AIA

BULLETIN OF THE ASSOCIATION FOR INDUSTRIAL ARCHAEOLOGY

BULLETIN 1.4 1974

WHEAL MARTYN MUSEUM

With the backing of the producers of china clay in Cornwall, work is now actively in hand to establish a Museum of the China Clay Industry at St Austell. This new open air museum will aim to show all aspects of the history of china clay and the trades connected with the winning, refining, drying and transporting of clay. As an industry of major economic importance in the county, china clay has taken over the position traditionally held by tin and copper mining; now almost 3,000,000 tons of clay are produced each year to use all over the world in paper making, porcelain, and innumerable other products. Despite this position, today, the industry is still barely 200 years old, although it has progressed as increased demand has encouraged new improved methods of production to be adopted. The museum site is an example of one of the earlier stages in this development.

After extensive surveys of the area, Wheal Martyn has been chosen as the central museum site, since it is one of the best preserved china clay works from the end of the last century, and in spacious and wooded surroundings at the top of the Trenance Valley. This makes it ideal for the establishment of an open air museum.

The existing pit, originally established about 1820 by Elias Martyn, a draper from St Austell, was taken over by John Lovering from Elias's son, Richard, in about 1880. The works as they are today probably date from the modernisation which followed this takeover and they were then in use until about 1968. Apart from the traditional coal fired pan kiln and a small mica kiln forming a single "L" shaped building the works also include a series of mica drags, settling pits and settling tanks, typical of the period from about 1880 until the Second World War. There is also a fine 18 ft diameter water wheel which operated a pump about 100 yards away by means of a cable held in tension by a large balance box. This is now in working order and it is also intended later to restore the much larger 35 ft diameter water wheel which operated the main pumps at Wheal Martyn Pit some quarter of a mile away, by similar system of cable and flat rods. It is intended to restore the works to their original state to show the complete process. In part of the pan kiln there will be a display to tell the story of china clay from the very first discoveries of William Cookworthy in the 1740s, through his first clay pits in the St Austell area in the 1770s, up to the present day, showing the technological advances that have enabled the Industry to double production in the past twelve years.

It will also be possible to walk up from the museum site to see the modern pit workings at Wheal Martyn from a viewing platform.

As soon as possible a cooperage (clay was traditionally exported in casks) will be re-created as well as a blacksmith's shop and a typical clay workers cottage of the last century. The old clay waggons, once a familiar sight in the narrow streets of St Austell, will also be on show.

It soon became obvious that no one site could tell the whole story of the Industry and it was therefore decided that a number of sites—satellite sites—would have to be created to show those aspects which it would not be feasible to move to a central museum site. These plans include the Cornish beam pumping engine at Parkandillick and the china stone grinding mill at St Stephen-in-Brannel, while the visitor should also see the uniquely preserved Georgian harbour village of Charlestown where china clay was, and indeed still is, exported. At the central museum site the visitor will enter the museum through the Reception Centre—one of the old clay tanks which will be roofed in—where there will be a sales counter and provision for refreshments as well as an audio visual theatre for an introductory sound and slide show. It is hoped that the museum will also act as a centre for the study of the history of the Industry, helping to rectify the extreme lack of information, especially in printed form, on the early years of the Industry. A photographic library has already been established and the production of a series of booklets on various aspects of the china clay industry is now in hand.

The Museum has been established as an independent non-profit making company with twelve trustees and run by a Management Committee. The Museum project has been supported by the whole of the china clay industry with a substantial loan from English China Clays, in particular, as the largest producer. Support is also being received from the English Tourist Board and the South West Area Museums Service in the form of grants for capital works. It is intended to open the Museum initially in the spring of 1975 although work on the site will continue for some time after that date. Further information on the Museum is available from the Director, John Stengelhofen, John Keay House, St Austell, Cornwall PL25 4DJ. (Tel: St Austell 4482, extension 329).

THREATENED MONUMENTS

Bulletin 1.2 examined some of the more significant railway sites that have come under threat in the last two years. Railway structures, however, comprise one of the largest groups of monuments subject to applications for Listed Building Consent and since that issue was written there have been three further applications to alter or demolish railway structures.

