

MEMBERSHIP CHANGES

New Members

- G. Hawthorn, 35 Mill Drive, Hove BN3 6WB (Brighton 509978)
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(Robertsbridge 880024)
D. Mitchell, 'Swinton' 16 Culver Road, Feilham, Bognor P022 7EF
(Bognor Regis 864336)
Mrs. P. Farmer, 170 Hangleton Way, Hove BN3 8ER (Brighton 410602)
A.R. Killick, 19A Hoselmere Gardens, Worcester Park, Surrey KT4 8AH
Miss T. Mochling, 'Rosemullion' West Furlong Lane, Hurstpierpoint BN6 9RH

Change of address*

- L. Draper, 7 Castle Garden, Swon Street, Petersfield, Hants GU32 3AG (0730-66050)
G. Mead, 17 Hollingbury Park Avenue, Brighton BN1 7JG (501590)

Correction of address

- H.W. Farmer, 170 Hangleton Way, Hove BN3 8ER (Brighton 410602)

Correction of telephone number

- L.F. Martin, 20 King's Close, Lancing BN15 8DB (Lancing 750887)

Addition of telephone number

- M. Brunorius (Burgess Hill 47720)

Resignations

- Mrs R.H. Cook, 126 Arundel Road, Littlehampton
T.J. Martin, 20 King's Close, Lancing

OFFICERS

Chairman	Air Marshal Sir Frederick Sowrey, Home Farm, Herons Ghyll, Uckfield
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North Sussex Secretary	E.W. Henbery, 10 Mile Close, Langley Green, Crawley (0293 23481)

COMMITTEE MEMBERS

B. Austen	Brig.A.E. Baxter	D.H. Cox	I. Dean	F.W. Gregory
E.W. Henbery	P.J. Holtham	R.M. Palmer	G.G. Thomerson	M.F. Tighe

PLEASE NOTE Latest acceptance date for copy for the October Newsletter is
16th SEPTEMBER



SUSSEX INDUSTRIAL ARCHAEOLOGY SOCIETY

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JULY 1986

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PROGRAMME OF VISITS FOR THE SUMMER

These are as the programme card sent out with the January newsletter but here is a reminder.

Saturday 19 July	Tour of Ice Houses led by Ron Martin. Starting at the Ice House at London Road, Bognor (SZ 936996) at 2.00 p.m. Ron will lead us around the Arundel area.
Saturday 16 August	Two Museums. Start at Tangmere Military Aviation Museum at 10.30 a.m. (SU 905061) then on to the Museum of Mechanical Music at Chichester (at 2.00 p.m.) Both places that I keep driving past and saying I MUST go in there. I guess you are the same, so come along. A good pair of visits for all the family and all at group entrance rates.
Saturday 20 September	Horsham Museum, The Causeway, Harsham. Guided tour includes a look behind the scenes.
Saturday 22 November	Southover Grange, Lewes 11.00 a.m. Meeting of Brick Study Group. 2.30 p.m. Annual General Meeting.

DON COX

Events arranged by other organisations

Thursday 24 July	Evening visit to Horsham Museum 7.30 p.m. arranged by Billingshurst Local History Society. Visitors 50p.
Sunday 7 September	Visit to Salvington Mill by Beeding & Bramber Local History Society. Visitors 50p. Details from Mrs. S. Wright, "Willow End", 40 Church Lane, Upper Beeding.
Friday 12 September	AIA Annual Conference at Loughborough preceded by additional programme of visits 9th-11th September. Conference programme and application forms available from Gen.Hon.Sec. Ron Martin.
Sunday 14 September	Millers Day at Nutley Windmill
Sunday 5 October	Preliminary notice. Windmills and Watermills - Canterbury start 9.45 a.m. East Kent Mills Group.
Saturday 25 October	

AREA SECRETARIES' REPORTS

NORTH SUSSEX SECRETARY'S REPORT

Over the past few years there has been a non-stop growth in industry in the Gatwick/Crawley area, linked inexorably with Gatwick Airport. Land in and around the industrial estate, originally envisaged as complementary to the New Town, has been developed with an ever increasing array of warehouses and service industry buildings, generally linked to the airport and freight and distribution activities.

