



SUSSEX INDUSTRIAL ARCHAEOLOGY SOCIETY

No. 31.

JULY 1981.

CHIEF CONTENTS

Reconstruction of Piddinghoe Kiln
Battle Gunpowder Mill Sites (Visit)

E. W. O'Shea.

GENERAL NOTES AND NEWS

Annual Subscriptions. Membership cards for 1981/82 are enclosed with this Newsletter if not previously sent.

The Treasurer would be pleased if any Member who has overlooked his subscription payment, due on 1st April, would let him have it as soon as possible in order to avoid the expense and trouble of sending a reminder.

(Member £3.00. Family Member £1.50).

Association for Industrial Archaeology (A.I.A.). After full discussion by your Committee, it has been agreed that the Society should become affiliated to the Association. Details will be given in the next Newsletter.

Worthing Electricity Exhibition. The Exhibition will be held in the Town Museum and Central Library from 21st September to 3rd October to mark the 80th Anniversary of the inauguration of the Worthing Electricity Supply.

Plans are well in hand for over fifty firms and interested bodies to demonstrate their expertise and involvement in the electric and electronic fields, and members attending the lecture on the 'Early days of the Electricity Supply', to be given by Bob Gordon at 3.00 p.m. in the Library Lecture Theatre on Saturday 26th September, should find plenty to interest them. As a bonus on this day there will also be an exhibition of electrically powered models and inventions in the Richmond Room in the Town Hall nearby.

The Opening Ceremony is to be carried out by Professor Eric Laithwaite, D.Sc., PhD, CEng, FIEE, FIEEE, Head of Electrical Power Engineering, Imperial College. The Society will be represented but if you would particularly like to attend the opening address, which will be at 2.00 p.m., will you please let Mr. D.H. Cox know by 10th September.

Mr. A.G. Allnut is arranging a Stand for the Exhibition, and offers of help or the loan of artefacts, photographs, etc., would be very welcome.

PLEASE NOTE THAT THE LATEST DATE FOR THE ACCEPTANCE OF COPY FOR THE OCTOBER NEWSLETTER IS 9th SEPTEMBER

Sussex Industrial History, No.11. The Editor regrets a misprint on page 23, line 12. The date 1883 should read 1833.

Early Issues of Sussex Industrial History. The original publishers of Sussex Industrial History, Phillimore of Chichester, had informed us that no copies of the early issues were available. They have now discovered some issues of Nos 2,3,5, and 6. The Society has purchased these and they are now available for sale to Members from the W. Sussex Secretary, Mr. A.G. Allnut, price 30p. plus postage.

THE COUNTY LIBRARY SUSSEX ROOM When the County Library in St. Anne's Crescent, Lewes was closed, we temporarily lost the Sussex Room. This contained a most interesting collection on every aspect of Sussex, from its geology, ecology, archaeology and the like through to its modern history and including such subjects as local army regiments, sporting activities and family life.

I am pleased to say that the room has recently re-opened at the Lewes Library in Albion Place, Lewes. There is a reference section, containing such volumes as the Victoria County History, Horsefield and other rare county books and maps, but most of the books can be loaned, including a full set of Sussex Archaeological Collections and Notes & Queries. The room is kept locked, but the key can be obtained from the main counter.

Whilst on the subject of books, it might be worth while reminding members that there is a comprehensive library available to members at the headquarters of the Sussex Archaeological Society at Barbican House, Lewes. The books cannot be taken off the premises but there are facilities (somewhat sparse) for study and the journals and proceedings of many of the national and county societies are on the shelves. The library staff are exceedingly helpful but permission for access must be obtained at the desk in the entrance hall. E.W. O'S.

MOBILE SITE OFFICE AND STORE With the aid of a generous grant of £120 from the Lloyds Bank Fund for Independant Archaeologists, Lewes Archaeological Group have been able to purchase the mobile site hut that they have had on loan on their site at Norton for the past two years.

The hut has a caravan-mounted body sixteen feet long and seven feet wide and is fitted with a full-length bench, cupboards and window shutters. It is at present being repainted, the braking system is being overhauled and it will be fitted with a lighting system to comply with towing regulations. On the completion of the Norton survey about the end of July, the Lewes Archaeological Group are prepared to loan the hut free of charge to other established groups, who must be prepared to make their own towing arrangements but some assistance towards this cost may be available.

For further particulars apply to Mr. V. Horne, Hon. Secretary, 5, Ferrers Road, Lewes, East Sussex. (Telephone Lewes 3103).