In May 1974 Rydale District Council in North Yorkshire applied to demolish the two surviving buildings in the Goods Yard of Pickering Station. These buildings date from the period of horse operation of the Whitby & Pickering Railway and it is probable that one of the buildings in question is the original station of 1836. Both buildings are handsome ashlar-built structures in good condition and there is strong local support for their retention. As the local authority plan to redevelop the goods yard as a car park and site for a super-market the buildings could quite easily be incorporated in such a development as covered markets.

In July Brighton Borough Council sought permission to demolish the entire length of the Lewes Road Viaduct, Brighton, which was constructed in 1869 as the major engineering work of the line to Kemp Town Station. The main arch of this heavily ornamented red brick viaduct spans the main Brighton to Lewes road and is flanked by low round-headed pedestrian arches over the pavements. There are a further nine arches to the west and three to the east. Following representations the Brighton Council revised their application to restrict it to the demolition of the section of viaduct over the Lewes road itself and the immediate approaches. Unfortunately this is the most visually impressive part of the viaduct.

Lastly, British Rail themselves have recently applied for permission to demolish the North Tower of Crystal Palace Lower Level Station on the grounds that the existing roof structure is unsafe. This portion of the station has hitherto been used residentially and it is intended to continue this use once alterations have been effected. These alterations would however impair the character of this unique station which, as the purpose-built popular gateway to the mid-nineteenth century Crystal Palace development, is the last unspoilt reminder of that grand Victorian concept. Sympathetic repair is surely not beyond the means of an organization such as British Rail.

NB On a more cheerful note on application under Section 28 of the Town & Country Planning Act, 1971 was pasted on the door of derelict Ashby-de-la-Zouch station in Leicestershire on 19 August 1974. The application (No 74/0500/P) is to convert the station into four flats and build five new houses on the adjacent station approach area. Further details from and comments to the North-West Leicestershire District Council, Municipal Offices, London Road, Coalville, Leicestershire.

Ashby station, listed Grade II, was built in 1949 when the Leicester & Swannington Railway (1832) was extended westwards to Burton-on-Trent. Of classical style, it has a symmetrical elevation to the forecourt, with a central entrance feature incorporating Doric Columns, and two links with gently bowed fronts connecting the central portion with two one-bay side pavilions. The central section was originally surmounted by a decorative feature in the form of a Greek temple (see the illustration on page 101 of J Simmons, *The Railways of Britain).* Ashby station was intended to be in keeping with the nearby hotel and bath house, the latter now demolished, which were built in the 1820s during the town's brief period as a spa. Several lists of stations of national importance, notably those of David Lloyd prepared for the Victorian Society, have identified Ashby station as being of major significance.

An interesting feature of the forecourt area, which will almost certainly disappear, is the terminal track layout of the Burton & Ashby tramway, an American-style electric inter-urban which ran through the fields and provided Swadlincote, amongst other places, with a link to the outside world.

HERITAGE YEAR PROJECTS

A number of new industrial archaeological schemes have been designated as projects for European Architectural Heritage Year 1975. On Anglesey the County Council and British Rail are considering erecting as a monument a portion of the original tube of Stephenson's Britannia Bridge. The Bridge has been reconstructed following a fire a few years ago.

In Bradford the Piece Hall Yard, a narrow street now cluttered with parked cars, is to be improved and through-traffic and parking prohibited. The City Council is laying new stone paving and re-siting the massive cast-iron bollards to define a service area in the yard which takes its name from the Piece Hall, demolished in 1973, where worsted pieces and yards were sold. Half the four thousand pound cost is to be met by a Heritage Year grant.

At Tynemouth the 19th-century stone-built lifeboat house now serves as a sailing club HQ. Restoration is planned and a £2,300 Conservation Grant will meet half the cost of replacing a corrugated iron roof with Welsh slates.

In Liverpool Albert Dock is again the centre of controversy but now seems almost certain of a long-term future. Built in 1841/5 and described as 'the unquestionable climax of Liverpool dock-architecture', it is to be restored and converted into a new home for the City's 4,000-student Polytechnic. A consultants report showed that the quadrangle of warehouses, set round a basin, could provide over a million square feet of useful space for less money and at greater speed than comparable new buildings. The move will allow the Polytechnic to consolidate and expand to perhaps 10,000 places over the next decade. The City Council, which is responsible for the scheme, describes it as 'one of the boldest conservation projects in the country'.