The Crowley Industrial Estate, planned initially to support the New Town inhabitants, comprised a balanced mixture of light and medium light industries to satisfy the labour needs of those people, mainly from South London, who moved to Crowley from the 1950's onwards. This whole pattern is now in process of change with many of the original factory sites being demolished and the established companies disappearing from the scene. The need for skilled labour is in decline and the pattern of industrial activity fast changing.

The industrial archaeologist of the future will have a task indeed to trace who traded where and when! Perhaps an aspiring S.I.A.S. Member in the Crowley area would care to make such a record - anyone interested please contact Ted Henbery (Crowley 23481).

Ifield Mill

Work is in hand on setting up the main shaft and wolver with the pitwheel. The top bearing has been machined and an initial assembly has been carried out. We have been fortunate in having the materials for the main shaft extension donated by Sussex companies and the machining also carried out locally, free of charge.

Lowfield Heath Windmill

The Lowfield Heath Windmill Trust is now established and has been submitted to the Charity Commissioners. It was agreed that no practical work would be undertaken, apart from holding repairs, until the majority of the funds required were secured or promised. To date, subject to conditions, almost 50% of the money is available over a 5 year period and it is hoped during the remainder of 1986 to secure sufficient to allow positive action to proceed during the Spring/Summer of 1987.

TED HENBERY

CENTRAL SUSSEX SECRETARY'S REPORT

Jock & Jill Windmills

On Saturday May 10th for the first time since 1906 Jill ground corn, a real red letter day and an achievement the dedicated band of restorers must be congratulated upon. The official "opening" day will be Sunday 27th July from 2 pm when, wind conditions permitting, it is hoped to grind some corn. Do come along and see. Work still continues on the mill with some interior work to be completed and of course the continuous task of maintenance. Of particular interest the sock hoist has been renovated to working order and a superb stone tun, horse and hopper hand made in elm has been installed.

JOHN BLACKWELL

WEST SUSSEX SECRETARY'S REPORT

Coultershow Pump

Open Day attendances have been variable, but in general quite satisfactory.

Poyntz Bridge

The new outer end transverse member has now been fabricated and assembly of the main frame is proceeding.

Bignor Park

The pump building has been cleared and measured. If the launder wall can be shored up to prevent collapse it is hoped to excavate the lower half of the wheel.

It now transpires that Frank Gregory visited the site around 1960, when the roof and pump beams were still in situ and the wheel was complete.

MICHAEL PALMER

BOOK REVIEW

P. Brandon (EDITOR) New Shoreham Census Return 1871 pp 140 A4, Shoreham and Southwick History Workshop. Publication No 1. The Street, Southwick, West Sussex. £3.00.

If other publications in this workshop series meet the standard of this, readers with an interest in either of the communities of Shoreham and Southwick will be in for some worthwhile reading and research.

The group, under the editorship of Peter Brandon, have produced a first rate study, transcribing the whole of the 1871 census for New Shoreham and producing it in a legible and easily consulted format (a rare treat for all census researchers!). This covers 93 pages with a further 14 pages of indexed surnames. Ten maps based on the 1:2500 scale of 1877 are a useful locational guide to the town, and the provision of 10 figures, including pie charts and a demographic profile 'pyramid', add to the information analysis.

There are many ways to look at this work, the serious researcher will seize eagerly on percentage breakdowns of the workforce and on the analysis of migration among male heads of household. The general interested reader, by just skimming the census returns can thrill to the romance of the ships in harbour -

"Esperance" of Copenhagen. Brig. Atlantic trade. 197 tons. 9 on board
"Marie-Berthe" of Jersey. Cutter. Fishing, fore and aft sails.

17 tons 6 on board.

or more prosaically -

"Pilots" of Shoreham. Steam tug 15 tons 1 on board 3 ashore.

Members of this society will seize upon the forward to Dr Brandon's 7 page introduction -

"Shoreham ... the principal occupation of the town is shipbuilding in which about 500 hands are employed and vessels of 800 tons have been launched there" (1864).

