape that it is often social and economic imperatives that drive moves towards conservation. Industrial buildings and areas are increasingly seen as assets that can be recycled into new and productive uses. (A notable typological example is the urban Scottish textile mill, the subject of Mark Watson's contribution in Chapter 7.) Many old industrial areas are characterised by high levels of economic and social deprivation leading to neglect of the physical environment. Frequently this is the result of the complete extinction of the original industrial economy, as is typically the case with the deep mining of coal. Although colliery landscapes[2] present often intractable problems of conservation, factory or warehouse buildings may find new uses unrelated to their original functions. The instance of the London Docklands, where demand for loft apartments outstrips supply, is well known. Elsewhere, complex patterns of multiple new uses have been brokered – mixtures of residential units, small workshops and offices are typical – aimed at exploiting old industrial or commercial buildings for wider social gain. Although these projects are often promoted with social benefit in mind, indigenous communities frequently move on in the face of newcomers who come bringing new skills and energies to replace them.

Nevertheless, regeneration through conservation has become a successful means of revitalising local economies and maintaining the social fabric of communities that otherwise would be in difficulty. The reuse of empty industrial buildings often provides the key. A recent initiative by English Heritage and Birmingham City Council to retain the thriving mixed-economy nature of the Birmingham Jewellery Quarter – where some 6000 people are still employed in the jewellery trade – is an example of another approach, utilising Listed Building and Conservation Area powers to protect what is there and to sensitively control redevelopment. What is becoming increasingly recognised is that the industrial landscape, through its scale and the nature and complexity of its structural typologies, presents entirely new issues for conservation (Figure 1.2, colour plate). These challenge the existing legislative provisions which are ill adapted to handle the holistic approach demanded by enlightened conservation policy makers.

Development of industrial archaeology

Although the term 'industrial archaeology' has its origins in the Britain of the 1950s,[3] acceptance came quickly in those parts of Western Europe and North America where the phenomenon of industrialisation was recognised as a prevailing economic and social force in the nineteenth and twentieth centuries. Elsewhere, understandably, industrial archaeology has had less relevance, not because physical remains of what are clearly of industrial origin are absent from the landscape, but because the overwhelming influence of industrialisation registers neither in the popular consciousness of the past nor within the framework of scholarly discourse. Historians and archaeologists may prefer 'historical archaeology' while, as a more popular metaphor, 'industrial heritage' conveniently identifies a subspecies of the generic term 'heritage' that is now the almost universal descriptive for the historic landscape and its components.

Semantics aside, the fact of industrialisation is recognised as an historical era. That industrialisation has left a wealth of material evidence is widely understood. The elimination of the so-called smokestack industries from areas traditionally associated with industrial activity and the fading impact of the social and economic disruption that their departure caused enables a more dispassionate perspective to prevail. This, and perhaps the turn of the millennium, is already creating a realisation that society is faced with a huge relict landscape of immense richness and diversity from which messages can be derived, lessons learned and new meanings understood. Moreover, it will be the landscape in which most of us will live.

In Britain the development of industrial archaeology has a number of distinct and largely separate strands. Angus Buchanan sets out in Chapter 2 some of the antecedents and chronological detail. He identifies their foundations on the periphery of the academic world, typically associated with university departments of extra-mural studies and adult education, with the Workers' Educational Association and the pursuit of local history or historical geography. In parallel were the developing enthusiasms of those whose interest lay more specifically with the preservation, and frequently operation, of old machines. These people found expression through numerous preservation societies and in a more formal and scholarly sense through the activities of the Newcomen Society[4] which itself had been active since the 1920s. In Chapter 3, Barrie Trinder offers a wider context within which industrial archaeology was able to thrive as an activity enjoyed by amateurs and enthusiasts in their spare time. The 'amateur status' of industrial archaeology is a quality still cherished by many that view with circumspection, if not outright suspicion, those who make a living from what they regard as a compelling pastime. In one sense therefore industrial archaeology reflects some of the characteristics of archaeology proper in its pre-professional era.[5]

It is not insignificant that Michael Rix's celebrated article,[6] the first to use the term 'industrial archaeology' in print, appeared in a journal then called *The Amateur Historian*. In the same year, 1955, W G Hoskins' seminal *The Making of the English Landscape* was published. Local history was thriving in the University College of

Leicester with its unique Department of English Local History. The head of that department, H P R Finberg, in his Introductory Lecture of 1952,[7] noted that a Research Fellowship in Local History had been instituted at Reading as long ago as 1908 and that similar initiatives had taken place in University College, London, in the 1920s and later in Hull. These, and many other moves all over the country, set the scene for the arrival of industrial archaeology, as a popular discourse, a new and thriving aspect of local studies, and an area of enthusiast interest, which was eventually to gain political and official recognition and academic respectability. In a sense it is not surprising that industrial archaeology came into being in the form in which it did. It would have been more startling had it not. The extraordinary impetus that a persuasive new title gave to an area of concern that was more than ready to burst forth is impossible to overestimate.

Notably absent to any significant extent from these early developments was the active and practical involvement of archaeologists whose own emerging professionalism was giving them new authority in the analysis of material evidence through innovative techniques of excavation, the application of increasingly sophisticated technologies in their understanding of that evidence, and the systematisation of standards in the publication and presentation of their findings. In hindsight it is therefore all the more remarkable that the support of the Council for British Archaeology came so early, in 1958, providing a focus through its Industrial Archaeology Research Committee, around which the first moves towards governmental support and legislative assimilation (which came in 1966) could be built.

There is little doubt that claims of primacy, stemming from a catechism in which Britain's role as the first industrial nation was cited with numbing regularity, were important in this respect. The rhetorical message – that the origins of the world's first industrial society were under threat – helped galvanise government officials whose contact with anything remotely associated with industry was minimal. To local-government members and their officers in the heartlands of industrial Britain, on the other hand, the message was less persuasive – until, that is, it could be linked to tourism or urban regeneration. Paradoxically, it has been the broader perspective of historical and archaeological understanding of industrialisation worldwide – to a great extent as a result of the work of TICCIH – that has conferred both authenticity on many of these claims and, equally, set them in a context.

The roots of industrial archaeology then lay with local-history studies and adult education and among people who a generation earlier might have recognised 'self-improvement' as part of their educational ethos. That was to exert a powerful influence on the way industrial archaeology developed in any organised sense. Parallels in the pre-industrial context lay with the study of folk life and vernacular architecture. And, just as these had led to the establishment of the Society for Folk Life Studies, the Museum of English Rural Life at Reading, the Welsh Folk Museum at St Fagans and numerous agricultural and folk-life collections in museums, so too in the industrial field new organisations grew up to meet new needs and reflect new aspirations. The Association for

Industrial Archaeology (AIA), formed in 1973, was one of these. It has come to represent at a national level the energies of numerous local and regional organisations. It is the primary focus for what might be termed the voluntary sector of industrial archaeology and publishes twice a year *Industrial Archaeology Review*, the direct and respected descendant of *The Journal of Industrial Archaeology*, edited by Kenneth Hudson and first published in May 1964.

However, there may be object lessons for industrial archaeology in the precedents of rural and folk studies on one hand and what can be seen as an increasingly professionalised archaeology on the other. The rural-history movement has clear similarities with industrial archaeology: it grew from the mourning of a recent past, remnants of which could be captured by resorting to oral history, film and museum collecting. It was inherently 'generational' so, as its founding protagonists have died, so too have the impetus and commitment largely evaporated. A self-defining elite failed to evolve or even reproduce itself in numbers sufficient to ensure survival of the species. Industrial archaeology may demonstrate similar characteristics. Conventional archaeology, on the other hand, has seen a different transition. With origins in nineteenth-century antiquarianism, it has successfully both professionalised itself and multiplied, with a strong power base in universities and a rapidly growing strength founded on the improving of standards, albeit through a rather primly archaic emphasis on professional status.

A survey published in 1999[8] found that there were well over 2000 people employed professionally in archaeology in the United Kingdom, substantially more than in all other aspects of the historical environment put together. No such cadres exist for the industrial landscape or any other area of historical study. The core strength of industrial archaeology in a professional sense lies almost entirely in English Heritage and the equivalent government agencies in Scotland and Wales. Numerically small and well below the critical mass necessary for self-sustainability the professional infrastructure is, as a consequence, highly vulnerable.

