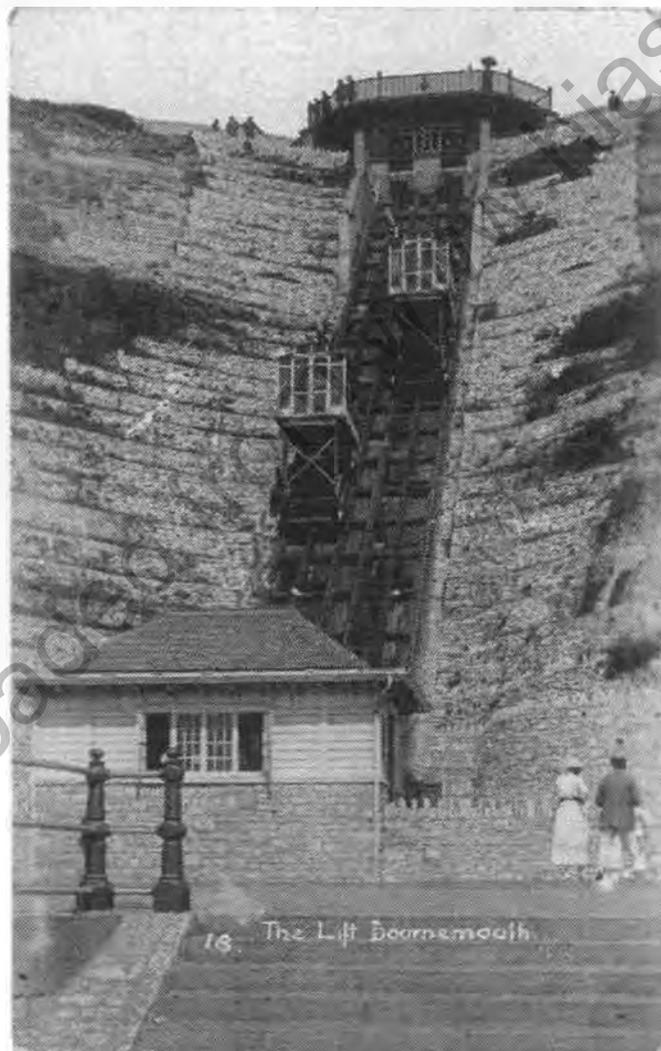


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Southampton University
Industrial Archaeology Group

Journal



No. 5

1996

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The Industrial Archaeology of a Seaside Resort

Sowley Ironworks, Beaulieu

The Royal Dockyard Schools: One Pupil's Memories

Traditional Charcoal Making in the New Forest

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The Contributors

Dr. Edwin Course

Edwin Course grew up in the old London Docks, alongside the London River. After war service in the Navy, he qualified as an emergency trained teacher. After a prolonged period of part time study at L S E, he was appointed to the University of Southampton in 1956. His teaching, research and writing have been mainly in transport history and industrial archaeology. The Southampton University Industrial Archaeology Group was a development from his courses in industrial archaeology.

Clare Church

After many years as a school secretary, Clare Church decided to follow in the steps of her children and to obtain a university degree. She studied at Bournemouth from 1991 to 1994, and graduated in tourism. Subsequently she has developed an interest in archaeology and is working for the University of Southampton Certificate in Regional and Local Studies.

Neil Lake

Neil Lake comes from Torquay in Devon, attended school in Tavistock and graduated at St Luke's College, Exeter. At Wilsons School, Sutton, he taught economics but became interested in

mainstream archaeology. He excavated with a Kent group and obtained a Certificate in Field Archaeology from the University of London. At present he is working for the University of Southampton Certificate in Environmental Science.

James Paffett

James Paffett began his working life in Portsmouth Dockyard. His career as a naval architect included various appointments in the Ministry of Defence and the Department of Trade and Industry, culminating in a period as Professor of Naval Architecture at Greenwich Naval College. Later, he served as head of the civil ship research establishment at Feltham. Now retired, he is Vice President of the Royal National Lifeboat Institution and of the Royal Institution of Naval Architects.

Richard Reeves

At the age of 22, Richard Reeves is by far the youngest contributor to the Journal. He comes from a New Forest family and has always lived in Brockenhurst. His particular interests are the ecology and history of the New Forest, and on the archaeological side includes bee garden sites and WW2 aircraft crash sites. He has also studied charcoal burning, the subject of his contribution.



Southampton University Industrial Archaeology Group Journal

Editorial and Acknowledgements

This is the 1996 edition of the *SUIAG Journal*, the fifth to be published. Our policy of publishing pieces about the industrial archaeology and the economic history of Hampshire or, alternatively, articles written by members of SUIAG, remains unchanged. The present issue indicates the range. Charcoal burning is easy to associate with the New Forest, but iron smelting and blast furnaces are not frequently linked to Hampshire history. However, iron manufacture from local ores was carried on near Beaulieu. A new subject is the industrial archaeology of tourism, and an article illustrates this from Bournemouth. While the history of Hockley Viaduct is hopefully ongoing, recent developments justify a special article. Finally, of particular interest are James Paffett's recollections of the Dockyard School at Portsmouth and its contribution to the education and training of those who served the Navy. The articles on charcoal burning, the ironworks at Sowley Pond and tourism in Bournemouth are based on research carried out for the University of Southampton's Certificate in Regional and Local Studies.

May I remind members, who are considering writing for publication, of the alternatives to the *Journal*? Shorter pieces may be more suitable for the newsletter, 'Focus', while longer pieces may be published as monographs. The Publications Committee looks forward to hearing from you. If you have not already joined SUIAG, details are included with this issue of the *Journal*.

Once again we are particularly grateful to Angela Smith who designed and set the 1996 *Journal*, and to all our contributors. Acknowledgements for the provision of illustrations are made as follows:- Beaulieu Estate (Fig 16); Clare Church (Figs 10, 11, 14); Clare Church Collection (Figs 6, 8); Edwin Course (Figs 2 - 4, 22, 23); Edwin Course Collection (Figs 7, 12, 13); Neil Lake (Figs 18, 19); Frank Nagel (Fig 1); Ordnance Survey (Figs 5, 15); James Paffett Collection (Fig 20); Peters, J *Bournemouth Then & Now, a Pictorial Past*, Ensign, 1990 (Fig 9); Nigel Smith Collection (cover).

Edwin Course
December 1996

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Hockley Viaduct

Hampshire is hilly, but not very, so most of the engineering works on its railways are undramatic. Its tunnels are not long and its viaducts not high. However, there are four viaducts of distinction. Of the three in use, two – one with 11 arches and one with 17 – are at Fareham on the line to Portsmouth opened in 1848. The viaduct at Hurstbourne, opened on the line between Basingstoke and Andover in 1854, is the highest in the county but has only 9 arches. The fourth, not opened until 1891 and disused since 1966, is by far the most impressive. Hockley Viaduct spans the valley of the River Itchen with 33 arches. However, while the first three viaducts formed part of the rational extension of the railway network, but for the vagaries of railway politics, Hockley (or Shawford) Viaduct would never have been built.

Because the duplication of railway facilities precipitated wasteful competition, Parliament rarely authorised them despite pressure from local communities. However there were exceptions, where an alternative route served different intermediate points. For instance, a second company, the Hull and Barnsley Railway, was authorised to break the North Eastern Railway's monopoly of Hull. The Didcot, Newbury and Southampton Railway was planned to end the London and South Western's monopoly of Southampton, offering an alternative route to the Midlands. Clearly there was a danger of loss of traffic to both the London & South Western and the Great Western companies, who operated the existing route. In the event, the LSW limited the damage to its revenue by co-operating in completing the DNS route, while the GW finally agreed to operate the line. Construction was completed from Didcot through Newbury as far as Winchester in 1885. Although some work was done in Southampton, lack of money forced abandonment, and Winchester Chesil became the temporary terminus. This hopeless situation was finally resolved by agreeing with the London & South Western to finance a connection between Winchester and their main line at Shawford. The Great Western had agreed to work the section between Didcot and Winchester, and their locomotives were to be replaced by the LSW to complete the journey over the LSW to Southampton. In practice, south of Winchester Chesil, there was an end-on junction between a line operated, but not owned, by the Great Western, and a short branch from the LSW main line.

The extension to Shawford Junction was 2 miles 7 chains in length. Although it included only one engineering work, this was to be one of the most outstanding works of railway engineering in the county. The line followed the Itchen valley to a point beyond St Cross where it curved in order to cross the valley obliquely, to join the main line to Southampton at Shawford Junction. The crossing was achieved by means of an embankment leading up to an impressive viaduct. Its length of 2014ft included 33 arches – 32 with a span of 30ft and one, over the main stream of the river, of 50ft. A height of 40ft was determined by the altitude of the main line at the junction. At one stage an even longer viaduct was considered, but in view of its comparatively moderate height, it was decided that longer approach embankments could be substituted.

The engineers drawings, dated 3 July 1890, show the viaduct virtually as it materialised [1]. The pillars are shown as built of mass concrete, with some chalk infill, covered with a thin layer of brickwork. The arches were to be made of brick. The consultant engineers were Galbraith and Church. W R Galbraith was the civil engineer

Figure 1
Hockley Viaduct
23 July 1984



of the LSW and during the late 1880s showed a particular interest in the use of concrete for bridge construction. There was nothing new in concrete structures. For instance, a concrete house had been built in 1835 at Swanscombe in Kent and, in 1875, a road bridge near Seaton in Devon. The famous Sway Tower in Hampshire was started in 1879 and completed in 1885. On the railways, concrete was used in retaining walls on the South Eastern Railway near Greenwich in the 1870s. Galbraith would have known of these structures when he substituted concrete for masonry in Ford Viaduct in Devonport in 1890. However, the original design had been for stone, and the concrete was faced with limestone blocks. It consisted of concrete blocks which formed the pillars, with liquid concrete poured into the spaces between them. The Inspecting Officer was aware of the use of concrete, but little was said about it. Indeed a local publication congratulated the contractors on providing such a "magnificent limestone viaduct". In 1990 – coincidentally 100 years later – demolition contractors bored

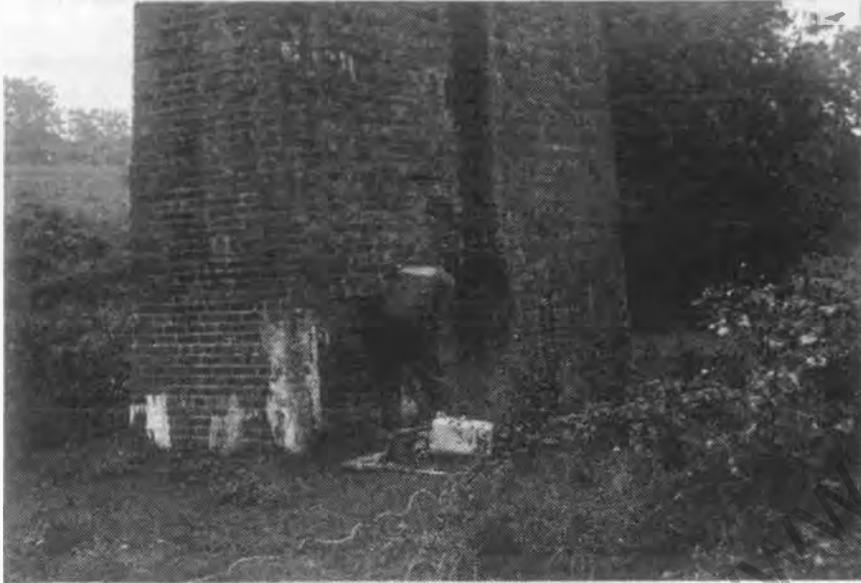


Figure 2 Hockley Viaduct — preparing to take core sample, 11 September 1996

into the pillars to fix stays and the use of concrete was brought to light. For many years, the credit for being the first concrete viaduct has been given to the famous Glenfinnan Viaduct, opened on the West Highland line in 1894. This was built on a 12 chain curve, and is 1248 feet long with 21 arches. Whereas Ford and Hockley viaducts had their concrete concealed, in Glenfinnan it was plain to see.