RECENT VISITS

The British Engineerium, Brighton, 25th April. Despite the bad weather about 15 people attended this visit. It was good to have members from as far afield as Hastings and Chichester as well as some that live on the doorstep. The exhibition is well laid out and a visit is well worth while for those that could not make the official visit. Much attention is obviously paid to the very high standard of finish of the exhibits and in making things work or move. Space is becoming a problem with the wide variety of exhibits.

Ifield and Lowfield Heath Mills. Saturday 28th March. Eighteen members assembled at Ifield Mill, (early 19th century) where the restoration work, now practically completed, was very ably described and explained by Ted Henbery, who has been generally in charge of the work since its inception in 1974. Having seen the building before any work was started, and casting my mind back to that date, the transformation was dramatic. The building itself is now in excellent condition, weathertight, lined throughout, heated and lighted and with proper staircases instead of breakneck ladders. Milling machinery has been collected from various mills in the neighbourhood which were due for demolition, as the original machinery had been almost completely removed. This has not yet been fully erected but it is planned to complete this in due course when the rebuilding of the waterwheel is completed. The milling machinery is installed on a new raised platform on the ground floor, the millstones being on the first floor. The second floor has been leased by the Crawley Museum Society for a local history museum, while the top floor, the original bin floor, is used as a workshop and store.

After a very interesting tour of the mill the party walked to the site of the old Bewbush Mill, about $\frac{1}{2}$ mile away. This grist mill was demolished some time ago but the site of the millpond, dam and sluice can still be traced. An old millstone, used in the foundations of a cottage here, is now on display at Ifield Mill.

The party now drove to Lowfield Heath, near Gatwick Airport, to see the old post mill there. This mill has been in a state of disrepair for many years but, thanks to the efforts of one or two members, first aid repair work has kept it in a safe condition. The party was able to enter the mill for a close look at the remains. It is hoped that the present indecision by the development company that owns the mill will soon be settled and a useful future obtained for it.

A.J.H. and D.H.C.

The history and restoration of the mill are fully described in Sussex Industrial History, Nos. 8 and 9.

Remains of Gunpowder Mill sites in the Battle Area, Saturday 16th May.

Some twenty-five members and friends assembled at Peppering Eye Farm $1\frac{1}{2}$ miles SW of Battle (MR 744139) and were met by our guide for the afternoon, SIAS member Mr. E.J. Upton, who has made a study of these gunpowder workings over the last ten years.

Gunpowder was made in the Battle area for nearly two hundred years and the mills, powered by water, were situated on the banks of a stream known as the Asten which rises above Battle Abbey and flows into the Channel at St. Leonards. Five mills were built over the years: Farthing Mill, House Mill, Pepper-in-Eye, Lower Pepper-in-Eye and Crowhurst Mill.

Gunpowder is a mixture of salt-petre (75%) sulphur (10%) and charcoal (15%) and the first process of manufacture consisted of mixing, or incorporating, the ingredients. This was carried out by means of circular stones of black marble, some six feet in diameter, being mounted vertically in pairs and known as edge runners. These were powered by water and revolved vertically transmitting a screwing movement to the "charge" on a flat bed stone. During this process the charge had to be kept damp to avoid the risk of explosion. The powder was then taken from the grinding mills, placed on copper sheets, which were stacked on top of each other and pressed to a thickness of about three quarters of an inch. The 'corning' or granulation of the powder was the next process; here the cakes of powder were passed between zinc coppered rollers and then brass rollers. A small quantity of plumbago was then mixed with the powder before being taken to the 'drying house' or 'store' where the powder was heated, obviously a very hazardous process. The powder was then packed into barrels and stored in a magazine prior to delivery.

It was at Peppering Eye in 1676 that the works originated and here can be seen the site of the pond with the bay still extant and a brick-lined leat which served the mill with water. A later brick-built building used for 'corning' the gunpowder also remains. In the garden of the adjacent farmhouse were viewed three edge runner stones. A quarter of a mile down stream are the remains of the magazine, it was noted how isolated from each other were the manufacturing and storage facilities. From the magazine the site of Lower Pepper-in-Eye mill could be seen. There in 1861 an explosion destroyed the 'corning' house and another in 1866 the 'press' house; neither were rebuilt.