SUBTERRANEA BRITANNICA

The inaugural meeting of Subterranea Britannica was held on Saturday 21 September 1974 at Emmanuel College, Cambridge. The Society has been constituted in association with SOCIETE FRANCAIS D'ETUDE DES SOUTERRAINS of France and ARBEITSKREIS FUR ERDSTALLFORSCHUNG in Germany to promote interest and research into artificial souterrains, especially those related to old castles, churches, manors, hamlets, used as medieval refuges or sometimes where 'heretic' cults were celebrated, including funerary cults. Also ancient quarries, pit villages for example, dene-holes and Grimes Graves. Honorary President of the new Society is Professor Glyn Daniel and further details may be had from Mrs S P Beamon, 16 Honeyway, Royston, Herts SG8 7ES.

The fade out theatre

This article was written by Irwin Friml, a freelance journalist who specialises in writing articles like this one. It is reproduced by kind permission of the New Scientist.

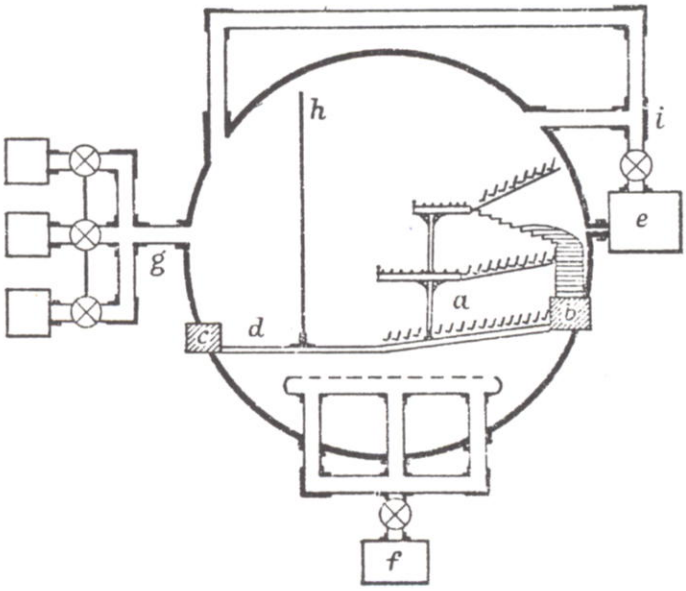
Christmas pantomime has long been the theatrical occasion par excellence for transformation scenes, ghostly apparitions, and other manifestations of technical skill. A recent discovery reminds us of yet another, almost unbelievable, application of science to stagecraft

Aficionados of the latest trends in the style of musical presentation may be surprised to learn of a recent discovery by experts from the Irongirdle Industrial Archaeology Museum. Many who have associated the "fade out" with the development of electronic methods for the reproduction of music will be interested in the discovery of some plans and castings for a "Fade Out Theatre" at Oilbrookdale, in Shropshire. It is a little known fact that between 1851 and 1853 this form of entertainment enjoyed a vigorous but short lived vogue.

Believed to be based on some original drawings by Trevithick, but only made possible with the development of cheap sources of cast iron and powerful steam engines, the Fade Out Theatre consisted of a hollow sphere of cast iron large enough to take the orchestra and seat the audience. The sphere—sometimes up to 200 feet in diameter—was carefully constructed, using carpentry techniques so that after the audience and entertainers had entered, it could be hermetically sealed. At its conclusion, a performance could be brought smoothly to a close with a "Fade Out" brought about by pumping the air from the theatre by means of steam driven vacuum pumps. The air would gradually become thinner, losing its sound conducting properties and producing a "natural" fade, such as it is very difficult to reproduce with electronic techniques today. When the fade out was complete the air would be let back into the theatre to allow the audience and performers to breathe.