The use of concrete at Ford and Hockley would have been known to the Inspecting Officers, and also to the railway engineers at the time. However, in both cases, with the passage of time, it seems to have been forgotten. At Ford it was revealed by demolition, but at Hockley it has come to light in a different

way. The D.N. & S. has carried vital traffic in both World Wars, but particularly supplies for the invasion of Europe in 1944. In order to carry the anticipated traffic, normal passenger services were suspended over the whole line from August 1942 until March 1943. The only work found necessary for the viaduct was minor repairs to some of the brickwork, still visible in 1996. Routine maintenance ceased altogether, after the last train crossed the viaduct in 1966. The track was lifted although the alignment and works remained the property and responsibility of British Rail. This continued, until Winchester City Council decided to purchase the site of Winchester Chesil Station for a multi-storey car park. The British Rail Property Board managed to persuade the City to purchase the whole of the site of the line between the City boundary at Kingsworthy and Shawford Junction. This gave them the site that they required but also included a tunnel and a viaduct which they did not require. In 1984 a request for Listed Building Status was refused by the Department of the Environment and at a Council meeting on 1 August 1984 it was decided to demolish the viaduct – 23 votes were in favour and 15 against. The decision was based on a demolition cost of £50,000 or less. The Army was invited to blow up Hockley Viaduct as an exercise for themselves and as a form of assistance for the civilian community. The plans were made on the



Figure 3 Hockley Viaduct — drilling in progress, 11 September 1996

assumption that the viaduct was built of brick. However, when it became clear that a vociferous section of the civilian community did not wish to be assisted in this way, and other problems such as the landing places of the bricks, came to light, the Army withdrew. The opposition had come from many directions, including local amenity groups, the Southampton University Industrial Archaeology Group and Professor Frank Nagel of Hamburg University. From 1985 until 1989, with the co-operation of Winchester City Council, SUIAG arranged annual working parties to check the growth of vegetation and clear the drains. On the negative side, the viaduct was attacked by vandals and sections of the parapet were damaged. Proposals for use included the construction of dwellings under the arches, or sleeping cars on top to provide hotel-type accommodation. There was a hope that there might be some fringe benefit for the viaduct from the construction of the M3, which is near the viaduct, but most of the money for screening went on trees.

In 1996, the original drawings were transferred from the owners, Winchester City, to Hampshire County Record Office and the fact that they showed pillars of concrete renewed speculation about its use in the construction of the viaduct. This, of course, was not conclusive evidence – after all, Galbraith had produced drawings for a concrete viaduct on the Meon Valley line which failed to materialise. Nevertheless, it was decided that taking a core sample would reduce the degree of doubt and Winchester City Council gave the necessary permission in May 1996. It was hoped that civil engineering students of Southampton University would take samples, but unfortunately they no longer had the necessary equipment. Finally, Messrs Wilcock of Newbury undertook the work, with the assistance of funding from the British Cement Association, the Winchester Preservation Trust, the Royal Institute of British Architects (Central Hampshire Branch) and the Research Committee of the Railway and Canal Historical Society. The arrangements were made by Dr Edwin Course of the Southampton University Industrial Archaeology Group.

The boring was made on 11 September 1996 in the eighth pillar from the south end of the viaduct, to a depth of 500mms at a height of 900mms above the ground. (The centre line of the pillar was at 750mms). The core showed 100mms of brick, followed by 400 mms of concrete, consisting of cement and flint [2]. The chalk infill was not reached. While its arches are of brick, there seems to be no reasonable doubt about the use of concrete for the construction of Hockley Viaduct in 1890, even earlier than Glenfinnan.



Figure 4 Hockley Viaduct — the core sample — section of brick and section of concrete, 11 September 1996

With this in mind, three proposals have been made. First, that a fresh application be submitted for Listed Status, Grade 2. Second, that SUIAG will renew its efforts to clear vegetation. Third, that a feasibility study and an estimate of the cost of restoring Hockley Viaduct as a walkway be undertaken. The financial situation for local authorities is a difficult one, but the example of the re-opening of Lambley Viaduct in Northumberland is encouraging. It will be a sad day if Hampshire fails to keep up its most notable railway engineering work, when it has already survived for 100 years.

Dr Edwin Course

References

[1] Hampshire County Record Office 39 M 73 DDC 223

[2] The core sample has been retained in the museum of the British Cement Association. Fragments have been retained by SUIAG.

Bibliography

T.B. Sands. *Didcot, Newbury & Southampton Railway*. Oakwood Press. 1971.

Paul Karau, Mike Parsons and Kevin Robertson. *Didcot Newbury & Southampton Railway*. Wild Swan. 1981.

The Industrial Archaeology of a Seaside Resort

Industrial archaeology is usually associated with traditional industries. However, tourism has now become a major industry, giving rise to its own archaeology. The history of Bournemouth begins in 1810 when Captain Lewis Tregonwell had built for himself a large house on heathland, near the place where the Bourne stream flowed into the sea. More mansions followed, but it was not until later in the century that one of the principal landowners, Sir George Tapps Gervis, decided that Bournemouth was worth promoting as a health resort, especially for wealthy invalids suffering from chest complaints. The *hoi polloi* were not welcome, and communications by paddle steamer or railway excursion train were discouraged. However, a jetty which could accommodate small paddle steamers was opened in 1855 and a wooden pier followed in 1861. Bournemouth East Station was opened in 1870 and the West Station in 1874. Gradually the upper class invalids were outnumbered by the middle classes from the inland cities, who could afford a week or even a fortnight away from home. A through express train from Manchester began running in 1910 and, because of the significance of pine trees for health in Bournemouth, in 1927 this was named the 'Pines Express'.

Figure 5 shows Bournemouth in 1901, with its detached mansions still much in evidence, but also showing the two railway stations and the pier.



Figure 5 Bournemouth in 1901 (reproduced from the 6" Ordnance Survey map)

Some of the features of Bournemouth appreciated by visitors before the First World War are still to be seen today. An essential feature of any seaside resort is a beach giving access to the sea. Figure 6 shows the beach at Bournemouth about 1903. By this time special pleasures for children had been recognised, and a Victorian family holiday included time on the beach, sand being preferred to stones. Here children could make sand castles or paddle. However, the practice of sea bathing did continue and, associated with it, the bathing machine. These had been introduced at Weymouth in the late 18th century and, as the photograph shows, were still available at Bournemouth in 1903. They were wheeled into the water, so that the bathers inside could divest themselves of clothing and enter the water with their privacy unviolated.