On a critical note, the inclusion of the figures, charts and tables within the introductory text does detract from a smooth read, perhaps grouped at the end of the section or as an appendix they would have been better placed; but this is a minor criticism. This is an admirable publication, by an enthusiastic group, well presented, and like all good research the bricks and mortar of further study.

GEOFFREY MEAD

REPORTS ON VISITS

Volk's Railway Visit, Saturday 26th April

Some twenty members and friends assembled for this visit to the first electric railway to provide a regular service in Britain and one of the world's first electric lines. The brainchild of inventor and electrical pioneer Mognus Volk, the line opened in 1883, running from the Aquarium to the old Chain Pier a distance of a quarter of a mile with a 2 ft gauge. Encouraged by early success the line was rebuilt with a 2'9" gauge and extended to Paston Place (children's playground). During the 1890's it was again regauged to 2'8½" and in 1901 extended to Black Rock and remained a family concern until under the provisions of the Brighton Corporation (Transport) Act 1938 the line was taken over by the Corporation on April 1st 1940. With the threat of German invasion the beaches were closed and defence works created around the demolished stations. It has always been thought that the cars were entangled by barbed wire entanglements in their shed at Paston Place, however our informative guide Steve Holroyd, who works on the railway, recounted a rumour that the cars were stored under the Madeira Drive arches with oil containers mounted on or in them for use in an invasion to "set the sea alight". Can anyone confirm or deny? After the war the line was derelict and it is to the credit of the Corporation that it was reconstructed and the cars rebuilt, opening again in May 1948.

One of the intriguing things about the railway is that no one really knows how old the cars are, or just how much they have been rebuilt, but of the nine cars, seven are pre war ex Volks and the other two eight and nine are ex Southend Pier Tramway purchased in 1949 (for more information see Volk's Railway by Alan A. Jackson published by the Light Railway Transport League).

We journeyed from the Aquarium to Black Rock in cars numbers 3 and 4 of 1896/7 vintage, although of course much rebuilt. Here Steve showed us the open stud controller which was roof-mounted above the driver and operated at 170V. In the 1960's these were replaced with more modern contactor equipment working at 110V to enable two or even three cars to be "coupled" together. We also viewed the 8 hp motor driving one axle through straight spur gearing.

Returning to Poston Place we crossed the road to visit the office, workshop and sub-station noting that most of the cars were built in the "cave" in the cliff next door. All repair work is carried out here using tramway spares. Power is provided by a Hewittic mercury-arc rectifier; not too many of these about today.

Whilst awaiting our return car it was most interesting to see the number of tramway items that are at the Poston Place station and incorporated in the sheds. Of particular interest in the shed was some of the original embossed plate glass from the early cars. Our thanks to Don Cox for organising and Steve Holroyd for an informative and interesting morning.

JOHN BLACKWELL

Wind and Water Mill Visit, Saturday 17th May

In totally contrasting weather to the previous visit some twenty members and friends assembled at Nutley Windmill for the start of Frank Gregory's 1986 tour.

Nutley post mill (TQ 451291) restored by the Uckfield and District Preservation Society in the 1970's is an excellent example of a country post mill which is ideal for illustrating the construction and operational techniques.

Frank leant against the tail pole and turned the body to enable the sails to catch the wind, released the brake and away went the sails (with a little help because of lack of wind, plenty of rain though). The sails at Nutley have one pair with sail cloths and Frank demonstrated the various positions of first furl, dagger point, sword point and full sail, used in various wind conditions. This type of sail was the earliest and locks easy control and needs an efficient brake should a sudden gale arise. In 1772 Andrew Michael, inventor of the threshing machine, produced the spring shutter mechanism which is used on the other pair of sails at Nutley. Wooden shutters in each bay of the sail are held closed by a spring at the head of sail. As the wind increases the shutters open decreasing the surface area of the sail and as the wind decreases the spring returns the shutters to the closed position.

Our next stop was at Boringwheel Mill (TQ 457264) near Maresfield a small country watermill which was powered by water from a nearby hammer pond. Having ceased working before World War I the mill has become somewhat dilapidated but has been made weathertight by its enthusiastic owners the Misses Turner. The mill originally had an overshot wheel the cruciform iron shaft and centre piece for the wooden arms remains, as does the pit wheel driving a wollower on an upright shaft with a cast iron spur wheel which originally drove 2 stones, the pair of burrs still remaining.