The major voluntary body, the AIA, and the majority of local and regional societies that affiliate to it, are concerned primarily with study and recording. Preservation, in the sense of the active operation of preserved sites or museums, is a largely separate strand with its own organisational structure, institutions and professional frameworks. New museums were set up to reflect these new needs on one hand and in order to compensate for the inadequacy of existing arrangements on the other. They lay mainly outside the established structure of museum organisation in Britain, which was then largely in the hands of local authorities and nationally-funded museums. The concept of the 'independent museum' owes much to industrial archaeology, which in turn has benefited from the peculiar dynamic that characterises this singularly vibrant genre. Independent museums have a national body to represent their interests, the Association of Independent Museums (AIM), founded in 1978.[9]

The acceptance that industrial buildings and monuments form an integral part of the historic environment is reflected in the record of government agencies since the mid-1970s. There are anomalies and failures, holes in the legislation and, in particular, discrepancies between the resources for the conservation of really

large sites and buildings and the scale of the need, but overall the contribution made by English Heritage and its parallel organisations in Scotland and Wales and the three Royal Commissions[10] is, by any measure, exceptional and without parallel anywhere in the world. Keith Falconer, in Chapter 4, covering the development of recording, and Anthony Streeten in reviewing the policy and practice for industrial conservation in Chapter 5, respectively illustrate a long period of intermittent and *ad hoc* acceptance that certain industrial structures might be of importance – the Iron Bridge was scheduled as an Ancient Monument as long ago as 1934, for example – followed by a rapid and systematic embracing of the industrial landscape by the early 1980s.

Opportunities and challenges

The final three essays exemplify issues that resonate throughout the industrial archaeological firmament. Adaptive reuse is the prevailing mechanism through which most industrial buildings that do survive will (Figures 1.3 and 1.4, colour plates). The motives are rarely if ever archaeological, and official conservation agencies frequently find themselves at the table simply by virtue of their grant-giving status. The leverage for gaining good results is often weak. But good examples of appropriate and sympathetic conversion abound, and the growing band of architects whose specialist skills and commitment to history and archaeology have led them to produce outstanding results gives cause for optimism. Mark Watson, in Chapter 7, tracks the detailed issues surrounding the survival of some of the 30 or so urban Scottish textile mills that have found new uses. His examples are from the nineteenth century, but from the twentieth the renovation of the Hoover factory in north-west London in 1992 stands as a beacon to a growing awareness of the importance of modern industrial buildings and the opportunities they afford for reuse. The destruction of the Firestone building over an August bank-holiday weekend, when it was within a few hours of being listed, did for the modern factory in the 1980s what the loss of the Euston Arch had achieved 20 years earlier. While Battersea Power Station still stands in limbo as an empty husk, on the credit side the Owen Williams 'wets' building at Boots in Beeston, perhaps the most important of the great interwar industrial structures, has been carefully restored and kept in use.

Michael Bailey's and John Glithero's exemplary study of George and Robert Stephenson's *Rocket*, outlined in Chapter 8, holds metaphors that ricochet through our compulsion to understand the industrial environment. What is arguably the most famous railway locomotive in the world, *Rocket* has been and to some extent remains a mystery to us. What Bailey and Glithero have done is to subject it to a quality of archaeological analysis without equal. It has been revelationary. Their combination of contemporary locomotive engineering knowledge and experience, in part built up through the replication of *Planet*,[11] and systematic forensic approach, has taught us more than has been understood since *Rocket* arrived in South Kensington in 1862. Here is a new science waiting to be deployed and an open challenge to museums and conservation agencies to get on with it.

Stafford Linsley, in Chapter 6, uses the structure of a region in England – the North East – to take a cross-cutting look at the evolving status of industrial conservation in an area rich in remains. It is a region that has suffered inordinate economic pain and paid the social consequences – circumstances that have contributed as much as anything to its almost tribal sense of regional self-awareness. It is a region too in which powerful and innovative initiatives have dominated: the setting-up of the Beamish Open Air Museum, as a means of capturing in microcosm something of the spirit of the industrial North East, and the Tyne and Wear Industrial Monuments Trust as a counterbalance to ensure the proper conservation *in situ* of key sites and buildings. It has been an uphill struggle and, as Linsley points out, 'Given the low level of academic interest in, and financial resources for, the archaeological study of the industrial period, it becomes necessary to make the case for its more serious consideration over and over again.'

Here is the message. It is the same message that has haunted industrial archaeology since its inception. Most of those who have been involved in industrial conservation can recite it by heart in one context or another. We are the privileged occupants of an extraordinary landscape in which a sequence of world-changing events took place. Most of the built environment, and the places where most of us live, are of the Industrial Revolution period. Outstanding progress has been made, especially in recording and through, for example, the Monuments Protection Programme and

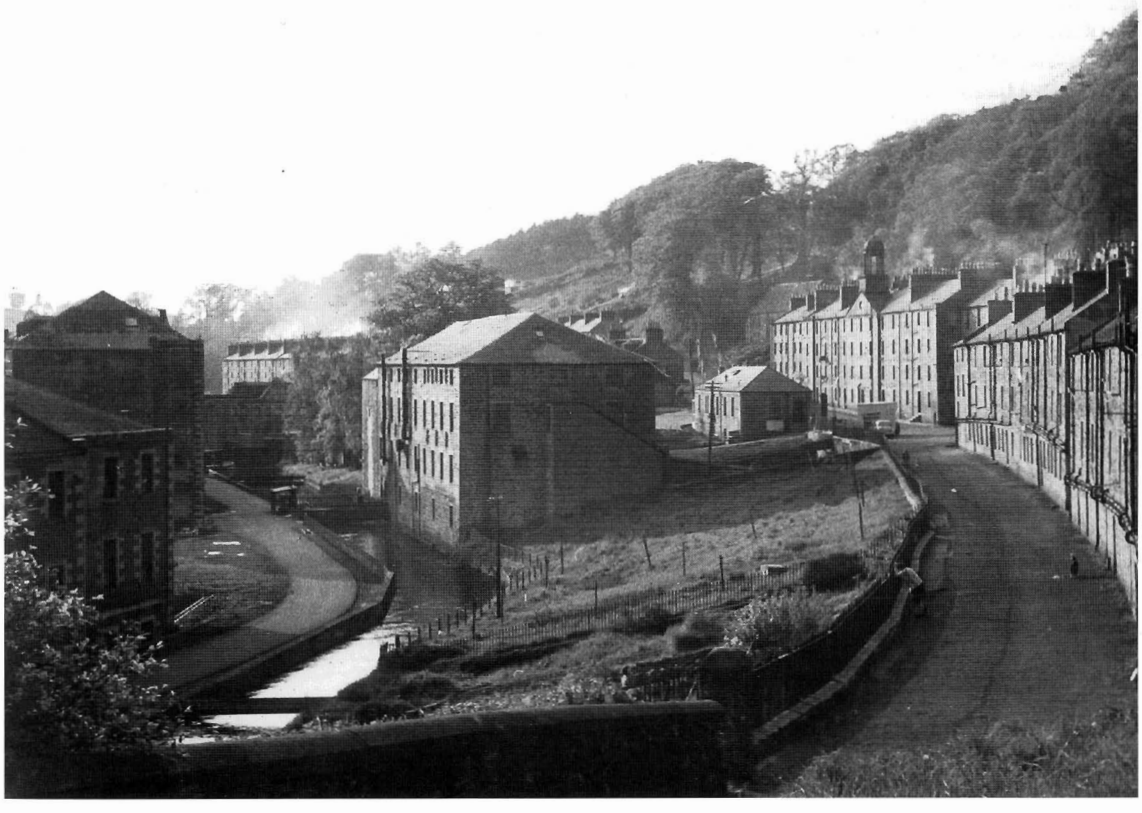

Figure 1.5 New Lanark (c. 1970), Robert Owen's model industrial settlement, is one of a group of industrial sites being submitted by the United Kingdom government for World Heritage designation. (Neil Cossons)

its systematic and thematic capture of the key sites and landscapes. And nobody could have predicted, even five years ago, that the next batch of United Kingdom submissions for World Heritage designation would embrace a comprehensive group of industrial locations, including the Derwent valley in Derbyshire and Saltaire, the key structures of the Great Western Railway main line between Paddington and Temple Meads and the Forth railway bridge, New Lanark (Figure 1.5), the Liverpool waterfront, Blaenavon and Pontcysyllte aqueduct. And yet, despite all this, the gap is great and possibly still widening. The Ditherington flax mill in Shrewsbury, the world's first iron-framed building (Figure 1.6, colour plate), is still without a secure future after dozens of abortive schemes have come to nothing. Manningham mill in Bradford, the epitome of Yorkshire textile manufacture at its zenith, has been plundered for it floor slabs and roof slates. Industrial landscapes offer the greatest conservation challenge yet.