We then retraced our footsteps and crossed the road to Powdermill House and pond, the site of House Mills. The proprietor's house is situated below the pond bay and in the garden were situated the grinding mills. Three watch houses remain, two in good repair; their flimsy construction of lath and plaster walls reminded one of the hazardous process of making gunpowder. It was here in 1798 that an explosion killed three men, severely damaged the proprietor's house and destroyed some older buildings causing damage estimated at £5000. The works were however rebuilt because in 1814 a Boulton and Watt steam engine was installed, presumably to assist in times of drought, and the base of an 80 foot high chimney remains as does also a cast iron salt-petre refining cistern. Close by the sluice and above the pond bay old runner stones can be seen built into the walls of out-buildings associated with the manufacturing complex. Viewing the tranquil calm of the twelve acre pond on a sunlit spring afternoon it is hard to believe that here was once a noisy throbbing industrial centre.

The five mills had been amalgamated when, in 1874 the lease was not renewed and the works closed transferring to Dartford, eventually to become part of I.C.I.

After our visit we returned to Mr. Upton's where we were regaled with Mrs. Upton's famed cakes and sandwiches which were delicious and enjoyed by all. Following our tea we viewed old photographs of the mills and were told that during the Crimean war over a ton of gunpowder was being manufactured per day and in the late 1700s it took a gentlemen on horseback 3 months to collect £6000 in outstanding debts, a very large amount indeed, which gives some idea of the size and scope of the mills.

J.S.F.B.

FORTHCOMING VISITS

Summary of SIAS visits for the rest of the year as detailed in the April Newsletter.

- 25th July All day visit to SOUTHAMPTON
- 5th Sept. Working visit to Amberly Chalk Pits. Lots of interesting things to do.
- 12th Sept. Country Fair at Clayton Parish Green; in aid of 'Jack and Jill'.
- 26th Sept. Talk on 'Early days of Electricity Supply' at Worthing Exhibition.

Events of other Societies that might interest Members:

- 11th July Centenary of Chichester and Midhurst Railway. Facilities are being provided to 'ride the line' by train, on foot and by air; a number of relevant exhibitions are also being arranged. Details may be obtained from Mr. V. Mitchell, Chairman of the co-ordinating and publicity committee, Middleton Lodge, Easebourne Lane, Midhurst, Sussex. The event is part of the Chichester Festival.
- 25-26th July Rushmore Steam & Vintage Rally, Rushmore Arena, Aldershot.
- 1- 2nd Aug. Aldershot Steam Engine Rally, Plumley Farm, Somerley, Hants.
- 8th Aug. Bluebell Railway 21st Anniversary Celebrations.
- 29-30th Aug. 1981 Festival of Transport, Broad Farm, Hellingly, Sussex.
- 12-13th Sept. Tonbridge Steam Rally, Hall Place, Leigh, Tonbridge.
- " " Bluebell Railway 'Vintage Weekend'.
- 3- 4th Oct. R.H.D.R. Steam & Vintage Vehicle Gathering, New Romney, Kent.

Mathematical Tiles. The Surrey Vernacular Architecture Group and the Domestic Building Research Group (Surrey) have jointly organised a one-day symposium upon the history, uses and the technical and aesthetic features of these tiles.

Sussex buildings, particularly in Lewes and Brighton undoubtedly illustrate the most varied and interesting selection of this unique method of facing or refacing buildings, and they will be one of the most important elements of Alec Clifton-Taylor's television programme of Lewes in his second "Six English Towns" series to be shown in the autumn.

Mr. Clifton-Taylor will be chairing the symposium and two of our members will be speaking. Mr. Ron Martin will be talking on his comprehensive survey of mathematical tiles in Sussex and Mr. Ted O'Shea will be describing the technical aspects of making and fixing the tiles and their conservation.

The symposium will be held at Ewell, Surrey, on Saturday, 14th November, 1981. The fee will be £4 including tea and full details and registration forms can be obtained from Mr. M. Exwood, 64, The Green, Ewell, Epsom, KT17 3JJ.

Recording of Industrial Archaeology. It is proposed to hold an all day instructional session with talks and practical work in surveying, photography and sketching. The day proposed is Good Friday (April 9th) 1982 with a venue somewhere in mid-county and lasting all morning and afternoon. More details will be in the next newsletter as they become finalised. Meanwhile your view on your requirements and possible attendance would be most welcome to the General Secretary.

REVIEW

The Electric Revolution B.B.C. 2 Television - Wednesday 13th May.

The twentieth century has seen an increase in the tempo of technological development and also in the design and size of its industrial buildings. From steam to electric power, from municipal gas works, to nuclear power stations and the national grid.