Figure 6
On the Sands,
c1903



Figure 7
The Pier and
Sands, c 1938

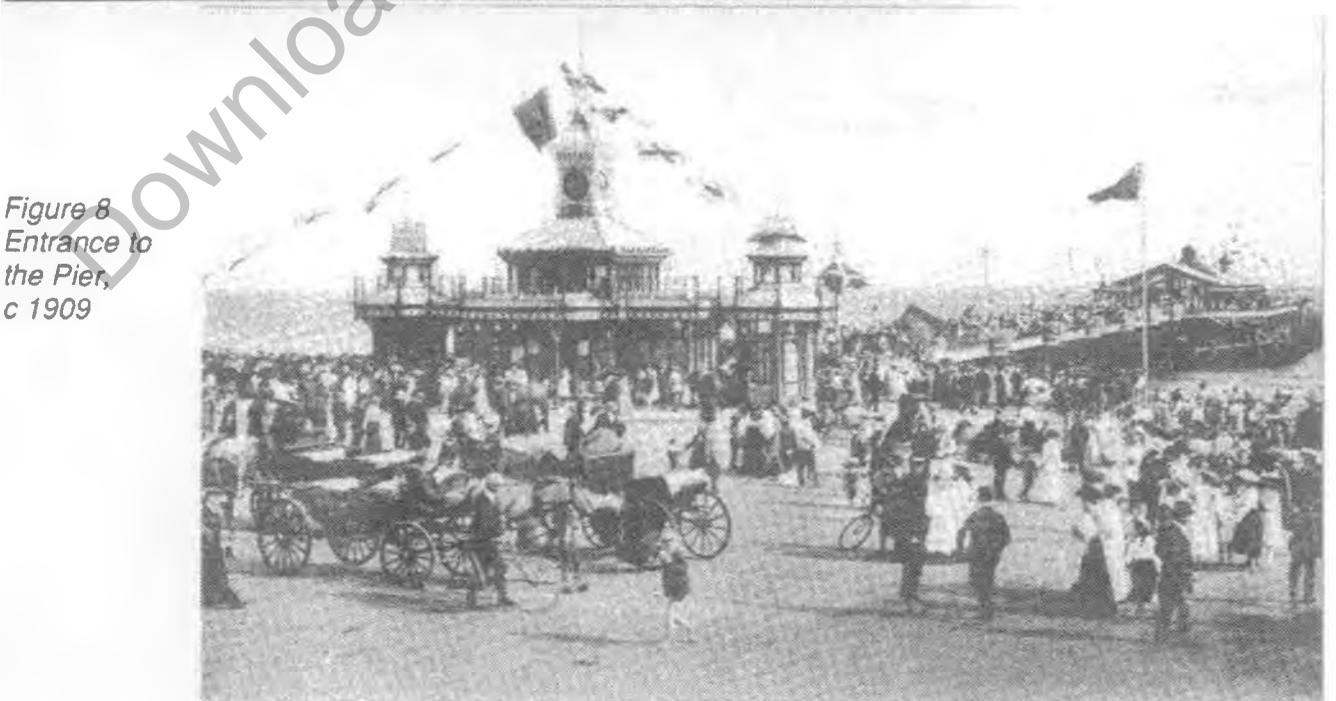


Figure 8
Entrance to
the Pier,
c 1909

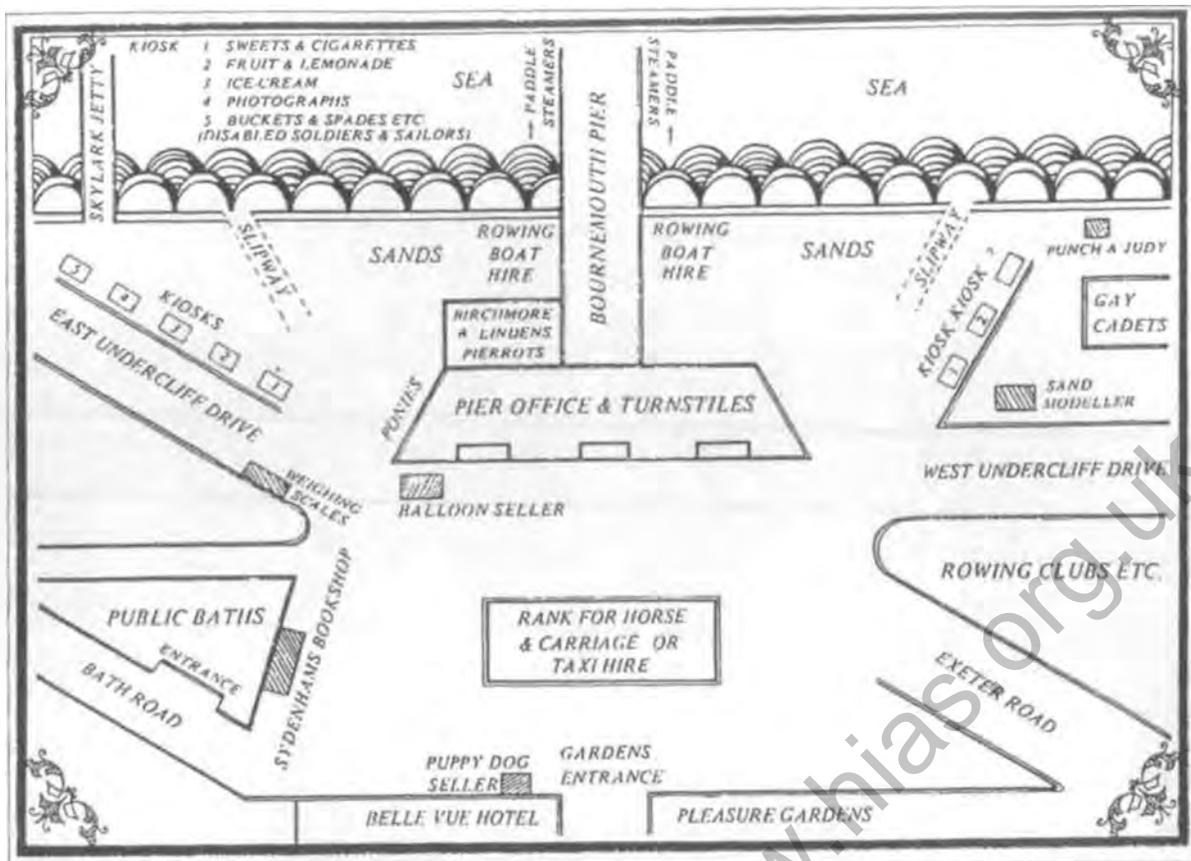


Figure 9 Plan of Pier Approach area in the 1920s

Most of the Victorian resorts acquired a pier, initially to facilitate the arrival of passengers by paddle steamer, but later as a promenade running out to sea, and as a location for amusement facilities. Figure 7 shows the beach and the pier about 1938. The wooden jetty of 1855 was replaced by a wooden pier in 1861. An iron pier, with cast iron screw piles, as patented by Eugenius Birch, was completed in 1880 and this, with various additions and extensions, is shown about 1938. By this time the pierhead included a hall for entertainments with a bandstand, and alongside were floating pontoons which could provide berths for paddle steamers at all states of the tide. Figure 8 shows the entrance to the pier about 1909. The somewhat elaborate entrance building is



Figure 10 Shelter adjoining Promenade 1996

surmounted by an eye-catching clock tower. The wheeled transport on view includes safety bicycles and the type of horse carriage which in Blackpool was still carrying summer visitors in 1996. *Figure 9* shows the attractions which surrounded the pier approach area in the 1920s. These include a Punch & Judy show, a sand modeller, weighing scales and a balloon seller. Rowing boats, horse carriages and ponies were all available. In addition to the pier, there was the Skylark Jetty which offered short boat trips.

Perhaps reflecting the vagaries of the British climate, resorts were well provided with shelters. *Figure 10*, taken in Bournemouth in 1996, shows an arcade forming a shelter adjoining the promenade, which was built along the foot of the cliffs about 1908. The occupants are using deckchairs, first used on board ship but rapidly adopted by seaside resorts. The level above incorporates a lengthy glazed shelter and decorative lighting. Like most of the British seaside resorts, Bournemouth is far enough north for its season to include dark evenings, so illumination received special attention.

Away from the beach, the valley of the Bourne was developed with attractive gardens. During the 'invalid period', in 1858 a walk was opened in the Westover Pine Plantation, sheltered by pine trees which were claimed to contribute to the health-giving qualities of Bournemouth air. *Figure 11* shows 'Invalid's Walk', now tactfully renamed 'Pine Walk'. Although it was situated in the gardens leading away from the sea, many of the features of a seaside promenade were duplicated. In this view, taken in 1996, there is a shelter and, attached to the lamppost, a decorative parrot in a cage. The provision of permanent seating rather than deck chairs indicates that the use of this sheltered walk was less seasonal than that of the more exposed seaside promenade.



Figure 11 Pine Walk 1996



The Pavilion was opened in 1929 and the atmosphere would compare favourably with the scenery of the industrial towns from which the visitor might have come.

Figure 12 Pavilion Gardens c 1938



Figure 13
Excursions by road
c 1905

Figure 13, from about 1905, shows an electric tram car, a development not confined to seaside resorts. However, more distinctive is the well-sprung 'Bournemouth Rover'. Horse-drawn excursions were associated with the seaside, in the case of Bournemouth often going as far as the New Forest. It must have taken a degree of determination for heavily skirted ladies to climb onto the top of the coach. Figure 14 shows one of the three cliff lifts. These originated in Scarborough in the 1870s and, with two inland exceptions, were confined to seaside resorts. The example shown is the West Cliff Lift, opened at Bournemouth in 1908.

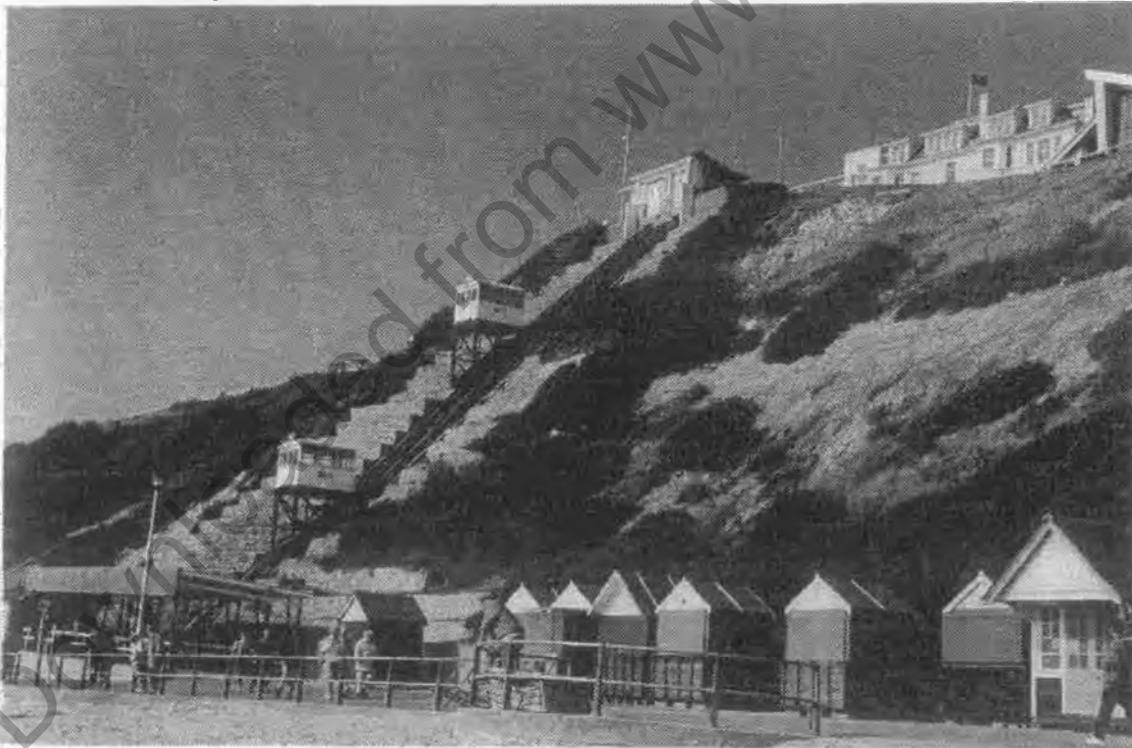


Figure 14 West Cliff Lift 1996

Many of the features described were only in use during the holiday season for the 'high summer' of the English holiday resort – say, 1860 to 1960. Some, such as the bathing machines, have gone completely; others, such as seaside piers, are threatened. Their economic weakness was always the brevity of the traditional summer holiday period – for instance, the cliff lifts only operated for less than half the year. As much as any part of industrial archaeology, these elements in the seaside tourist industry are evocative of times past.

Clare Church
Dr Edwin Course

Sowley Ironworks, Beaulieu

Visitors, travelling from Lymington towards St Leonards, will pass a 27 acre stretch of water known as Sowley Pond. This was originally a fish pond, created by the monks of Beaulieu Abbey early in the 13th century, but for over 170 years it provided power for an ironworks. This was both for the bellows attached to the blast furnace, and for the tilt hammers for the forge. Fuel consisted of charcoal, produced from the extensive woodlands of the New Forest. Iron ore came from the cliffs at Hordle and from Hengistbury Head. Later, iron ore could be brought in by water from the Furness district of Lancashire or, in the period when the forge was working but the furnace was not, pig iron was brought from Scotland. (There were links of ownership with both the Furness district and with Scotland). Raw material arriving by sea was landed near the works at Pitts Bottom.