Notes and references

1 The First International Congress on the Conservation of Industrial Monuments (FICCIM) was held in Ironbridge from 29 May to 5 June 1973, based on the Ironbridge Gorge Museum and the residential accommodation then afforded by the University of Birmingham at Attingham Hall, near Shrewsbury. The joint congress secretaries were Barrie Trinder, adult-education tutor with Shropshire County Council Education Department, and Neil Cossons, Director of the Ironbridge Gorge Museum Trust. See Cossons, N (ed.), *Transactions of the First International Congress on the Conservation of Industrial Monuments* (Ironbridge: Ironbridge Gorge Museum Trust, 1975).

2 See Gould, S and Ayris, I, *Colliery Landscapes* (London: English Heritage, 1995) for an aerial survey of the deep-mined coal industry in England. In the mid-1980s there were some 130 pits in England; a decade later there were no more than a tenth of that number.

3 The precise origin of 'industrial archaeology' is uncertain but it first appeared in print in 1955 when the architectural historian and lecturer in English Literature, the late Michael Rix (1913–81), staff tutor in the Department of Adult Education at the University of Birmingham, published an article in *The Amateur Historian* emphasising the need to record and preserve the remains of industrialisation before they disappeared: Rix, M, 'Industrial archaeology', *The Amateur Historian*, 2 (1955), pp225–9.

4 The Newcomen Society for the Study of the History of Engineering and Technology was formed in 1920 following the James Watt Centenary Celebrations held in the previous year. The Society meets in the Science Museum, London, where it has its headquarters.

5 Levine, P, *The Amateur and the Professional: Antiquarians, Historians and Archaeologists in Victorian England, 1838–1886* (Cambridge: Cambridge University Press, 1986)

6 Rix, M (see note 3)

7 Finberg, H P R and Skipp, V H T, *Local History: Objective and Pursuit* (Newton Abbot: David and Charles, 1967), p2

8 Aitchison, K, *Profiling the Profession: a Survey of Archaeological Jobs in the UK* (Council for British Archaeology, English Heritage and the Institute of Field Archaeologists, 1999)

9 The Association of Independent Museums (AIM) was founded in 1978 to represent the interests of museums, most of them of recent foundation and many concerned with industrial and transport sites and collections, that lay outside the conventional publicly governed structure of museums in the United Kingdom and the Republic of Ireland. See also Cossons, N, 'The case for the cultural quango', *Museums Association Annual Conference Proceedings* (1976), pp26–7

10 The Royal Commission on the Historical Monuments of England was merged with English Heritage (the Historic Buildings and Monuments Commission for England) in 1999. In Scotland and Wales the Royal Commissions remain separate. Different arrangements apply in Northern Ireland.

11 Bailey, M R, 'Learning through replication: the Planet locomotive project', *Transactions of the Newcomen Society*, 68 (1996–97), pp109–36

2 The origins of industrial archaeology

R Angus Buchanan

Like the Industrial Revolution, to which it is closely linked, industrial archaeology began in Britain. However, whereas the Industrial Revolution began in the eighteenth century with a significant increase in the application of new technologies to the sources of power, to industrial productivity, and to systems of transport and communications, industrial archaeology did not emerge until the second half of the twentieth century. It was necessary for the processes of industrialisation to mature and to develop through several stages, making obsolete the artefacts of earlier phases, before they could generate sufficient interest to encourage efforts to preserve them. This point was reached in Britain some time in the late 1950s. It became apparent, by the animated resistance to the proposal by British Railways to demolish the Doric portico at the old Euston Station (Figure 2.1), that a sense of empathy with the industrial past was acquiring eloquent public support. The prime minister at the time, Harold Macmillan (1894–1986), declared that such a view was incredible. He supported the order for demolition, and industrial archaeology was born as a result of the public outrage at this wanton act of official vandalism.[1]

Figure 2.1 The Doric portico at Euston Station in 1919. The demolition of this dramatic entry to the first main-line London railway terminus in 1962 was a powerful incentive to the emergence of industrial archaeology as a significant conservation movement (NRM/Science & Society Picture Library)

There had been some preliminary indications of a change of attitude towards the monuments of industrialisation. Until the Second World War, the social dislocation caused by industrial development and the prolonged agony of depression and unemployment had prevented any sentimentalism about out-dated industrial machines, buildings and processes. Already, however, some of the earlier transport systems of the Industrial Revolution had become obsolete and were beginning to disappear rapidly. The canals, in particular, were going out of business and becoming silted up. During the war, L T C Rolt (1910–74) made the epic journey in his boat, *Cressy*, of which he gave an elegiac account in his first book, *Narrow Boat*. By general consent, this triggered the foundation of the Inland Waterways Association in the years immediately after the war and launched a powerful – and astonishingly effective – campaign to save the British canals. Tom Rolt had lamented the decline in traffic on the waterways, and had looked hopefully for a restoration of the traditional business of conveying heavy freight around the country. This has not happened, but the canals have been revived as public amenities and tourist attractions.[2]

It was much the same with obsolete railways, beginning with the narrow-gauge quarry railways of Wales, and here again Tom Rolt was an inspirational spirit, taking the lead in the revival of the Talyllyn Railway, although he recognised here that any hope of revived vitality depended upon their appeal to tourists rather than to any restoration of their original traffic. Abandoned standard-gauge branch lines like the Bluebell Line in Sussex received the same treatment and became commercial successes, provided sufficient enthusiasts could be found to restore the track and run the trains without payment. Cynics were quick to observe that such restorations gave every overgrown schoolboy the opportunity to 'play at trains', and it would be pointless to deny that there was some substance to this view. But there was nothing objectionable about this form of enjoyment, in which whole families were able to indulge their enthusiasm, and it closely paralleled the pleasure derived from 'messing about with boats', patching up old motor vehicles, or restoring elderly steam traction engines to elegant working order. Foreigners looked on mystified by the devotion with which the British were prepared to give their weekends to such tasks, but before long they began to learn from the experience and to join in. Even the National Trust, a conservative body although always sensitive to new moods in heritage consciousness, began to take a cautious interest. It acquired the Stratford Canal and restored it, and raised support for the restoration of many old water mills and windmills.[3]

Beginnings of the industrial conservation movement

This growing affection for the relics of old machines and transport systems did not itself constitute the study of industrial archaeology, but it was an essential part of the background. It took a sense of urgency, stimulated by a fear that something of value from the past was being squandered, to convert it into the modern movement of industrial conservation. This is where the arrogant vandalism of the

new Euston Station was so significant, but it was only one of many such acts of destruction. By the end of the 1950s, planning authorities up and down the country were turning to policies of 'comprehensive redevelopment' in which it was a matter of priority to remove everything that was old and out of date. The result was a spate of destruction of inner-city regions that had escaped the hazards of bombing during the war, and a positive blizzard of new development which was frequently tasteless and shoddy. On top of this came the plan of Dr Beeching for a complete revamp of British Railways, which had the effect of declaring many miles of branch line and other routes obsolete. The forces of modernisation were on the march, and it became a matter of considerable urgency to introduce an aspect of cultural and aesthetic discernment into the policy by identifying and recording significant industrial structures and machines, and to make out the case for their preservation wherever possible.

To its great credit, the Council of British Archaeology (CBA) took a pioneering role in response to this situation. In 1958 it created the Industrial Archaeology Research Committee under the chairmanship of Professor W F Grimes (1905–88) with a broad membership of professional people, journalists, engineers, museum curators and academics. The Committee commissioned Kenneth Hudson (1916–1999) to write the first book on the subject. Hudson had worked in adult education and had served as an army education officer during the war. Then he had moved to the BBC and became Industrial Correspondent for South West England, acquiring an extensive knowledge of large and small firms in the area. As agent of the CBA Committee, he blended together several reports by other members and the book appeared as *Industrial Archaeology* in 1963.[4] The term 'industrial archaeology' had already been coined and, although there is some doubt about who first used it, it first appeared in print in an article published in *The Amateur Historian* in 1955 by Michael Rix (1913–81). Rix was a lecturer in English Literature in the University of Birmingham's Department of Extramural Studies, and he became a member of the CBA Committee. He promoted a seminal series of field parties in industrial archaeology held at the Residential Centre in Preston Montford, Shropshire, which were attended by many of the pioneers in the subject. He impressed those who knew him by his acute sensitivity to the aesthetic and educational qualities of industrial monuments.