This programme, ably presented by Kenneth Hudson, visited Battersea Power Station built in the 1930s and now half disused, searched for, in vain, a town gas plant eventually finding a ruinous one at Salisbury. It asked the question but provided no answer as to what use can be put our present century industrial monuments and pointed out that a twenty first century industrial archaeologist may find it difficult to locate recent industrial sites; graphically illustrated by using a metal detector to locate the base of one of the first pylons for the grid.

As well as looking at obvious industrial installations, works and factories it reviewed the changes that have taken place in the 'labour-saving home', shop facades, and cinemas, the original electric palaces. Of particular interest to our Society was Shoreham Airport which was the first licensed airport in the world and where in 1916 the Royal Canadian Air Force was established. The present buildings date from the 1930s and there is still only a grass runway. Our counterparts in the next century instead of having mainly written and photographic records to consult will be viewing newsreel and television film to aid their researches, a point evocatively made by showing film of a gas plant in operation.

The programme made me realise just how much in the Brighton area has already been demolished, a gas plant, power station, municipal baths and cinema/ballroom complex, where although it was not possible to find a reuse for these structures it would have been possible, and hopefully it was done, to photograph and produce some kind of written record. I wonder how many other sites are awaiting demolition in Sussex that have not been recorded - if you know of any please do something about it.

If the programme is repeated make sure you don't miss it!! John F.S. Blackwell.

The reconstruction of the kiln, (TQ 432632) which was sponsored by the Sussex Industrial Archaeology Society and reported in the Newsletter No.31 (August 1980) has now been successfully completed. At the time of the initial inspection made by the writer in 1979 the very dense covering of weeds and the dangerous condition of the cone made an accurate appraisal impossible and it was not until a scaffold had been erected and the weeds removed that a final assessment of the work to be done could be made.

The removal of the weeds disclosed that the cone was constructed of mis-shapen reject bricks bedded in brick-dust, the walls being one-and-a-half bricks thick. The inner ring was generally built of headers with little attempt to bond the inner and outer rings together. Each course oversailed the course below, the offset being increased towards the corners to adjust the plan from square to round as the brickwork rose, and the bricks were canted inwards to wedge them together.

To encourage smoke trailing and to obviate cold pockets, the profile of the cone commenced with an ogee curve before turning into a regular batter. The symmetry of the cone was broken by the loading opening, which intruded into the base with a three-centre arch and the front wall was increased to two bricks thick to stabilize the arch.

Because of the complexity of the geometry, each course had to be taken down and recorded brick-by-brick, and specially designed recording instruments had to be constructed. A tramell, comprising a pair of telescopic arms, each fitted with opposing tapes to give direct radial measurements, pivotted above a protractor, allowed measurements to be taken at any angle, generally every 45° but at closer intervals where specific features needed recording. A clinometer, consisting of a pair of pivotted arms, fitted with a bubble level and a protractor allowed the angle of cant of the brickwork to be recorded.

The reconstruction was done by reversing the method of demolition, but allowances had to be made for the settlement and fracturing of the cone, which in some cases had been as much as 20cm out of level. A reinforced concrete collar was cast on top of the firing chamber wall to spread the load and counteract the thrust of the cone, but this was disguised behind the inner skin of brickwork.

The brickwork was rebuilt in a weak lime/cement mortar, but because the joints were thicker than the original brick-dust bedding, the number of courses had to be reduced to maintain the same height and profile. The cone terminated with a vertical shaft, which was copied from a photograph of a rather similar kiln demolished at East Grinstead. Parts of the restraining strapping that had been fitted around the base of the cone were found in the modern concrete haunching, and this has been reproduced by a local blacksmith.

Apart from the scaffolding all of the work was done by volunteers, none of whom had had any previous experience of this work. Six, including three ladies, were taught bricklaying and pointing. The total cost of the work amounted to £1770. Because of substantial grants from Lewes District Council, East Sussex County Council and the Civic Trust, and generous donations from the Rugby Portland Cement Co. Ltd., Harvey & Son (Lewes) Ltd., and Brighton Scaffolding Ltd., the owners of the kiln were only called upon to find eighteen percent of the cost. Equipment and tools were supplied by the Lewes Archaeological Group who also provided the greater proportion of the labour.

A full illustrated report, together with the history of the Piddinghoe ceramic industry will be published in No.12 (1982) of Sussex Industrial History.