The style of these events is graphically described in a document found on the site of an old Fade Out Theatre, now the London Planetarium. Apparently in growing excitement, moustachioed assistants would appear from the wings carrying large placards reading "Please breathe in—fade out coming", then with a slight hiss the great event itself would commence, and, if brought off with technical panache, would be greeted with riotous if silent applause. Early teething troubles were solved by such devices as the distribution of barley sugar sweets, but as the audiences became used to and hardened to the effects, more spectacle was demanded.

Diagrammatic representation
of the Oilbrookdale theatre
a, audience;
b, public entrance and air lock;
c, stage door and air lock;
d, stage area;
e, main vacuum pumps;
f, refill pumps giving tremolo effect;
g, manifold and mixing
assembly for different gases,
producing changes in pitch;
h, proscenium arch;
i, main stuffing box



Powerful pumps were used in some theatres to evacuate and refill the vessel sufficiently rapidly to produce a "tremolo" effect. Different gas mixtures were employed to produce weird changes in pitch. Audiences began to demand "Fade Out!" should a performer displease them, and hard pressed managers were forced to comply if they wished their audiences to return.

Eventually, the craze was brought to a close by a series of disasters. In one case rats, attracted by the grease on the Teather seals, became caught in an air return valve, and in spite of frantic efforts by the engineer, 450 persons and a chamber music ensemble were suffocated to death. At another theatre, fatigue in the metal caused by over-zealous use of the "tremolo"—an overlooked precursor of the "Comet" tragedy—caused a fatal implosion. Another harassed manager, searching for a new effect, filled his theatre with a mixture of hydrogen and air, resulting in an opposite but equally disastrous catastrophe. Questions were asked in the House, and eventually an act was passed banning all "vacuuminous and gaseous performances" in public places.

Until recently, it was thought that all the "Fade Out Theatres" had been completely destroyed, so the discovery at Oilbrookdale is of particular importance.

RESEARCH QUERY

Dr J A Robey, 30 Haywood Grange, Little Haywood, Stafford ST18 0UB is conducting a comprehensive survey of the use of steam power in the eighteenth century. The survey comprises a card index of steam engines erected before the end of the eighteenth century. To date Dr Robey's list contains over 1,830 entries and the details recorded include the year first worked (or earliest reference), year stopped (sold, scrapped, etc), location, owner, type of engine, use, cylinder size, any other technical details. It is expected that the list will be eventually submitted for publication and all assistance will be duly acknowledged. Members who wish to provide information should write to Dr Robey direct.

ELECTRICAL WEEKEND

Following the success of the first weekend meeting on the History of Electrical Engineering which was held at Birmingham in 1973, this second meeting was organised by the History of Technology Committee of the Institution of Electrical Engineers. It was held at Goldsmith's College, London, commencing with dinner on the Friday evening and finishing after lunch on Sunday.

After dinner on Friday, the party went by coach to the Science Museum for a reception and viewing of some special exhibits as well as several exhibition galleries. The items included a collection of early microphones and very early electric motors, and a special attraction was that a number of these motors were demonstrated in action—the reciprocating electromagnetic engine was particularly impressive.

The programme for Saturday included a visit to the Royal Institution, where Prof R King gave a talk on the history and work of the Institution and then conducted the party round the archives and the Faraday Museum. The lecture programme comprised three lectures: Mr E L E Pawley on "The development of technology in the service of broadcasting", Mr B Bowers on "The early history of electric motors", and Mr B J Prigmore on "Traction technology: the stream of development", together with four short talks: Cdr J C Turnbull on "Electrical equipment of the Middlesbrough Transporter Bridge", Mr J G Henderson on "Measurements on a Kapp dynamo of 1887", Prof W Gosling on "Development of the speaking telegraph" (presented by Mr R M Barker), and Dr P Strange on "Transformer litigation, 1890-1900". After dinner, Dr Margaret Weston, Director of the Science Museum, London, gave a talk on "The role of the Science Museum" which provoked a most vigorous discussion.

On Sunday there was a lecture by Mr R A S Hennessey on "The politics and economics of early electric traction", followed by four talks: Prof J Greig on "Silvanus P Thompson", Prof D G Tucker on "W H Preece: 19th century telegraph, telephone, and power station engineer", Mr F Scowen on "History of loaded cables", and Mr R F Pocock on "Marconi and the Royal Engineers in 1896".