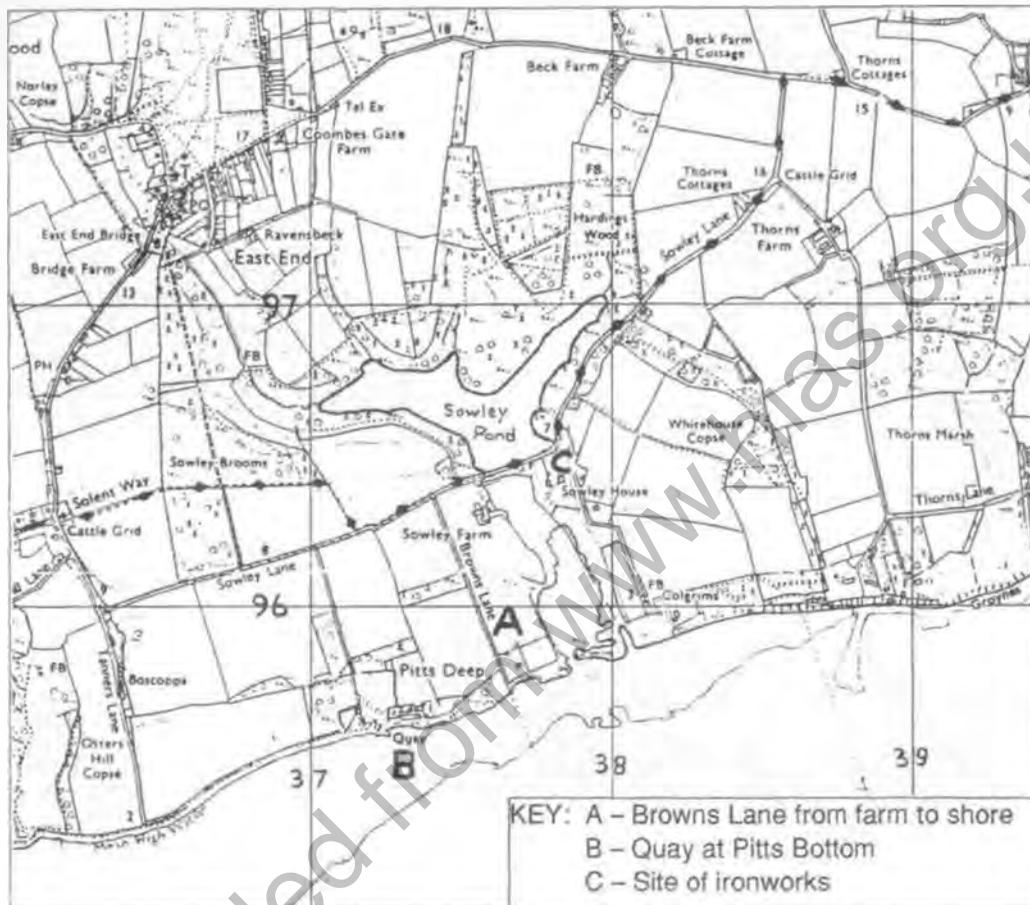


Figure 15 Extract from Ordnance Survey 1:25000 map

The works would never have employed many people. The numbers varied but in the works, twenty would have been rarely exceeded, and unskilled labour was easily recruited. More crucial was capital, and knowledgeable management. The capital came mainly from the Lords of the Beaulieu Estate – for most of the time, the Montagu family. The furnace and forge were let out to ironmasters who possessed the necessary knowledge and skill, while an elite of skilled workmen were brought in from other parts of the country.

In the early days, pig iron went mainly to a site at Funtley near Titchfield for forging. Later, when Sowley had its own forge, wrought iron went to a number of markets. The local shipyards – obviously Bucklers Hard and also those on the Hamble River and in Southampton and Fareham – were good customers. Other purchasers were a wire works at Reading and the East India Company, for whom guns were manufactured.

The exact date on which the furnace was blown in is not known, but the first documentary evidence occurs in a survey in 1601 of the property of Henry Wriothesley, 3rd Earl of Southampton. This includes pig iron and 'tools appertaining to the Furnace'. In 1605 there was a reference at the Southampton Court Leet to 'new erect Ironworks at Beaulieu and Titchfield'. The Montagu family acquired the Estate, through marriage, in 1673. In the late 17th century and into the 18th century, the Gringoe family, who figure so prominently in the history of iron making in Hampshire, were running the Sowley furnace. A reference to the source of iron ore indicates that over 80 per cent was local, the rest coming from the Furness district or from the Whitehaven area with some from Wales.