Another pioneer who became a member of the CBA Committee was Rex Wailes (1902–86), a retired engineer and past-president of the Newcomen Society, and an international authority on windmills. When the Committee decided to undertake a survey of industrial remains, and secured a grant from the Ministry of Public Buildings and Works to conduct it, Wailes was appointed to carry out this first 'Survey of Industrial Monuments'. He observed that he was paid less than a policeman for his professional skills, but he pursued his mission of conducting a preliminary survey of the industrial archaeological stock of the nation with considerable panache, serving as an excellent publicist for the subject. Perhaps most importantly, it was arranged that Wailes should report regularly to an 'industrial panel', consisting of representatives of the

Ministry of Public Buildings and Works and the Ministry of Housing and Local Government: the two departments which were then responsible for the 'scheduling' of ancient monuments and for the 'listing' of historic buildings. It was intended that the departmental representatives should act on the reports they received, and a procedure quickly evolved to provide legislative protection for an increasing number of industrial monuments. Wailes arranged for the administration of the record material which he assembled to be supervised at the University of Bath, where I compiled the first National Record of Industrial Monuments (NRIM) from the CBA record cards which he and other field workers completed.[5]

While a number of academics took a personal interest in the development of this new field of study and, indeed, made a substantial contribution towards it, there was little official university involvement at this stage. It was probably felt that the early enthusiasm to develop it was too popular in its appeal to be easily accommodated within an academic discipline, and that its attraction was interdisciplinary rather than narrowly disciplinary. There can be no doubt that industrial archaeology did attract people from a wide range of academic studies. It was, from the outset, a remarkably interdisciplinary subject, with support from historians, archaeologists, geographers, engineers and other specialist studies as well as large numbers of people who practised no particular academic discipline. The result of this broad appeal was good for the public support of the subject, and contributed effectively to the burgeoning museum interest in industrial archaeology. Unfortunately, however, it seriously compromised attempts to win academic recognition for the subject. It was sneeringly dismissed by one academic as a good excuse 'to get a girl up in the Pennines on a sunny day', and it had tremendous difficulty in living down the implied criticisms that it was a shallow enthusiasm lacking intellectual rigour.[6] Even though several university courses have incorporated elements of industrial archaeology into their teaching and field work, it has taken three decades of fairly unrewarding effort to get it recognised as a modest period study within some archaeological degree courses.

Broadening support

The polarisation of industrial archaeology between active conservation in planning policy, legislative protection, and museums on the one hand and academic interest on the other, with a quite disproportionate emphasis upon the former, was not apparent from the outset. In the early days of the subject, industrial archaeologists puzzled over its accurate definition but were anxious to keep it open for both conservationist and academic development. No final definition was ever achieved, but my own favourite, which won a serious following for many years was this: '... industrial archaeology is a field of study concerned with investigating, surveying, recording and, in some cases, with preserving industrial monuments. It aims, moreover, at assessing the significance of these monuments in the context of social and technological history'.[7] This formulation attempted to avoid divergent development by incorporating both

conservationist and academic approaches to the subject. Despite valiant work in extramural departments in several parts of the country, such as that by Stafford Linsley in Newcastle and Michael Lewis in Hull, little impression was made on university undergraduate curricula in these years. The failure to generate a significant academic response meant that industrial archaeology assumed an increasingly conservationist aspect. This was seen in successive stages over the decades from 1960 to 1990, as industrial archaeology stimulated first a large number of local associations, and then national and international institutions.

So the first serious response to the urgent need to consider the fate of the industrial monuments of the nation was taken by the CBA, and its initiative prepared a framework of government action which was of great significance in establishing the importance of the subject. But for a strong institutional foundation it depended upon mass support in the regions, and this began to take shape in the 1960s, with a proliferation of societies and conservation activities devoted to industrial monuments. These ranged from the Greater London Industrial Archaeological Society (GLIAS) to Scotland where John Butt and John Hume at the University of Strathclyde created an energetic organisation, and from Cornwall to Wales and North England. Rex Wailes, Michael Rix, Kenneth Hudson and other members of the CBA Committee performed a valuable public relations function at this level, helping to promote knowledge and interest in the subject in many parts of the country. By the late 1960s, moreover, some of these local enterprises were beginning to form lively regional associations for the exchange of views, and organisations like the Cornish Engines Preservation Society (later

Figure 2.2 Cornish Engine House in ruins at Tregurtha Down, Penzance, in 1978. This building is very typical of west Cornwall, where many substantial monuments of the tin and copper mining industry survive. (R A Buchanan)

known as the Trevithick Society) were undertaking work of national importance (Figure 2.2). Ambitious projects for museum development, such as the scheme for an open-air museum at Beamish in County Durham, ardently promoted for many years by Frank Atkinson, began to take shape. It was part of a remarkable outburst of enthusiasm and determination which left very few areas untouched.

Being based with the BBC in Bristol, Kenneth Hudson helped to popularise the subject and took an active part in creating societies in Gloucestershire (the Gloucestershire Industrial Archaeological Society) and Southampton. In Bristol also he was a persuasive spokesman, but here the decisive factor was the relationship established between myself and Neil Cossons, then a recent appointment as Curator in Technology at Bristol City Museum. This partnership led to the creation of the Bristol Industrial Archaeological Society (BIAS) in 1968. Then, with Neil Cossons' move to Liverpool and on to Ironbridge as Director of the Ironbridge Gorge Museums, it led to the establishment of the Association for Industrial Archaeology (AIA) and to the First International Conference for the Conservation of Industrial Monuments, both in 1973. The Bristol–Bath–Ironbridge axis thus performed a crucial role in sponsoring core developments in the organisation of industrial archaeology, so that we are justified in pursuing it in some detail.

The Bristol Industrial Archaeological Society (BIAS)

My involvement in industrial archaeology derived from my appointment in 1960 as Assistant Lecturer in History in a new General Studies Department at the Bristol College of Science and Technology, subsequently to become the University of Bath. My task here was to teach social and economic history to groups of engineers and applied scientists. In order to make the subject interesting to these students, I developed an emphasis on the history of technology as a 'bridge' between my own specialist interest and theirs. The result was both a rewarding teaching experience and a decisive shift in my own research interests towards the history of technology. I was inspired to promote this subject, with the encouragement of the College authorities, by establishing a Centre for the Study of the History of Technology in 1964, and by offering a course in the history of technology at the Folk House in Bristol. The Centre survives, almost four decades later, as the Centre for the History of Technology, but the course was not such a great success. It was not well attended, although I made some useful contacts and came to grips with the literature, and was persuaded to arrange a programme of summer outings to consolidate interest in the subject. I had approached Neil Cossons to join the Advisory Council of my new Centre in the Spring of 1964. Together we arranged the first series of industrial archaeological field parties in the Bristol region.

The first of these field parties was a memorable event. We had hired a small coach and arranged to pick up Robin Atthill (1912–94), the author of the newly published book *Old Mendip*, a lyrical account of life and industry on the plateau and in the

foothills of the Mendip Hills.[8] Shortage of numbers, however, obliged us to recruit support rather indiscriminately amongst our friends and relations, so that when Robin Atthill met us by the roadside near Ston Easton he was slightly bewildered to be greeted by a flood of small children eager to rush off to the first site. Recruitment rapidly grew for later meetings, so that our dependence on the support of junior members became less pressing, but the sense of providing happy family outings continued to pervade our early ventures and contributed greatly to their success.

At the end of this summer programme in 1964, Neil Cossons and I were sufficiently encouraged to decide that we could sustain a winter adult class on industrial archaeology. This was duly launched at the Bristol Folk House, and although I was sorry that only half the dozen people who had supported my class on the history of technology carried over to the new course, we recruited a full register (30 members) and the new course was a great success. So successful, indeed, that we ran a further series of summer outings, including one to Ironbridge in June 1965 which involved a preliminary visit by Neil Cossons and myself. Although the whole area was then extremely decrepit, we were immediately impressed by the powerful historical resonance of its industrial monuments and associations (Figure 2.3). Inspired by Arthur Raistrick (1897–1991), the historian of the Darby family of eighteenth-century ironfounders, their twentieth-century successors, Allied Ironfounders, had already rescued the original Coalbrookdale blast furnace from a pile of rubble and opened a small museum on their site. This, together with the Iron Bridge itself, provided the core of what was to become, in the next decade, the foremost industrial heritage site in the world.