The third weekend meeting will be held at the University of Manchester from 11 to 13 July 1975; particulars of the programme and registration forms will be sent, when available, on application to The Secretary, (SEM Division), Institution of Electrical Engineers, Savoy Place, London, WC2R 0BL. The meeting is open to all interested.

The proceedings of the 1973 meeting are available, price £1.50, from the above address; the proceedings of the 1974 meeting will be available in due course.

SOCIETY NEWS

Rickmansworth Historical Society have drawn up a report on industrial archaeology, published in the *Rickmansworth Historian* no 26. A second report covering mills and similar items in greater detail appears in no 27 of the same publication. Further details from E V Parrott, 66 The Queens Drive, Rickmansworth, Herts.

Cambridge IA 1973 contains several useful articles on mills, drainage engines, milestones and a local foundry. Copies can be obtained from N A Smith, 4 Springfield Road, Cambridge CB4 1AD, price 30p, plus postage.

Basingstoke IA Group begin their autumn/winter programme with a talk by Donald Cross on the Industrial Archaeology of Wiltshire, at 7.30 pm Monday, 30 September, at Chute House, Basingstoke, The Treasurer of the society is Clive Tristram, 22 Bounty Road, Basingstoke, and the Hon Sec is Mrs Josie Walls, Venture Fair, Lower Padworth, nr Reading.

Brunel Exhibition Project/Rotherhithe. The Project group aim to restore a pump house used in connection with the Thames Tunnel at Rotherhithe as a basis for a museum dedicated to the Brunels, father and son. The Chairman is Sir Harold Harding, the distinguished civil engineer.

Friends of the Black Country Museum, St James's Road, Dudley, is seeking new members and volunteers to help with its work. The society holds lectures and conducts outings as well as help with the museum. The Secretary is Janet Dean, 15 Hadcroft Grange, Grange Lane, Lye, Stourbridge, Worcs.

Sussex IA Society *Newsletter* no 3, June 1974, has a useful list of publications emanating from the society. The General Secretary is A J Haselfoot, Albion House, Cobourg Place, Hastings TN34 3HY.

South West Wales IA Society *Newsletter* no 7, June 1974, gives an account of the principal activities of the society. Details of the society from P R Reynolds, The Library, University College of Swansea, SA2 8PP.

PUBLICATIONS

Avoiding Waterway Congestion. A paper with this title has recently been prepared by the Inland Waterways Amenity Advisory Council, with a view to coping with increased recreational usage of canals and other waterways. Copies may be obtained from the secretary at 122 Cleveland Street, London W1P 5DN. Other reports available include those on *Remainder Waterways* (see *Industrial Archaeology* 9/1, Feb 1972) and *Waterway Facilities.* Full details from the address given.

Thames & Severn Canal. Corinium Museum, Cirencester, has just published an interesting little booklet on *Cirencester and the Thames & Severn Canal,* which gives the history of a canal branch which reached the town at a basin and wharf. The agent's house cum store still survives though at the present time it is threatened with road development. A fine measured drawing of the building appears in the pamphlet which is available from the museum at Park Street, Cirencester, Glos GL7 2BX, price 12p inc postage.

Metal Mines of Mid-Wales. David E. Bick's latest publication covers Cardiganshire (south of Devil's Bridge) and is the first of a five part series on the old metal mines of mid-Wales. In a booklet, well-illustrated with maps, plans and photographs, he describes the history and industrial archaeology of mines in this important area. Copies can be obtained from the Pound House, Newent, Glos GL18 1PS, price 75p, plus postage.

AIA Bulletin is published six times a year by the Association for Industrial Archaeology. The Association was established in September 1973 to promote the study of Industrial Archaeology and encourage improved standards of recording, research and specialist survey and research groups and bodies involved in the preservation of industrial monuments, to represent the interests of Industrial Archaeology at a national level, to hold conferences and seminars, and to publish the results of research. Further details of the Association and its activities may be obtained from the Secretary, Association for Industrial Archaeology, Church Hill, Ironbridge, Telford, Salop TF8 7RE, England (095-245-3522).