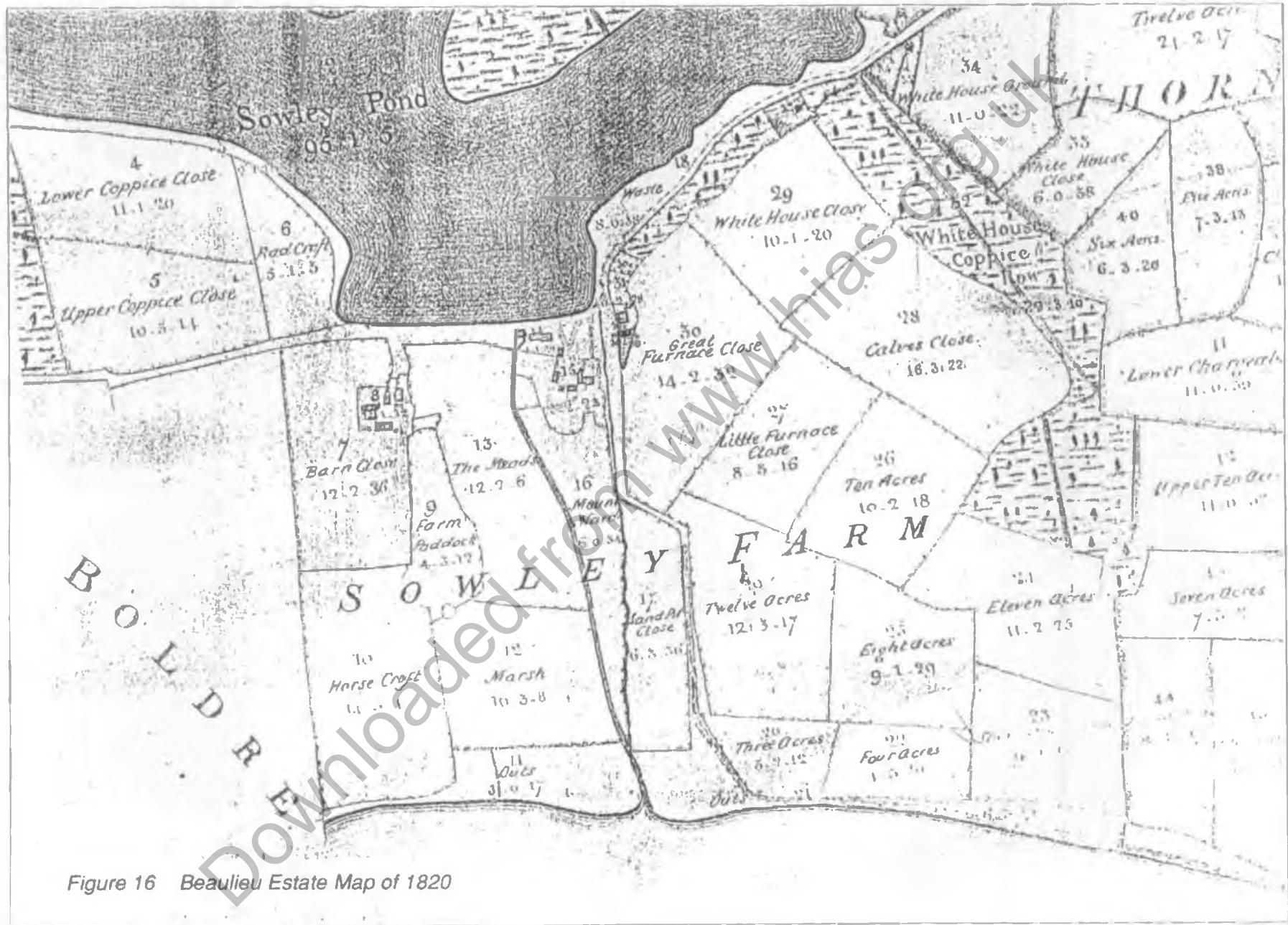


Figure 16 Beaulieu Estate Map of 1820

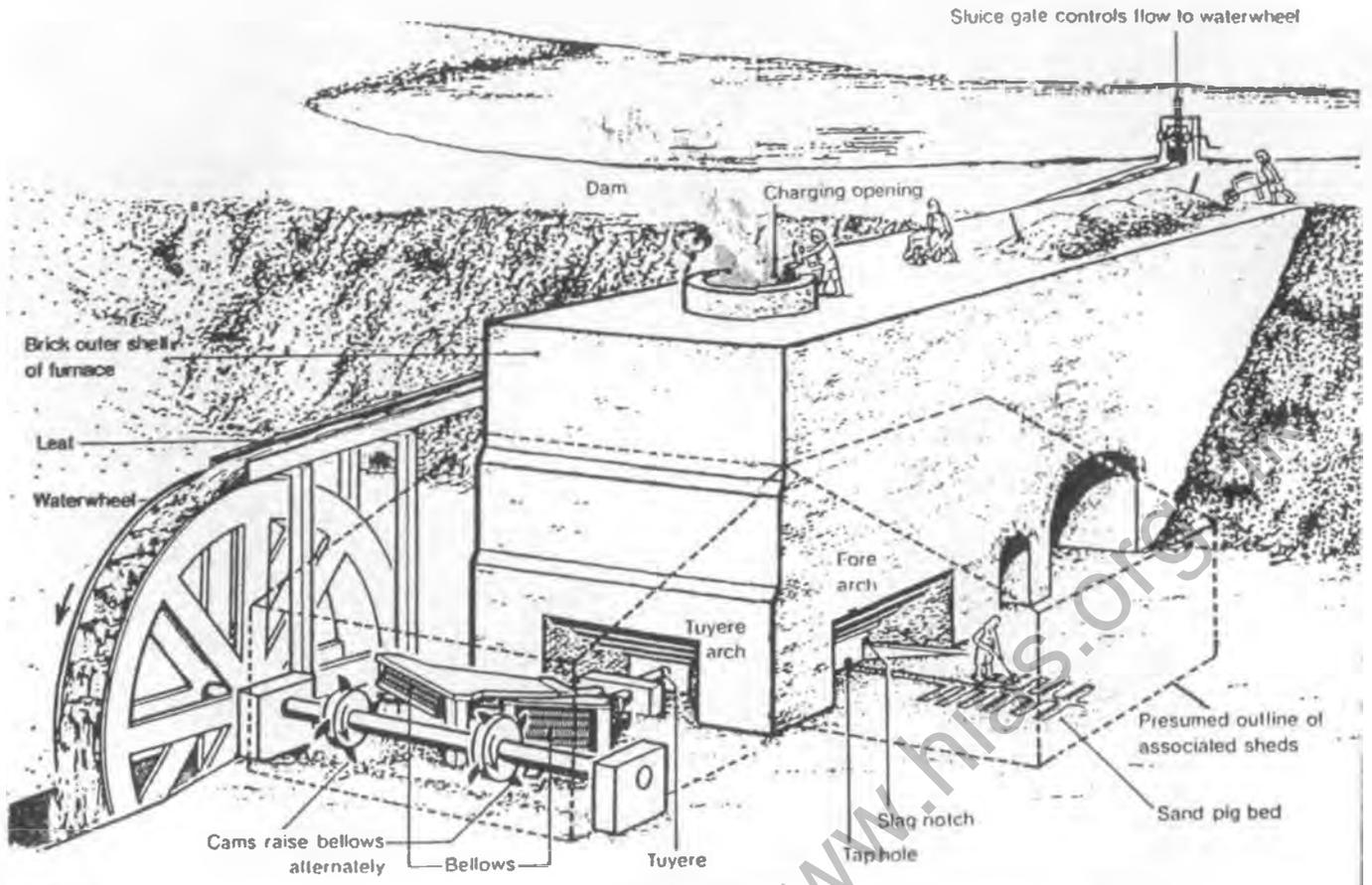


Figure 17 Conjectural drawing of furnace at Sowley

In 1772, after the failure of the tenant, there is evidence of the Estate operating the works themselves, but in 1774 the works and the associated farm was let to Messrs Stairs, who appear to have given up iron production. During the last phase – from 1789 to 1822 – the forge was revived. The last tenant, who operated the forge, the farm and the brickworks at Baileys Hard, was Thomas Pocock, whose tenancy came to an end in 1822.



Figure 18 Site of Ironworks at Sowley



Figure 19 Sowley Pond, viewed from the south

Iron manufacture in Hampshire succumbed to competition, particularly after the use of coke, made from coal, replaced charcoal as fuel. It has left little mark on the countryside. The site at Funtley has been excavated, but without a definitive report, while the sites at Bursledon and at Sowley have not been excavated. In fact, the pond at Sowley is probably the most striking reminder of iron manufacture in Hampshire.

Neil Lake

Sources

Bartlett, A. B. *The Ironworks at Sowley in the Manor of Beaulieu*. Unpublished typescript. 1973.
 Blackman H. *Gun Founding at Heathfield in the 18th century*. Sussex Archaeological Collections. Vol LXVII.
 Straker E. *Wealden Iron*. David & Charles. 1969. (First edition 1931).

The Royal Dockyard Schools: One Pupil's Memories

Portsmouth, Devonport, Chatham, Rosyth, Sheerness: within living memory the Royal Dockyards were major industrial establishments, building and refitting a formidable fleet of warships. Only the withered rumps of the Yards remain, reduced to a theme park at Chatham and modest commercially-run concerns at Devonport and Rosyth. The visitor to Portsmouth finds a collection of museums and a Naval base, with hardly a trace of the bustle and clangour which filled the place half a century ago as twenty thousand men worked on the wartime Navy. As the Dockyards slide into industrial archaeology, it may be worth putting one minor aspect of pre-war and wartime Dockyard life on record while living memory lasts.

The Admiralty was sometimes derided as a hidebound and inefficient organisation, but as an employer it was in some ways enlightened and even ahead of its time. Among its more creditable institutions were the Dockyard Schools. Foreseeing the naval rivalry to come and realising the growing need for educated and technically trained workpeople and Dockyard officers, the Admiralty set up the Dockyard Schools as early as the 1840s. These schools provided evening and day-release classes for apprentices of all trades, and throughout the following century many graduates of the Schools found their way into responsible jobs in the Admiralty organisation and in private industry.

In the first year the School syllabus was fairly elementary, but in the following years the standard was stepped up sharply. Fiercely competitive examinations were held at the end of each year. The School thinned the ranks ruthlessly by taking only the top part of the list through to the following year; for the rest it was "back to your tools, boy!". Competition was furious, study intense and percentage examination marks extended up into the nineties. Those who survived into the fourth year were the elite.

But let us turn to the beginning of my acquaintance with Portsmouth Dockyard. In the 1930s there was great competition among Portsmouth school leavers to enter the Dockyard as apprentices. Entry was by competitive examination. I found the examination no great obstacle and, passing high on the list, I was offered one of the no less than 100 places available for Shipwright Apprentices. Having accepted, in the knowledge that the Shipwright's trade offered the best prospects of promotion, I attended with my father a ceremonial Signing of Indentures. The Indenture was a formidable document which bound me to do, and not to do, all sorts of things; the tone may be judged from the extract in the Appendix below.

One Monday morning in September 1937, a few days before my sixteenth birthday, I reported to the Dockyard where I was issued with a set of brown overalls, part-worn, and a toolbox; but no tools. Tools were the Apprentice's own responsibility, and he was required by his Indentures to equip himself to perform his trade and to make or buy or otherwise acquire the necessary implements. I was introduced to my Instructor, Frank, a genial working shipwright who was paid the princely allowance of two shillings a week to teach me the shipwright's art. For the next year or so I was to accompany Frank and his mate Harry from job to job around the yard. We formed part of the "Cruiser Party" and I recall working aboard HM Ships Glasgow, Ajax, Curacao and Cairo, all names which were to appear before all that long in wartime news bulletins.

The dockyard working hours were 0700 to 1200, 1330 to 1700 daily and 0700 to 1200 on Saturdays. Apprentices, however, had Tuesday and Thursday afternoons off to attend school, where the hours were 1330 to 1630 and 1730 to 1930, plus a Wednesday session 1800 to 2000. It was a long week, leaving little time or energy for ordinary teenage leisure activities. Timekeeping was strict; we all clocked in and out, and arriving one minute after 0700 in the morning meant a mulct of one-sixteenth of the day's pay and a black mark in one's record. I was only late twice in my four years, once because of enemy action in 1941 when the roads to the Dockyard were blocked by the ruins of bombed buildings. The Cashier deigned not to mulct me on that occasion. The leave allowance was one week's paid leave a year; one could take a second week, but that was unpaid.

Most of the workpeople at that time lived reasonably near the yard and their 1½ hour mid-day break enabled them to get home for lunch. (There was a small canteen somewhere, but it was said to be horrible and I never even found where it was). Most workmen travelled by bicycle, and at knocking-off time the surging horde of cyclists bursting forth from the Dockyard gates caused traffic chaos in Unicorn Road and on The Hard. I recall weaving precariously handlebar-to-handlebar through this throng, contriving to dodge at once the lethal tramlines in the road and the flying clots of sputum emanating from my fellow workers.

This business of spitting was one of the less pleasant features of Dockyard life at the time. Many of the workmen seemed impelled to engage in raucous and repeated expectoration, regardless of time or place. In some cases the cause may well have been medical, and the habit doubtless helped to spread baneful bacilli; but even healthy and fit young men were still driven to spit, perhaps in some way to assert their virility.

Another unpleasantness lay in the "heads" or toilets provided for the workmen. These were adequate in number and location, but so revolting in their layout and state of cleanliness that people were apt to develop bowel trouble through trying to contain themselves until reaching home. The toilet design embodied a series of seats mounted side-by-side on a long communal trough, which was periodically flushed with a flood of water from one end to the other. Jokers were sometimes moved to ignite and launch a screwed-up newspaper at the upstream end as flushing began, with predictable effects upon men downstream who failed to leap up quickly enough. Many years later I saw a stone-built "lavatorium", identical in layout to the Dockyard article, at Corinth. It was Graeco-Roman and 2000 years old.

Access to the Dockyard was through three gates: the Main Gate on The Hard, the Marlborough Gate in Bonfire Corner (a slum quarter, now demolished), and the Unicorn Gate. I believe there was also another gate at the North-Eastern corner of the yard, open at certain times. All these gates were heavily manned by the Dockyard Police, who were supposed to scrutinise all persons entering and leaving the Yard; no mean job in view of the numbers. At knocking-off time several constables stood in the roadway, stemming the human tide; at random they would tap one man or another on the shoulder. Their victim, on being tapped, was required to enter the Police office and submit his person and his bicycle bag to a search. This was for stolen articles and materials, known as rabbits, and for contraband such as duty-free rum or tobacco traded from Naval ratings in the ships. Offenders were subject to fierce penalties — suspension, dismissal, prosecution.

Of course the mere existence of the search provoked some people into defying it and devising ever more ingenious ways of exporting their rabbits. Being anxious to leave the Yard on promotion rather than under arrest, my own approach to rabbiting was unadventurous, being limited to a few sheets of sandpaper interleaved in school books. But rabbiting has a long history: Pepys records misappropriation of materials by workpeople in the 17th century, and doubtless the practice dates further back, even to the foundation of the Yard by Henry VIII – Shipwrights being what they always have been, the most human of beings.

During the anxious years of 1940 and 1941 a second filter was instituted to check men coming in. After entering the Dockyard gate proper, the workmen encountered a second barrier with a series of numbered gaps. Each gap was covered by a booth, housing a selected workman or officer armed with a nominal list and a set of photographs. This official was supposed to scrutinise each man's pass and to recognise physically every one of his listed customers. The system was intended to exclude spies and saboteurs. The process seemed rather superficial in operation, and it could probably have been defeated by any determined spy or saboteur. I believe that post-war records show that there weren't any of these anyway, and so we could say with the benefit of hindsight that the expenditure of time and manpower was probably unjustified. When there's a war on, though, security bears a different aspect: Funf (recalled now only by septuagenarians) was round every corner.

One wartime Dockyard-gate event sticks in my memory. On arriving at the Main Gate early one summer morning in 1940, all workpeople seeking to enter were abruptly turned away and told to go home by the Dockyard Police, who seemed to be in a state of some agitation. No explanation was offered. While the prospect of a day's holiday was not unwelcome, we were naturally worried about just what was going on in the Yard. Eventually the news trickled out; the French warships which were in Portsmouth at the time of the French collapse had all been taken over. The Navy had found it necessary to use force to persuade certain Vichy-sympathising crews to surrender their vessels, and I believe some shots were fired and there were casualties. Civilian workpeople had been kept out of the way in case full-scale fighting had developed. The next day things were back to normal. The Vichyites had been removed, and we saw the ships eventually become operational flying the Free French colours.