We continued the class for another season, and then for another. After three years as an adult class, it was time to assume a more permanent institutional form, and so was born BIAS, in the autumn of 1967. It continued to run with weekly meetings, like the adult class from which it had grown, and a vigorous programme of outings and field parties. By the autumn of 1968 it had produced

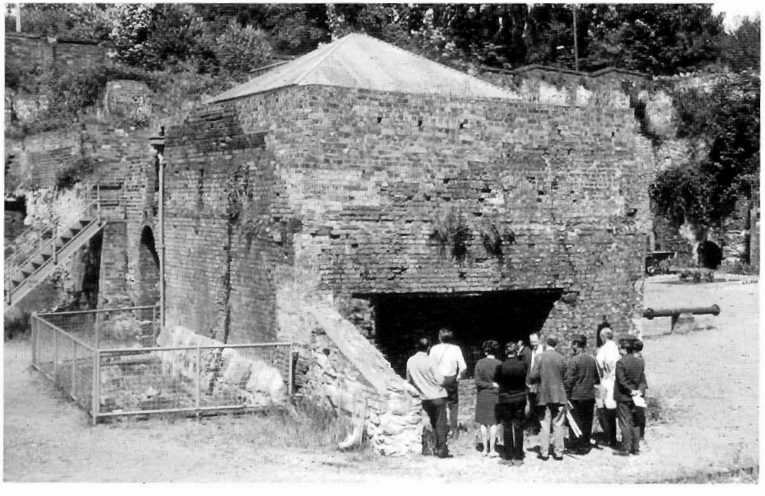

Figure 2.3 Coalbrookdale Furnace as restored in 1959. A group from the Bristol Industrial Archaeological Society is here being shown round by Michael Rix in about 1970. This is the furnace where Abraham Darby first used coke to smelt iron in 1709. It remained vulnerable to the weather until it was sheltered by the large museum structure which has been built for this purpose. (R A Buchanan)

Figure 2.4 Severn Railway Bridge, Sharpness, seen here during a BIAS visit in 1968. The bridge had been closed to traffic since a barge had collided with a pier at the far end and demolished two spans. It was subsequently dismantled and sold in parts. (R A Buchanan)

the first issue of *BIAS Journal*, the annual collection of essays and reports on activities which has appeared regularly since then. The first issue contained a report on the survey of turnpike road monuments in the Bristol region, and an account of the venerable machines in the workshop of the Port of Bristol Authority. BIAS members rarely showed the concentrated devotion of some railway and canal enthusiasts for spending large amounts of time and energy on any one particular restoration project, although some of them did spend a lot of time on surveys of various local colliery and engineering sites. However, they did apply themselves with some success to defending important industrial monuments from unsympathetic treatment by planners and developers (Figure 2.4). Old Temple Meads Station, for example, was saved from destruction by persuading the Bristol City Planners to move their projected relief road away from the station rather than through it. In Bath, Green Park Station was similarly saved, after two public enquiries and persistent agitation, to be restored as part of the new Sainsbury supermarket complex.

BIAS made a significant contribution towards several national conservation discussions.[9] In the study of metal working, for instance, Joan Day's book on Bristol brass stimulated a wider investigation into the brass industry, and the lifetime of work by George Watkins (1904–1989), producing his extraordinary collection of photographs of stationary steam engines, set a standard of excellence in this field.[10] Perhaps most dramatically, however, members of BIAS joined the protest against plans to cover over large sections of the commercially obsolete 'floating harbour' in the centre of Bristol. They thus secured its retention as a permanent maritime feature and a home for the SS *Great Britain* when the rusting hull of Isambard Kingdom Brunel's splendid iron ship, the first ocean-going, iron, screw-propelled vessel, was brought back from the Falklands in 1970. The Society has not saved everything it would have liked, such as the original lead-shot tower on Redcliff Hill and the Great Western Cotton Factory in Barton Hill, but over

its first 30 years it has made a significant impact on the landscape of the Bristol–Bath region, encouraging the conservation of many distinctive industrial features.

Publishing initiatives and the Bath conferences

Another dimension of industrial archaeological activity in the 1960s in which BIAS members took a leading part was the generating of a veritable library of books on the subject. The catalyst here was the determination of a new publishing venture, David and Charles of Newton Abbot, to capture a large stake in the field by commissioning a series of regional studies. Twenty volumes appeared in this series,[11] beginning with a book on Southern England by Kenneth Hudson and including a study by Neil Cossons and myself which appeared in 1969 (see Table 2.1 for details). The books were all prepared in a distinctive blue and white dust-wrapper and performed a valuable publicity function for the subject. In fact, other publishers were galvanised into promoting alternative works: Longman launched a series of 13 volumes dealing thematically with industrial archaeology, industry by industry; and Batsford tried another approach through county gazetteers.[12] Then Penguin and British Petroleum both published general text books on industrial archaeology,[13] and HMSO was inspired to publish two impressive works in the field by E R R Green and D Morgan Rees.[14] There was also a rich periodical literature attracting attention to the subject, with the attention of the architectural press being particularly significant because it marked the adoption of the new strategy of 'adaptive reuse'. In 1964 the subject acquired its first journal, the *Journal of Industrial Archaeology*, published by Lambarde Press in association with the Newcomen Society and edited by Kenneth Hudson. It was acquired by David and Charles in the middle of its second volume, and was subsequently edited by John Butt from 1969 to 1978, and by Stafford Linsley from 1978 to 1984. It seems likely that few of these publishing ventures were conspicuous financial successes, although several of the books ran to more than one edition and a few of them became classics. By the 1980s it had become more difficult to find an opening for works on industrial archaeology. There can be no doubt, however, that it was fortunate to receive the attention in print which it did in its early years, and that the rapid expansion of the literature on the subject helped significantly to win support for it.

The promotion of BIAS and the preparation of books did not absorb all the industrial archaeological enthusiasm of the 1960s in the Bristol region. Another very significant initiative was the series of 'Bath Conferences', staged at the new University of Bath (Table 2.2).[15] The preliminary conference was a one-day meeting and was held at the old site in Bristol in October 1964 and dealt with 'the aims and methods of industrial archaeology', and this pattern was repeated in 1965. Then in the autumn of 1966 we put on the first of five annual residential weekend conferences in Bath which looked at the subject from a variety of points of view and included field parties to sites within easy reach. The last two were on the lead industry, with a field party to the sites of lead working in the Mendips, in 1969; and twentieth-century industrial

archaeology, with a field party to Bristol City Docks, in 1970. Attendance varied between 40 and 70, and attracted an interesting range of participants. They came from many parts of the country, including Scotland, which was strongly represented by industrial archaeologists from the University of Strathclyde; and from Cornwall, Bradford and London. In retrospect, it is true to say that we had three directors of the Science Museum, South Kensington, simultaneously present: Sir David Follett (1908–82) – the director in the 1960s who gave us unstinting support, and his successors Margaret (later Dame Margaret) Weston and Neil (later Sir Neil) Cossons. The membership was also distinguished by an important international component in the persons of Robert Vogel, Curator in Engineering at the Smithsonian Institution in America, and Marie Nisser from the University of Stockholm, Sweden.

The Bath Conferences were thus both an embryonic national association of industrial archaeologists, and a prototype for an international organisation (Figure 2.5). By 1970, it was felt that the Bristol–Bath region had worked over most of the easily accessible fieldwork subjects, and that it would be helpful to try another location. So the Bath Conferences became peripatetic, meeting in Bradford in 1971 and in Glasgow in 1972. On these occasions there was earnest discussion about establishing a permanent national organisation, and with hindsight it is difficult to understand the slowness with which this apparently logical step was taken. But at the time many local societies were extremely reluctant to create another layer of organisation and strenuously resisted any attempt to do so. The situation was delicate and called for some diplomacy, so when in 1972, at the Glasgow conference, a formal motion was proposed by Sir Arthur Elton (1906–73) that a national body should be created at our next annual meeting, it was a great achievement that it was passed. Sir Arthur, through his support of my Centre and his interests as a producer of documentary films about industrial history, as well as his inspired editing of Klingender's *Art and the Industrial Revolution*,[16] had been a keen advocate of such a development from the beginning. Sadly, he died in the course of the following year, so that he was not with us in the

Figure 2.5 Bath Conference, 1968. Reflecting on the Griffin gas engine on display in Northgate House. From left to right: Neil Cossons, Michael Rix, Angus Buchanan, Frank Atkinson, Robert Vogel, Marie Nisser. (Reproduced by kind permission of The Bath Chronicle*)*

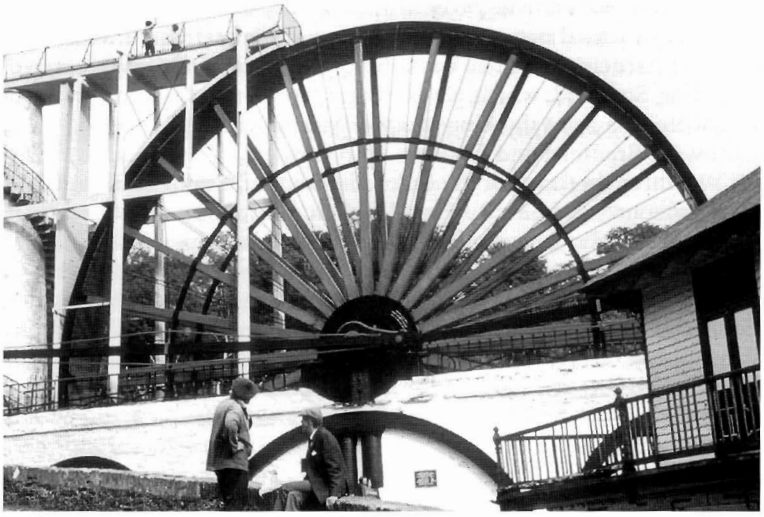

Figure 2.6. Lady Isabella Waterwheel at Laxey, Isle of Man: photographed on a visit during the inaugural meeting of the Association for Industrial Archaeology in 1973, with Tom Rolt (seated) and Douglas Hague in the foreground. It pumped water from a lead mine and is the largest surviving waterwheel in the British Isles. (R A Buchanan)

Isle of Man in 1973, when the peripatetic annual conference transformed itself into the Association for Industrial Archaeology (Figure 2.6). As its first President, the AIA elected Tom Rolt , but like Arthur Elton he also died tragically early in the course of the first year of the Association, and I took over from him.

Under my presidency, annual meetings were held at Keele (1974), Durham (1975), Southampton (1976) and Manchester (1977). At the last of these, we redefined ourselves as a legal company. Neil Cossons took over as president for the meeting at Penzance in 1978, and in 1979 the annual meeting was held in Ironbridge to coincide with the celebration of the 200th anniversary of the Iron Bridge itself. This outstanding symbol of the British Industrial Revolution had been restored from the point of imminent collapse under Neil's direction of the Ironbridge Gorge Museum Trust, with powerful help from Telford New Town Development Corporation and the Department of the Environment (DoE). The DoE had taken over the responsibilities of earlier ministries for the scheduling and listing of historic monuments, and had arrested the alarming decay of the bridge by constructing a concrete invert between the masonry piers. It should now be good for another couple of hundred years.[17]

International developments

By 1979, therefore, industrial archaeology had come of age in Britain with a plethora of thriving local societies devoted to exploring the subject and conducting a wide range of industrial conservation activities, and with a fully fledged national organisation. The AIA undertook an impressive programme of activities conducted from an office in Ironbridge and with frequent committee meetings held in Birmingham.[18] But this was not all, because the hint of an international organisation which had appeared in the Bath Conferences also blossomed in these years with the formation of the body which became The International Committee for the Conservation of the Industrial Heritage

(TICCIH). The First International Conference for the Conservation of Industrial Monuments was held at Ironbridge in 1973, hosted by the Museum Trust under the direction of Neil Cossons and Barrie Trinder, then a tutor for adult education in Shropshire. It was an extremely ambitious conference, with an exciting series of field parties including visits to the mills of the Derbyshire Derwent and the Telford road to Holyhead. It recruited overseas participants remarkably well, and it quickly became apparent that this could not be regarded as a one-off event. The delegation from Bochum in West Germany, led by Dr Werner Kroker, immediately issued an invitation to a follow-up conference based at the Ruhr Mining Museum in that town.

When participants arrived in Bochum for the Second Conference in September 1975, they were presented with another excellent set of activities, but also a constitution for a permanent international organisation. At that time several of us felt that we were being hustled into such an organisation prematurely, and I, as President of the AIA, and remembering the trouble we had experienced in persuading local societies to approve of that organisation, considered that it was necessary to discuss the proposition with our own council and with our participating societies before entering into such a commitment. So a decision was delayed, and with an invitation to go to Sweden in 1978, we applied ourselves in the next three years to these consultations. Then in Sweden for the Third Conference in June 1978, the agreement to convert the organisation into a permanent body was sealed. This was a particularly lively conference, arranged by Marie Nisser, with fascinating visits to iron works in the forests at Dannemora and Engelsberg, and with extraordinary informal junketings which culminated in a spontaneous football match between 'The British Empire' and 'The Rest of the World'. The latter won, mainly because the former were unable to get the ball past Eberhard Wachtler, the talented goal keeper from East Germany. The game had no industrial archaeological significance, but it engendered a strong sense of camaraderie. On the coach home after the game I sat with Werner Kroker, with whom I had an uneasy relationship as a result of our disagreement at Bochum. But we chatted intensely and amicably, and after a pause Werner turned and said to me: 'So! We bury the hatchet then?' The hatchet was duly buried.

TICCIH thus assumed its present form at the 1981 meeting, held at Lyon and Grenoble in France, and conducted with French verve and hospitality. It is not necessary to carry this account of the origins of industrial archaeology any further, because the French conference marked its achievement of international maturity, with strong representation in all continents and particularly in Europe and North America, where the impact of industrialisation has been most comprehensive. With distinguished monuments such as the Troy gasholder in New York State, the Du Pont black powder factory at Hagley in Delaware, and the textile-mill town of Lowell in Massachusetts, North America has some outstanding conservation successes. Inspired by this and his experience of the Bath Conferences, Robert Vogel had established the Society for Industrial Archaeology in America in the early 1970s. But the popularity of the subject has been worldwide, with remote parts of

Australia and South Africa boasting some dramatic industrial monuments, some of which are now happily finding their way on to world heritage lists complied under the auspices of UNESCO.[19]

The 1981 meeting of TICCIH had one consequence of particular significance, because we were able to draw attention to the disappearance of the fine Napoleonic iron bridge, the *Pont des Arts*, from the centre of Paris. Prompt action by French colleagues secured a change of policy, and some months later I received an official notification that the bridge had been reinstated: not quite in its original form, as it had been rebuilt in mild steel rather than cast iron. But visually the bridge is back where it belongs, as an integral feature of the Paris townscape. The change of mentality, from that which had destroyed the Euston portico in 1962 to that which had carefully restored the *Pont des Arts* in 1981, indicates the distance which industrial archaeology had come in two decades. From a few inchoate enthusiasms in the late 1950s it has grown into an accepted part of our understanding about conservation and planning policy. As such, it has been assimilated into the cultural consensus of most developed nations, and taken a respected role alongside other conservation concerns. The French state, which had hitherto shown considerable aloofness towards industrial archaeology, had acted decisively to demonstrate its commitment, and other states in Europe and North America had become generous with grants and conservation orders in critical situations.

Government involvement

In Britain, the initiative in industrial archaeology remained firmly non-governmental, but ministries and official bodies had become increasingly well-disposed towards the subject. The DoE, in particular, had accepted broad extensions in its categories of monuments for scheduling and listing, and had maintained the funding for Rex Wailes and his successor Keith Falconer as CBA Survey Officer for Industrial Monuments.[20] Many inspectors and other officers of the DoE took a very enlightened view of their interpretation of the legislation in favour of industrial monuments, with Peter White playing a pivotal role in this development. And from its creation in 1980, to relieve the DoE of its responsibilities for maintaining national monuments, English Heritage has never doubted that industrial monuments are an important part of its remit. Meanwhile, the Royal Commission on the Historical Monuments of England (RCHME), and its counterparts in Wales and Scotland, have shown considerable enterprise in extending their briefs to include industrial monuments. In England, the RCHME assumed responsibility for the functions previously performed by the CBA Survey Officer, taking Keith Falconer on to its staff and proceeding to make thorough regional surveys of textile mills, docks, pottery factories and coal mines. These surveys have been invaluable in securing rational conservation measures. Comparable developments occurred with the Royal Commissions in Wales and Scotland. In Wales, Douglas Hague (1917–90) pioneered the recording of lighthouses, and in Scotland, Geoffrey Hay made wonderfully accurate pencil drawings of many remote industrial sites.[21]

This increase in the awareness of official organisations has been shown also in bodies like the National Trust, which in Britain is entirely a non-state institution. The way in which the National Trust in England and Wales has acquired a sympathetic consciousness for industrial monuments is quite remarkable. With its long tradition of care for the open countryside and aristocratic mansions, it seemed unlikely that the Trust would be anxious to venture into the conservation of industrial monuments. But the Trust found itself with numerous water mills and windmills requiring maintenance, and in at least one case – that of Quarry Bank Mill at Styal in Cheshire – it had acquired possession of a substantial textile mill from the early stages of the Industrial Revolution as part of a large country estate. Faced with the alternative of clearing the site or restoring it, the Trust made an excellent job of the restoration. Since 1980 the Trust has built up a very creditable portfolio of industrial properties, including a tin-plate mill at Aberdulais and a gold mine at Dolaucothi, both in South Wales; a forge and light-engineering shop at Finch Foundry, Sticklepath, in Devon; a heavily mined area at Botallack and Levant on the Lands End peninsula in Cornwall; an alum works at Ravenscar in Yorkshire; Patterson's spade mill in Northern Ireland; and numerous other features of industrial archaeological significance[22] (Figure 2.7).