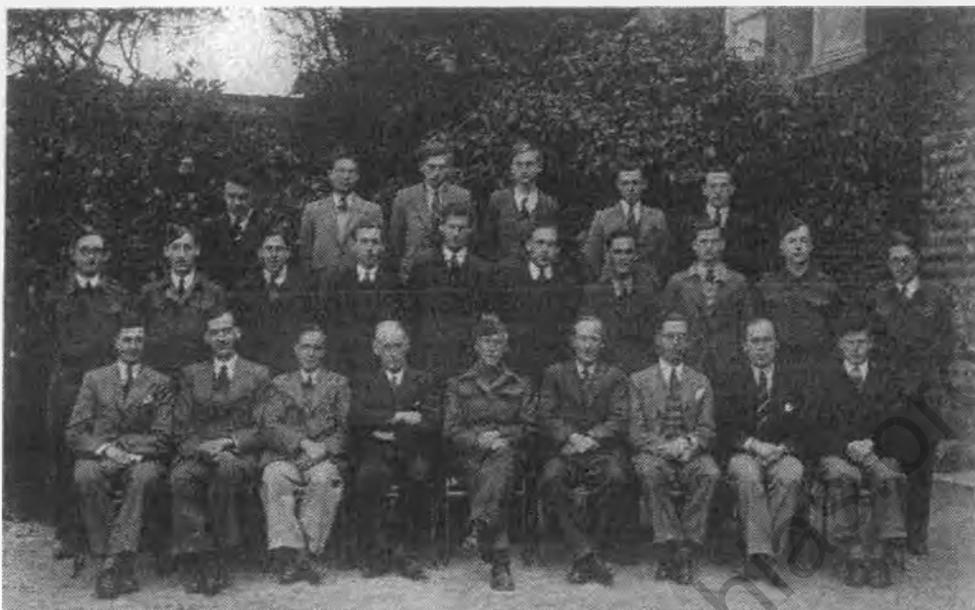
But to return to the Dockyard School. The School itself was housed in the upper storey of a Naval Stores building, on the east side of the main road half way between the Main Gate and HMS Victory. The facilities were very basic; desks, blackboards and little more. There were no laboratories. Teaching was entirely by talk-and-chalk. The teaching staff were a mixed lot, but the best were very good indeed. I recall in particular the Headmaster, Mr Wildman, who was an outstanding teacher; he maintained our interest and enthusiasm while drumming into us the rock-bottom fundamentals of Newtonian mechanics, from mass, length and time and on through momentum, energy, stress, strain, entropy – the very basis of all engineering. On this firm foundation he built our knowledge of mechanics, structures, hydraulics, strength of materials ... He did all this right through our fourth year, which coincided with the Portsmouth Blitz, and at the same time he doubled up as the Commanding Officer of the Dockyard Home Guard.

Today's visitors to the Dockyard Heritage area will look for the school building in vain; it was bombed in early '41, burned out and subsequently demolished. After the bombing, School activities were moved to emergency quarters in Milton, facilities which we shared with the Teachers' Training College. This arrangement met with our approval, and led to sundry liaisons.

Home Guard duties, incidentally, absorbed some of our time and energies in '40 and '41. My section, in which I rose to the dizzy rank of Lance-Corporal, spent many nights on sentry duty defending the Dockyard telephone exchange from the Wehrmacht. For this duty I was issued with a .303" rifle of pre-Boer War vintage and five rounds of ammunition. Off duty I kept this weapon under my bed in my digs, to the consternation of my landlady. My main achievement as a Home Guard was to infuriate certain senior Dockyard Officers whom I halted at bayonet point and forced to identify themselves when they wandered out of their official residences on the Dockyard Terrace late at night.

Organisationally, the School was stratified into two layers, Upper and Lower, on the strength initially of the marks gained in the entrance examination. Lower School lasted, I think, only two years, and most of its pupils were destined to end up as workmen. Upper School, heavily shedding dropouts on the way, continued through a third year and ended with a fourth year of perhaps two dozen boys out of the original apprentice entry of some hundreds. In the lean years of the twenties and early thirties the entries were smaller; in 1933 only 90 apprentices of all trades were recruited.

At the end of the fourth year the students faced examinations which approached the University Ordinary or Pass degree level of the time. Students finishing at the top of the examination list were skimmed off by the Admiralty for further training as Constructor officers or electrical engineers: most of the others found little difficulty in winning scholarships and gaining University places — this was before the days of Local Authority grants. Some became draughtsmen, and few if any returned to their tools. I stayed with Their Lordships.



*Figure 20 Royal Dockyard School, Portsmouth — Fourth Year “passing out”, Summer 1941
I cannot attach names to all of the individuals shown, but the names which I can remember went like this, with later career, where known, in brackets. (Five in Home Guard uniform).*

Back row, from left of picture: Gundry (Royal Corps of Naval Constructors), Seward (RCNC), Avey (RCNC), Hamilton (Patents Office), Partridge (?), Hancock (RCNC, later killed in submarine disaster).

Middle row: Paffett (RCNC), Hare (Instructor Captain RN), ?, Hunt-Duke (RAF), ?, ?, ?, ?, Boulter (Lloyd's Register).

Front row (all staff except Reeves): Morris, ?, Scott, MacKenzie, Wildman (Headmaster), Naylor, Goss, ?, Reeves (RCNC).

Concurrently with our school studies we were supposed to be learning our trades by performing as workmen in the ships and workshops. To this end we were moved from one activity to another to vary our experience. In my case, after more than a year aboard cruisers, I went to the Boathouse, the Haslar Gunboat Yard, the Masthouse, the main Shipwright's Shop, the Welding Centre, the Mould Loft, and finally in the fourth year to the rarefied heights of the Drawing Office. This reads like a well balanced and managed process, but in the event I rapidly found that — at least for those of us in the Upper School — the practical training was largely a solemn farce.

What happened was that a sort of crude selection operated. On joining a new instructor, the apprentice would be asked “Which School are you in?”. On answering “Upper”, he would be told “Then you stick to your books, boy — find an odd corner and get on with your school homework. You don't need to waste your time here with us!”. And so off we went to set up office with our books and slide rules in the most curious nooks and corners. I remember one hideaway in the loft above the Shipwrights' Shop where some of my textbooks were gnawed by rodents in the night; we constructed an awesome trap from steel and caught some rats.

This organised skiving went on with the full connivance of the workmen and supervisors. Indeed, as we progressed into the third and fourth years the volume of study required by the School became so onerous that we could not possibly have coped other than by doing much of it in Dockyard time. So as the four years passed, I gained little experience of manual work and, indentures notwithstanding, acquired no tools at all. The tool box remained empty and unsullied.

One exception to this neglect of manual skills occurred with the welding course, for which I actually volunteered. The electric welding process had always fascinated me, and during some enjoyable months in the Welding Centre I acquired a limited competence as a welder — a facility, incidentally, which still serves me 55

years later as I do odd jobs at home with my domestic welding set. The Welding Centre was in the old No 1 Ship Shop, alongside the building slip. This was an early steel-framed building which was declared, years later, as being of industrial archaeological interest; the MoD promptly demolished it. My main recollection of this building is of its frigidity in the winter of 1939, when my Thermos flask once stuck to the steel bench in a puddle of spilt tea which had frozen solid. We found that we could warm ourselves up by welding with heavy current on lumps of scrap steel, raising them to a comforting red heat.

In the fourth year those Shipwright apprentices who had retained places in the Upper School found themselves drafted to the Constructive Drawing Office. Here we were allowed to clock on with the draughtsmen at 0800. We felt that we had come up in the world, and took to wearing white shirts. In the Drawing Office our school and industrial activities converged, and we learned to prepare ships' lines plans and structural drawings in the classical manner, using Indian ink on thick linen-backed paper. Steel was tinted in blue water-colour, brass in yellow, timber in brown. The curved lines in ships' body plans and waterplanes were carefully penned-in using splines – thin battens bent and restrained by lead weights. All curves were carefully checked for an ill-defined quality known to Naval Architects as fairness, and the three views in the Lines Plan – sections, sheer elevation and half-breadth plan – had to agree accurately. The whole creation was cleaned and lettered-up with carefully-practised calligraphy. These drawings, together with the associated calculations of displacement and stability, were assessed and marked as part of our final examinations. Mine still exist, rolled up and yellowing, somewhere in the loft.

The preparation of ships' lines by hand was a slow and laborious process, but it did produce in the designer a feel for the subtleties of ships' hull shapes. Nowadays lines plans, entirely accurate and beautifully fair, can be generated in minutes by computer, but the keyboard operator can hardly share the satisfaction of the real designer who wrestles for hours with the lines to meet the prescribed values for length, beam, displacement and centre-of-buoyancy position, and finally gets a set of fair lines down on paper with his own hand. A well-executed lines plan can be a work of great aesthetic appeal.

School work in the last two years included a "professional" subject, in addition to the mathematics, mechanics, thermodynamics, metallurgy and so on taken by all students. The professional subject for the Shipwrights was Naval Architecture, which was very much based on "how it's done", not at all on "why". The examination questions were mainly of the "sketch and describe" type. Teaching in our time was by the Senior Draughtsman in the Drawing Office, so it was not surprising that the ethos was somewhat pedestrian and draughtsman-centred. (Later, those of us who went on to the Royal Naval College found ship design tackled from first principles with plenty of "why", an utterly different and more stimulating approach; but this article is about the Dockyard).

The Dockyard Apprenticeship lasted normally for five years; at the end of that time the tool-bound apprentices, now men of 21 or so, took a trade test and were pronounced journeymen in their own right. Most of them at that time probably looked forward to 45 years as workmen, hoping to become (with good conduct) "Established" and entitled to a Dockyard pension on retirement. To most of those completing four years in the School, however, release came at the end of the fourth year, when we ordered taxis to convey our tool boxes out through the gates, with a formal chit to satisfy the police that the boxes were not rabbits. Mine was empty except for a few books. I still have this box. Oddly, it now contains tools.

Looking back over the pre-war apprenticeship scheme from the viewpoint of the 1990s, one must accept that – by the standards of the time – the Admiralty was in many ways a far-sighted and progressive employer. The system of recruiting apprentices in bulk by competitive examination, educating them in in-house schools, and training them by systematically drafting them between different kinds of work might well today invite approval from the Engineering Council as "Structured Training" appropriate for Engineering Technicians and Incorporated Engineers. The readiness to let many of the brighter trainees escape to the Universities and industry may not have been in the Admiralty's interest, narrowly regarded, but it undoubtedly served the country well, so one can regard the taxpayers' money as being well spent on the Dockyard schools.