The rapid spread of interest in industrial archaeology in the 1960s and 1970s provided a tremendous stimulus to many sorts of conservation work, in museums and elsewhere. As far as museums were concerned, it was not just the big open-air enterprises like Beamish and the Blist's Hill complex at Ironbridge which benefited, although these did in fact become outstanding public successes and tourist attractions. But museums large and small all over the country were encouraged by a new wave of interest to broaden their range of exhibits and to improve the design and educational quality of their displays. A number of television programmes and prizes served further to promote these improvements. In the wider field of industrial conservation, the development of a strategy of 'adaptive reuse' by architects and local planners ensured the salvation and sympathetic conversion of many obsolete industrial structures. In this way, Bush's tea warehouse in the heart of Bristol was transformed into the Arnolfini Gallery by constructing a new framework within the shell of the original building, and Albert Dock in Liverpool was brought back from dereliction to provide a superb set of civic amenities. Dozens of similar enterprises in towns and cities all over Britain have guaranteed the survival and satisfactory reuse of industrial buildings.

Academic problems

The record of industrial archaeology, however, has not been one of unqualified success. Whereas the conservationist objectives of the pioneers have been amply fulfilled, and most of the outstanding industrial monuments have achieved some measure of protection, the subject has signally failed to achieve the status of an academic discipline which seemed to be within its reach by 1980. The early prominence of the University of Bath in support of industrial archaeology was not sustained, and despite several worthy attempts in

Figure 2.7 Brindley Walk, Birmingham. A successful redevelopment of an inner-city industrial site, shown here soon after its restoration in 1969. It is a basin formed by a branch off the Birmingham & Fazeley Canal built by James Brindley in the eighteenth century. (R A Buchanan)

other universities and colleges to create an academic foothold for the subject, they have had little lasting effect. Most of them, indeed, have been closely associated with individuals and have not survived the loss or movement of the persons concerned. The best work has been associated with extramural departments and adult students rather than with undergraduates, with the courses run by Stafford Linsley in Newcastle and Michael Lewis in Hull being of particular distinction.

There have been some interesting developments also at postgraduate level, and here the most promising initiative has been the Institute of Industrial Archaeology created at Ironbridge. This achieved initial success with a good recruitment of students, mainly with careers in museums or local government administration in mind. But the market for such posts has not expanded as much as the potential supply, and there has been no corresponding increase in academic posts in the subject. The Ironbridge initiative was sponsored by the University of Birmingham, under the direction of the late Professor John Harris (1923–97), and was conducted with some flair and intellectual distinction by Barrie Trinder and Michael Stratton (1953–99). But changes in personnel, especially associated with the move of Barrie Trinder to Nene University College in Northampton and Michael Stratton's transfer to York and his sadly premature death, have altered the emphasis of the course at Ironbridge. Under the new name of 'Ironbridge Institute' it continues to do good work in management studies, but has less impact on industrial archaeology than it did at first. The only academic course in industrial archaeology which can be regarded as thriving at present is that organised by Marilyn Palmer in the School of Archaeological Studies at the University of Leicester. It is encouraging that Dr Palmer has been awarded a Personal Chair in the subject, but it remains to be seen whether or not this initiative possesses the critical mass necessary to secure its survival in the stormy seas of modern British university politics.[23]

Any attempt to explain this failure of industrial archaeology to establish itself as an academic discipline takes us back to the definition of the subject. Perhaps we were being overzealous in the 1960s and 1970s in claiming to assess the significance of industrial monuments 'in the context of social and technological history'. The strength and success of the subject has been in its practical aspects, in identifying and conserving industrial monuments. This has been shown by its enormous achievements in museums and in practical conservation. But so far as assessments of the contextual significance of industrial archaeology are concerned, the practitioners of the subject have made little impact on social and economic history, although they have won some marginal recognition, mainly for illustrative purposes. As for the history of technology, that has problems of its own which have reduced it to a condition of parlous desperation in current British universities, and it has been in no position to help industrial archaeology to increase its academic standing.[24] Thus, the hope that the subject can find its true academic level as a period discipline within the study of archaeology is encouraging even though it may not be as grandiose a prospect as that which we envisaged two decades ago.

Part of the problem has been the dramatic changes which have occurred in British universities since 1980. Economic stringencies have forced them to become more commercially orientated, and the obsession with quality assurance and research assessment exercises has driven many small disciplines – like the history of technology – virtually into academic extinction. In such conditions, it is hardly surprising that so little progress has been made towards establishing industrial archaeology as an independent discipline. More fundamentally, however, it is necessary to question whether this was the right target. The experience of the last four decades, and especially the splendid successes of the subject in practical conservation, makes it clear that this has been the outstanding contribution of industrial archaeology to British national life and consciousness, and that it does not possess the qualities of a self-sufficient academic discipline. Indeed, the very interdisciplinary enthusiasm which has always been such a determining characteristic of the subject, means that it is a mistake to isolate it from other disciplines. In so far as it has a role in the academic life of our university institutions – and I, for one, believe that it has such a role – it is one which is supportive of other disciplines, historical, archaeological, and environmental. It is at this level, as a provider of solid physical evidence, well presented and analysed, about the forces of industrialisation which have transformed modern conditions of life, that industrial archaeology can perform its most valuable academic function.

Table 2.1 Books published on industrial archaeology 1960–1980

Part 1. David and Charles Series: Industrial Archaeology of the British Isles
Series editor: Green, E R R

Hudson, K, *The Industrial Archaeology of Southern England* (1965, rev. edn 1969)
Smith, D M, *The Industrial Archaeology of the East Midlands* (1965)
Baxter, B, *Industrial Archaeology: Stone Blocks and Iron Rails* (1966)
Pannell, J P M, *The Techniques of Industrial Archaeology* (1966, and edited by Kenneth Major, J, 1974)
Booker, F, *The Industrial Archaeology of the Tamar Valley* (1967)
Butt, J with Hume, J R and Donnachie, I L, *The Industrial Archaeology of Scotland* (1967)
Tann, J, *Industrial Archaeology: Gloucestershire Woollen Mills* (1967)
Harris, H, *The Industrial Archaeology of Dartmoor* (1968)
Ashmore, O, *The Industrial Archaeology of Lancashire* (1969)
Buchanan, R A and Cossons, N, *The Industrial Archaeology of the Bristol Region* (1969)
Marshall, J D and Davies-Shiel, M, *The Industrial Archaeology of the Lake Counties* (1969)
Nixon, F, *The Industrial Archaeology of Derbyshire* (1969)
Johnson, W B, *The Industrial Archaeology of Hertfordshire* (1970)
Donnachie, I, *The Industrial Archaeology of Galloway* (1971)
Harris, H, *The Industrial Archaeology of the Peak District* (1971)
Garrad, L S with Bawden, T A, Qualtrough, J K and Scatchard, W J, *The Industrial Archaeology of the Isle of Man* (1972)
Todd, A C and Laws, P, *The Industrial Archaeology of Cornwall* (1972)
Atkinson, F, *The Industrial Archaeology of North-East England*, 2 vols (1974)
Rees, D M, *The Industrial Archaeology of Wales* (1975)
Sherlock, R, *The Industrial Archaeology of Staffordshire* (1976)

Part 2. Longman Industrial Archaeology Series
General editor: Rolt, L T C

1 Rolt, L T C, *Navigable Waterways* (1969)
2 Gale, W K V, *Iron and Steel* (1969)
3 Bird, A, *Roads and Vehicles* (1969)
4 English, W, *The Textile Industry* (1969)
5 Morgan, B, *Civil Engineering: Railways* (1971)
6 Snell, J B, *Mechanical Engineering: Railways* (1971)
7 Campbell, W A, *The Chemical Industry* (1971)
8 Griffin, A R, *Coalmining* (1971)
9 Hudson, K, *Building Materials* (1972)
10 Jenkins, G, *The Craft Industries* (1972)
11 Ian McNeil, I, *Hydraulic Power* (1972)
12 Richardson, J B, *Metal Mining* (1974)
13 Buchanan, R A and Watkins, G, *The Stationary Steam Engine* (1976)

Part 3. Batsford Guides to Industrial Archaeology
General editor: Falconer, K

Hume, J R, *The Industrial Archaeology of Scotland*
1. The Lowlands and Borders (1976)
2. The Highlands and Islands (1977)
Brook, F, *The West Midlands* (1977)
Haslefoot, A J, *South-East England* (1978)
Buchanan, C A and Buchanan, R A, *Central Southern England* (1980)
Alderton, D and Booker, J, *East Anglia* (1980)

Part 4. General works on industrial archaeology

Hudson, K, *Industrial Archaeology: an Introduction* (London: John Baker, 1963)

Cossons, N and Hudson, K (eds), *Industrial Archaeologists' Guide 1969–70* (Newton Abbot: David and Charles, 1969)

Cossons, N and Hudson, K (eds), *Industrial Archaeologists' Guide 1971–73* (Newton Abbot: David and Charles, 1971)

Buchanan, R A, *Industrial Archaeology in Britain* (London: Penguin, 1972, rev. edn 1982)

Raistrick, A, *Industrial Archaeology: an Historical Survey* (London: Eyre Methuen, 1972)

Bracegirdle, B, *The Archaeology of the Industrial Revolution* (London: Heinemann Educational, 1973)

Cossons, N, *The BP Book of Industrial Archaeology* (Newton Abbot: David and Charles, 1975)

Falconer, K, *Guide to England's Industrial Heritage* (London: Batsford, 1980)

Part 5. Selected themes in industrial archaeology

Clough, R T, *The Lead Smelting Mills of the Yorkshire Dales* (Leeds: private publication, 1962)

Cossons, N, and Sowden, H, *Ironbridge: Landscape of Industry* (London: Cassell, 1977)

Cossons, N and Trinder, B, *The Iron Bridge: Symbol of the Industrial Revolution* (Bradford-on-Avon: Moonraker 1979)

Green, E R R, *The Industrial Archaeology of County Down* (Belfast: HMSO, 1963)

Hume, J R, *Industrial Archaeology of Glasgow* (Glasgow: Blackie, 1974)

McCutcheon, W A, *The Industrial Archaeology of Northern Ireland* (Belfast: HMSO, 1980)

Rees, D M, *Mines, Mills and Furnaces: an Introduction to Industrial Archaeology in Wales* (London: HMSO, 1969)

Trinder, B, *The Industrial Revolution in Shropshire* (Chichester: Phillimore, 1973)

Watkins, G, *The Stationary Steam Engine* (Newton Abbot: David and Charles, 1968)

Part 6. Developments in other nations

Sande, T A, *Industrial Archeology: a New Look at the American Heritage* (Vermont: Stephen Greene Press, 1976)

Slotta, R, *Technische Denkmaler in der Bundesrepublik Deutschland* (Bochum: Bergbau-Museum, 1975)

Daumas, M, *L'Archeologie Industrielle en France* (Paris: Robert Laffont, 1980)

Holtze, B, Nisbeth, A, Adamson, R and Nisser, M (eds), *Swedish Industrial Archaeology: Engelsberg Ironworks* (Stockholm: Swedish Royal Academy, 1975)

Table 2.2 Foundation conferences held at Bristol and Bath

The first three conferences listed below were experimental, being either one-day events held at the College of Advanced Technology, Bristol, or a four-day residential conference organised by the University of Bristol. The series of five 'Bath Conferences' organised by the University of Bath were all weekend events. They led to the foundation of the Association for Industrial Archaeology in 1973.

31 October 1964
The Aims and Methods of Industrial Archaeology
Ashley Down, Bristol: 52 attended
Speakers: K Hudson, H Milligan, R Sherlock, R A Buchanan

4–7 May 1965
The Industrial Past and the Industrial Present
Rodney Lodge, Bristol: 12 attended
Speakers: K Hudson, R Wailes, G H L Andrew, S Pollard, K Ponting, R A Buchanan, N R Collins, N Cossons, A E Owen, E G Sterland

6 November 1965
The Study of Industrial Archaeology
Ashley Down, Bristol: 7 attended
Speakers: K Hudson, R A Buchanan, R T Clough, Sir Arthur Elton

21–23 October 1966
The Progress of Industrial Archaeology
Claverton Down, Bath: 38 attended
Speakers: R A Buchanan, N Cossons, K Hudson, Sir Arthur Elton, R Wailes
Field party: Kennet & Avon Canal and Somersetshire Coal Canal

3–5 November 1967
The Theory and Practice of Industrial Archaeology
Northgate House, Bath: 42 attended
Speakers: R A Buchanan, M M Rix, F Atkinson, N Cossons, K Hudson, Sir Arthur Elton
Field party: Warmley and Keynsham (coal mining, brass industry, water power)

1–3 November 1968
The Future of Industrial Archaeology
Northgate House, Bath: 63 attended
Speakers: R A Buchanan, Sir David Follett, W K V Gale, E E R Green, L T C Rolt
Field party: Clifton Bridge and Central Bristol

31 October – 2 November 1969
Symposium on the Lead Industry
Northgate House, Bath: 59 attended
Speakers: C A Buchanan, Joan Fuller, W J Lewis, R A Buchanan, W M Hughes
Field party: Mendip lead-working sites at Priddy and Charterhouse

30 October – 1 November 1970
Twentieth Century Industrial Archaeology
Northgate House, Bath: 69 attended
Speakers: M Langley, S A Gregory, Sir Arthur Elton, B W Attwood, G Watkins, R A Buchanan
Field party: Bristol Docks and the SS *Great Britain*

Notes and references

1 The saga of the Euston Doric portico in 1962, and other seminal controversies, is briefly told in Buchanan, R A, *Industrial Archaeology in Britain* (Harmondsworth: Penguin, 1972 and 1982), ch. 1. Macmillan was Prime Minister 1957–63 and is remembered for his confident avowal of modernity with his election slogan: 'You've never had it so good.'

2 Rolt, L T C, *Narrow Boat* (London: Eyre Methuen, 1944); see also Mackersey, I, *Tom Rolt and the Cressy Years* (London: Baldwin, 1984; Aickman, R, *The River Runs Uphill* (Burton-on-Trent: Pearson, 1986)

3 The National Trust acquired the lease on the 14 mile southern stretch of the Stratford Canal in 1960 and undertook substantial repairs to make it navigable again. This was achieved largely through the dynamism of John Smith: see Waterson, M, *The National Trust: the First Hundred Years* (London: BBC Books, 1994), pp159–60: 'Almost single-handed John Smith had pushed the Trust into industrial archaeology.' The Trust passed the canal back to the BWB as a going concern.

4 Hudson, K, *Industrial Archaeology: an Introduction* (London: John Baker, 1963): H J Habakkuk explains how the book was promoted by the CBA and concludes prophetically, 'Anyone who sets up as a middleman is likely to provoke the traditional distrust of brokers and bodgers' (p10).

5 The NRIM was always an uneven record because it depended entirely upon the goodwill of a disparate body of field workers. It was eventually passed over to the RCHME to be assimilated into the National Monuments Record at Swindon.

6 For the 'girl on the Pennines' reference, see the review of *Industrial Archaeology in Britain* (note 1) by Harte, N, in *Economic History Review*, n.s. 26 (1973), pp696–7.

7 Buchanan, R A (see note 1, 1982), p22

8 Atthill, R, *Old Mendip* (Newton Abbot: David and Charles, 1964)

9 BIAS was founded in 1967 and Volume 1 of *BIAS Journal* published in 1968: an early suggestion to style it the 'Bristol and Bath Industrial Archaeological Society' was rejected in favour of the snappier form giving the acronym 'BIAS', but the area covered was always the 'Bristol Region' which coincided almost exactly with what subsequently became (for two decades) the County of Avon.

10 Day, J, *Bristol Brass: The History of the Industry* (Newton Abbot: David and Charles, 1973); George Watkins was a Bristolian who built up his collection of stationary steam engine photographs over a lifetime of fieldwork: he was appointed as a Research Assistant in the Centre for the History of Technology in 1965 and was an early supporter of BIAS.

11 The David and Charles series was edited by Dr E R R Green and ran to 20 volumes, not counting second editions and treating Frank Atkinson's double volume on North East England as a single (Table 2.1, Pt 1).

12 The Longman series was strictly only 11 volumes, as Allen Lane took over to produce the last two books: the general editor was L T C Rolt, who commissioned all the authors. The Batsford series consisted of half a dozen county gazetteers under the general editorship of Keith Falconer who contributed the *Guide to England's Industrial Heritage* (1980).

13 The text books were: Buchanan, R A (note 1) and Cossons, N, *The BP Book of Industrial Archaeology* (Newton Abbot: David and Charles, 1975).

14 Green, E R R, *Industrial Archaeology of County Down* (Belfast: HMSO, 1963); Rees, D M, *Mines, Mills and Furnaces: Industrial Archaeology in Wales* (London: HMSO, 1969)