More detailed study, however, might show that the practical side of the training was not particularly efficient. The "sitting by Nellie" approach of appending a boy to a working journeyman probably produced in five years a level of manual skill which could have been achieved in two years or less by concentrating the process in proper Training Centres, using trained and qualified instructors rather than ordinary workmen on two bob a week.

The principle of putting the boys destined for the higher ranks – today's Chartered Engineers – through the workshops was undoubtedly sound. The professional engineer today, as then, needs to understand how materials are worked, to gain a feel for manufacturing processes, indeed to get his hands dirty. And, just as important, he needs to rub shoulders with the men who work with their hands, to understand what can reasonably be expected of them – and what cannot. In my view the process requires at least a year, but four years is too long. Some of today's sandwich courses seem to be on the right lines. Industrial experience after University graduation is too late; the men will talk freely to a boy under training, but not in the same way to an older graduate who by then appears to be already part of Management.

The Dockyard Schools came to a quiet end about 1970. The functions, and I believe some of the staff, of the Portsmouth Dockyard School (known in its later years as the Dockyard Technical College) were taken over by the Municipal Technical College, itself on its way via Polytechnic to University status. The change was natural; the Naval requirements and resources were shrinking while the civil colleges had expanded to the point where they were better equipped to do the job.

The Royal Dockyard Schools can reasonably rest on their laurels; they served the country well for over a century, and they were at the forefront of engineering education in this country throughout most of this period.

James Paffett

Appendix

Extract from Apprentice's Indentures dated September 1937

"..... the said Apprentice shall and will during the said term faithfully and industriously serve the Master, and also such persons as he the said Apprentice may be placed under by the Master, and obey all their respective lawful commands, orders and directions, and will observe all rules and regulations which are or shall be from time to time made by the said Commissioners in respect of Apprentices, and generally will diligently conduct himself, and use his best abilities and endeavours towards his improvement and perfection in the said art or occupation or Shipwright, and for the good and benefit of His said Majesty, His Heirs and Successors therein. And also that the said Apprentice shall not and will not at any time during the said term do, or willingly suffer to be done, any act or thing whatsoever whereby the goods and effects of His said Majesty, His Heirs and Successors, can, shall, or may in anywise be embezzled, injured or damaged, or His officers or service defrauded, or otherwise prejudiced in any manner howsoever, nor shall, nor will, at any time absent himself from the service or work without the leave of the Master of any Officers under whose authority he may be placed; nor contract marriage during the period of this Indenture; nor be guilty by word or action of any immoral, indecent, irregular, or improper conduct or behaviour in any respect whatsoever, but shall and will demean himself at all times with strict propriety and submission to his superiors"

Traditional Charcoal Making in the New Forest

The earliest reference I have found to the production of charcoal is from the New Forest pleas held at Romsey on the 25 November 1276. Stating "*that the demesne woods of the king are much destroyed ... by charcoal burners who manufacture an unknown quantity of charcoal within the woods*". Also of interest is "*that Thomas de Foxcote had a customary right to burn beech and other trees within*" Fritham "*bailiwick to make potash for cloth*".

At the Forest pleas held at Southampton on the 9 July 1330, a number of people were presented for charcoal making in the forest:

"... *John Beneng' of Brokenhurst [Brockenhurst], and Peter his brother, who are dead, had a charcoal kiln for two months in the bailiwick of Lyndhurst, and they made charcoal from both oaks and other trees to the damage of 12 shillings.*"

"... *William Skel and John Clot made charcoal in the bailiwicks of Frytham [Fritham] and Lyndwode [Lynwood] to the damage of 20 shillings ...*".

Both of the above presentments had the permission of John de Merchewode, a bailiff under Simon de Wynton, a keeper. The fines of John and Peter Beneng' were to be exacted on Richard de Wynton, holder of Simon de Wynton's land as the afore-mentioned were all dead; however Richard de Wynton managed to trace

Richard and Matilda Aignel, who were by then the holders of John Beneng's land, and they therefore became answerable to the offence, but avoided paying a fine by getting people to make pledges for them that it would not happen again.

Also at this hearing the following was taken down:

"It is presented that James le Smyth, Richard Kykeyn, John Purye, and Roger de Langebrygge near Laneford at various times made charcoal in the forest with the permission of the steward to the damage of the king and the destruction of his wood"

"Therefore the sheriff is ordered to make James, Richard, John, and Roger attend to answer for the said charcoal making"

"Because James, Richard, John, and Roger have not come before the justices nor have made fines, therefore each of them is assessed by the justices at 40 pence."

The following is a list of people who were mentioned in the Forest Courts from 1633-35. Those which were presented for reasons which may well have been linked to charcoal making have a description of the presentment.

Christopher Stride, yeoman and charcoal burner, of Minstead, on the 20th of October 1633, cut and lopped two cartloads of dry wood, in Fritham Bailiwick.

John Purcas, charcoal burner, of London Minstead, on the 27th of March 1635, grubbed up tree roots, without permission, in Ashers [Ashurst] in the East Bailiwick.

Henry Marshman, husbandman and charcoal burner, of Exbury, on the 9th of June 1635 had grubbed up half an acre of coppice at Exbury in the East Bailiwick for Gilbert Pope.

Christopher Heathcott, charcoal burner, of Lyndhurst, 1635.

Stephen Hobbs, charcoal burner, of Burley, 1634/5.

Nicholas Cobb, charcoal burner, of Minstead, 1635.

Edward Hobbs, charcoal burner, of Minstead, 1635.

William Cobb, charcoal burner, of Minstead, 1635.

John Hobbs, charcoal burner, of Minstead, 1635.

Note that two of the above have two occupations noted. In most cases it seems that a charcoal maker was employed full time in charcoal making, though it is possible that Marshman was taken on as extra labour when demand was great and undertook other work depending on what was available, though with Stride being noted as a yeoman it is likely that farming was his main occupation, possibly charcoal burning being a sideline.

During the civil war in the mid-1600s it is likely that charcoal was much used for military purposes, ie gunpowder, and though we do not know how much the New Forest would have supplied for this purpose, we have at least one reference, under Disbursements made by Allen Windsor between 25 March 1644 and 30 September 1645 stating that "*horses [were] imprest to go to the New Forest for coals for Lord Goring's army when it lay at Cranborne.*" This might suggest it was the only place in the vicinity of Cranborne that could supply the required quantity of charcoal, at least possibly at short notice.

At the Swainmote Court held at Lyndhurst, on the 22 June 1670, mention is made of what are "*...fit places for carrying timber, wood, and charcoal out of the Forest*": the places mentioned are "*Beaulieu Haven*" and "*Bolder Water leading to Lymington*" though it is believed that most timber, wood and charcoal is exported through Redbridge, which is outside the Forest on Southampton Water. The next mention of charcoal making comes to light at the last Court of Eyre for the New Forest held at Winchester on the 19 September 1670 where charcoal making was described as "*... a great offence and nuisance to the forest ...*" for where permitted "*... it leads to the destruction of the woods, covert, and herbage.*"

Andrew Yarranton refers to the charcoal making industry in the New Forest in his book '*England's Improvement*', published in 1687. In it he states that charcoal was made and "*shipped to Cornwall and other places*", presumably for the tin making industries and such-like in the West Country. He also makes the suggestion that an iron works be set up at Ringwood, using ironstone from the coast around Christchurch that could then be taken up the River Avon to Ringwood, with wood being supplied from the New Forest. This idea was not, however, taken up, though it is possible that another outlet for New Forest charcoal was Sowley iron works, which ran from 1600-1820, though not always doing both smelting and refining. While mentioning the iron industry it is important to note that in 1558 an Act was passed "*That Timber shall not be felled to make Coals for burning of Iron*", which had the effect of banning the felling of any Oak, Beech, or Ash for charcoal making, within 14 miles of the coast or any navigable river or stream, therefore excluding the whole of the New

Forest, though it is unlikely that timber trees were legally felled in the Forest for charcoal due to the laws already in place before 1558, the majority of charcoal probably being made using timber off-cuts and coppice products at this stage in history, though there is little doubt that timber was misappropriated from time to time.

From around this time onwards, almost up to the cessation of the practice, a number of wills become available. Note that during the second half of the 18th Century the job title changes from that of collier to charcoal maker presumably to distinguish the work from that of the coal merchants. The following is a list of wills, etc., that are held at the Hampshire Record Office relating to colliers and charcoal makers in the New Forest area:

1623	Edward Moulton	Collier	Minstead
1678	Clement Hobbs	Collier	Lyndhurst
1681	John Purkiss	Collier	Minstead
1743	James White	Collier	Bisterne Close
1750	Joseph White	Collier	Bisterne Close
1751	Clement Hobbs	Collier	Fritham
1760	John Broomfield	Collier	Minstead
1762	Thomas Godwin	Collier	Minstead
1766	Francis Ranger	Collier	Minstead
1767	Richard Abbott	Charcoal Maker	Minstead
1785	Richard Abbott	Collier	Minstead
1835	Maurice Cull	Charcoal Maker	Minstead
1835	John Veal	Charcoal Maker	Lyndhurst
1844	John Veal	Charcoal Maker	Emery Down
1857	Robert Whitehorn	Charcoal Maker	Minstead

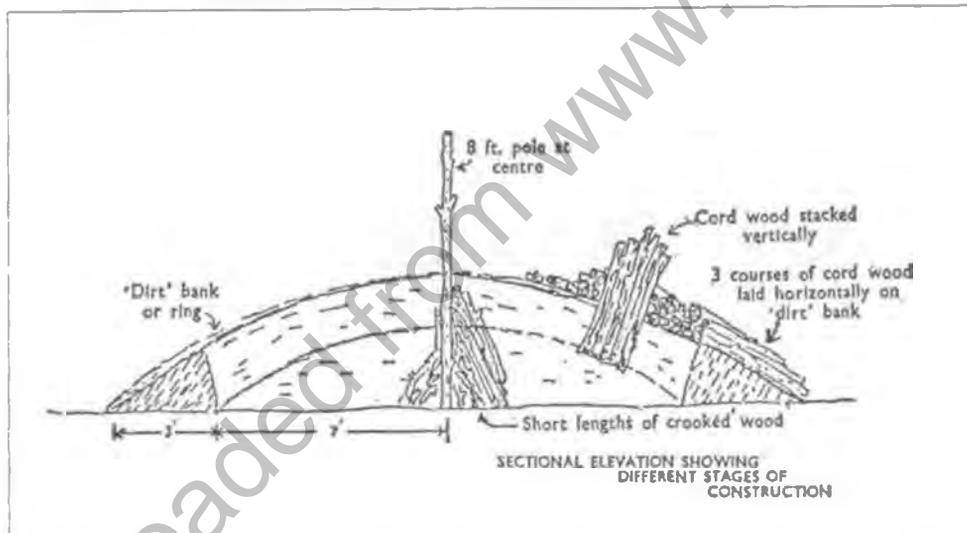


Figure 21 Suggested way in which a Charcoal burner builds up his wood pile

In 1698 an Act was passed for the 'Increase and Preservation of Timber in the New Forest in the County of Southampton'. However, prior to this a Special Commission was set up to look into the abuses in wood and timber in the New Forest, this being referred to in the Bill. There are two references to charcoal making which are of particular interest. Firstly, that "In Castle Mallard [Malwood] Walk, 25 April 1696, the deponent [George Furzer] found several parcels of browse wood carried away by a collier." Secondly, William Brudevell stated that with the "colliers cutting up the cover of the Forest, there remains nothing to preserve the spring trees [saplings]." These seem to validate the restrictions put on charcoal burning by the 1698 Act, as shown below. However, it was a time of unsettled management in the Forest with much abuse being committed, most importantly many by the Forest officers themselves. The restrictions of the 1698 Act in relation to charcoal making stated that there should be no "... Coal-Fires for making Charcoal within the said Forest ... except in the waste Ground of the said Forest ... nor shall any of the said coal hearths ... be fenced with Bushes but with Heath and Furse only ... and not within One thousand Paces of any Inclosure to be made by this Act." Also the sites for the coal hearths were to be appointed by at least one Verderer, two Regarders, and the Surveyor or Woodward. More importantly, every forester, under keeper, or other officers allowing any breach of the rules were liable for a £100 fine for each offence.

In 1789 the Land Revenue Commissioners published a report on the New Forest, this containing several references to charcoal making. The duty of keepers in regard to the 1698 Act with reference to charcoal making was reiterated within this report. However, it was found that *"The charcoal hearths are all allowed to be within the woods, because that is more convenient to the makers, though attended with the danger of burning the woods, and affording opportunities of stealing young trees or branches, with less probability of detection."* The evidence given by the individual keepers relating to 'Coal Hearths' proves this to be true. In fact it was said that *"... the colliers sometimes cut boughs of trees that are near to the hearth."* Also much fuel wood was also used for the production of charcoal, which was not strictly legal, as fuel wood was supposed to be used only on the premises which held the right.

Many of the hearths were *"... fenced with branches of trees and bushes ..."* in direct contradiction to the 1698 Act. All the hearths mentioned were to be found within the woods, the keepers often stating *"... in general the coal hearths are made wherever the colliers think proper, without asking leave of any forest officer ..."*. Even more impressive is the examination of Edward Pierce, keeper of Denny Walk and the Nodes, which reads *"... that 8 or 9 years ago 3 coal hearths were made in Woodfidley Inclosure, and on his forbidding the colliers from making any [charcoal] there, they told him they had leave from the Deputy Surveyor; and the Deputy Surveyor ordered this examinant to let them remain, to save the colliers the trouble of carrying the wood out of the cover."* In total, the keepers reported that there were 26 coal hearths in the Forest at the time of inquiry.

In 1848 a Select Committee was set up to look at the state of the New Forest. It showed that the practice of charcoal making was totally rid from the forest, the charcoal makers hanging on, on the local estates. The examination of Mr W.L. Freeman brought up the following description of charcoal makers: *"... I found that charcoal-burning encouraged the stealing of cordwood, and encouraged people to sell it, for charcoal-burners are not generally the most reputable people."* Little, it seems, had changed since the 1789 Report, though this might have been expected as the craft was generally passed down through the families.

In a letter of 31 January 1849, Mr W L Freeman as Interim Deputy Surveyor, following the resignation of Lt. Col. Thornhill due to ill health, reported, under the sub-heading of fuelwood, that charcoal-burners were permitted *"... to exercise their calling in the Forest ..."* which had among other things caused *"... great irregularities."* It seems the problems came to a head when Lt. Col. Thornhill had become ill and had not been able to oversee the management of the Forest. His two senior assistants remained for the most part in the offices at New Park leaving the work 'on the ground' to the junior assistant James Reed. It seems that Mr Reed undertook various illegal dealings through the advantage of his office. The very fact that he himself was running the Forest to his own advantage, allowed others to do the same with a much reduced fear of being presented for their offences.



Figure 22 Charcoal burning site in the New Forest, 28 May 1967

A look through the 1852 Hunt's directory, however, lists only one 'charcoal dealer', this being John Pudney of Emery Down. It is interesting to note that the Minstead-Lyndhurst area seems to have been the centre of the charcoal industry for a long period. By the end of the 19th century the charcoal making industry, in the New Forest, had almost died out, only being undertaken by a very limited number of people still practising the craft. Two of these people were Maurice Cull of London Minstead, later Copythorne, and Mark Veal of Lyndhurst.

The end of charcoal making, one might imagine, had finally come, but this was not so, due to the timely arrival of the First World War. Mr Eyre, owner of the Bramshaw estate, became aware of the need for charcoal for the manufacture of gas masks, and as he previously had known Maurice Cull he decided to contact him. However, Maurice Cull had since died, but the craft was still safe with Frederick Cull his son, and after a few problems persuading him to take up the challenge, Frederick was soon making charcoal in the Forest near Nomansland, with the added benefit that he had an almost total monopoly on trade in the New Forest.

After the war Frederick Cull continued manufacturing charcoal in the traditional way, in Furzy Lawn Inclosure, until his death, with which the tradition died. Charcoal burning continued in the forest until about the early 1970s – presumably the Ministers Mandate tipped the scales against the charcoal burning industry, though in the early 1990s charcoal was again produced in the Forest presumably making use of the large supply of wood made available by the storms of 1987 and 1990, but this made use of steel clamps as opposed to the time-honoured tradition. Now, however, no charcoal is made on the Forest itself, but there are a few kilns still dotted around on private land, and I believe the Countryside Education Trust at Beaulieu in the 1980s made charcoal the traditional way as part of their work.

Richard Reeves

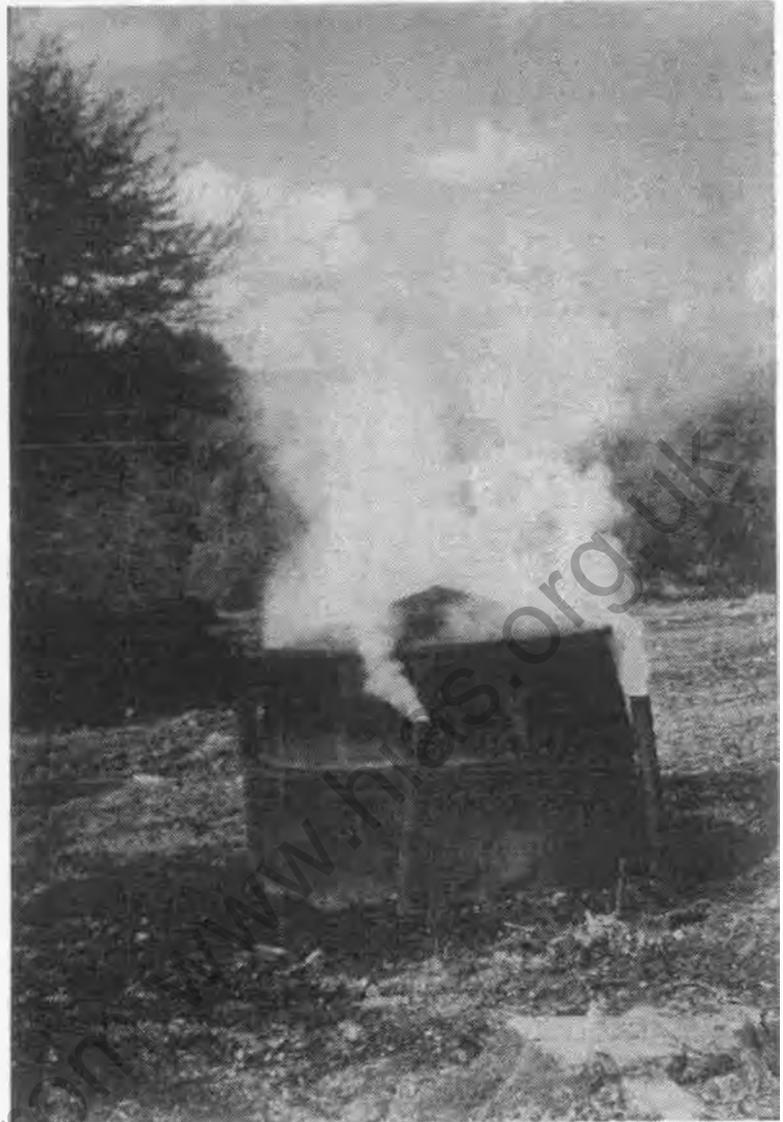


Figure 23 Metal kiln in the New Forest, 28 May 1967

Bibliography

- Act for the Increase and Preservation of Timber*, 1698.
Fifth Report to the Commissioners of the Land Revenue Commissioners. 1789.
Select Committee of the House of Commons, 1848. Office of Woods.
First Report of the Commissioners of Woods, 1849. Office of Woods.
Calendar of Lords Manuscripts, No. 1255, 1698.
Calendar of Salisbury (Cecil) Manuscripts, 1612-1668
Pasmore, A. *Surviving Evidence of the New Forest Charcoal Burning Industry*. 1964. Ind. Arch.
Stagg, D.J. *Calendar of New Forest Documents, 1244-1334*. 1979. Hampshire Record Office, Winchester.
Stagg, D.J. *Calendar of New Forest Documents, the 15th to 17th Centuries*, 1983. HRO, Winchester.
Yarranton, A. *England's Improvement*. 1687.

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All the above are obtainable from Eleanor Yates, *Publications Officer, SUIAG*, 66 St Cross Road, Winchester, Hampshire, SO23 9PS (postage and packing extra).

Other publications, including *Shipbuilding in Victorian Southampton*, *Water and Windmills in Hampshire* and *A Souvenir of Southampton Docks* are out of print.

Southampton University Industrial Archaeology Group

Southampton University Industrial Archaeology Group was founded in the 1960s from members of University Extra-Mural classes who wished to continue and develop the practice of industrial archaeology. Recording has included surveys of mills, breweries, brickworks and farm buildings. Restoration work is undertaken directly or by associated groups, such as Tram 57 Project, the Hampshire Mills Group or the Twyford Waterworks Trust. In addition to the Journal, the Group publishes a newsletter and also has published several monographs. Lecture meetings are held every month of the year at the University. Current membership fees are £9.00 (Single Member); £13.50 (Joint Membership); £14.00 (Family or Corporate); £6.00 (Out of County).

To join, contact the Membership Secretary:

Keith Andrews, 13 Ashley Close, Harestock, Winchester, SO22 6LR