Tea was then enjoyed at our Chairman's farm at Herons Ghyll (Lady Anne's banana cake was a high spot of the afternoon), and the opportunity taken of viewing his collection of veteran cars, motor cycles and other automobiles.

The final visit of the afternoon was to High Hurstwood Watermill, near Buxted (TQ 493261), another country mill which worked until 1920. It too was powered by water from a hammer pond and has a cast iron Medhurst overshot wheel dated 1867 which was a replacement of an earlier wooden one. No buckets survive. This wheel drives olden wooden machinery comprising of an upright shaft with a compass arm spur wheel driving two pairs of stone nuts with the remains of a pair of burrs. On the bin floor is a wire machine. Nearby is the probable iron masters house which was also inspected and seemed a typical example of a 16th century house. Our thanks to Frank for another excellent tour and also to the owners who kindly let us inspect their mills.

JOHN BLACKWELL

SOUTH EAST REGION INDUSTRIAL ARCHAEOLOGY CONFERENCE

The fourth annual conference was hosted by Southampton University I.A. Group at the University on Saturday 12th April. The theme appropriately was "Sea and Ship".

After the proceedings were formally opened Edwin Course gave a lively and amusing history of Southampton docks which were first used in 1842; a port had been in existence from Roman times. The railway was crucial to the development of the docks particularly for passengers for the great ocean liners whose names, and those of the companies who owned them, and now no longer exist, brought a sense of nostalgia to many.

The Curator of Southampton City Art Gallery and Museums, Adrian Lance, spoke of shipbuilding in Victorian Southampton. His talk covered naval shipbuilding in the first half of the nineteenth century resulting from the Napoleonic Wars, through the building of iron ships and steamers, to the construction of luxury yachts in the latter part of century.

The I.A. of London's Dockland is far too great a subject to be covered in 40 minutes, but Robert Carr of GLIAS gave us an excellent overview picture of the history, layout and trade in the time allowed. "Overall" is a significant word as his slides included some taken from a D.H. Rapide aircraft flying over the area.

After lunch Roy Riley, one of our own members, ensured that this was not "siesta" time by his very interesting description of the "Historic Architecture of Portsmouth Dockyard" interspersed with many amusing anecdotes. Roy Riley introduced us to docks with the opening of the first dry dock in 1598 and latterly to the dockyard buildings, many of which are now listed.

At a time of considerable tension between Britain and France the French built an iron clad warship "Gloire" with 4 inches of iron plating encasing her hull. To counter this threat the "Warrior" was ordered in 1859 and commissioned in 1861. She emerged as the largest, fastest, best protected, and most formidable warship in the world. Her 4½ inches of wrought iron armour plating was backed by 18 inches of teak. Capt. John Wells, chairman of the Warrior Association told of the history of this fine ship and its restoration from 1979. "Warrior" had both steam and sails, which could be used simultaneously. When under sail only the two funnels could be retracted into the hull, and the propeller lifted, in order not to impede the sailing characteristics. Capt. Wells displayed models of both operations. "Warrior" will berth in Portsmouth in Spring 1987 to form part of a collection of unique warships: "Mary Rose", "Victory", "Warrior".

The three main requirements of building a ship i.e. that it floats, that it does not break in the middle, that it floats the right way up, was James Poffett's introduction to "The Art of Building Ships down the Ages". Techniques of building in natural materials, in particular wood, and the method of joining them to form a ship's hull were outlined from prehistoric times. With the advent of wrought iron and then steel, the ship designer was accorded much greater freedom in size and performance than with the limitations imposed by natural materials.

The leisure aspect of "Sea and Ship" was a good choice on which to wind up (or down!) the conference. Pam Moore selected three resorts Eastbourne, Southsea and Ventnor to illustrate the "Development of Seaside Resorts". Health concern in the late 18th and early nineteenth centuries by some physicians who advocated sea bathing and taking sea water internally (in moderation) started the growth of seaside spas. With the introduction of railways the concept of the seaside resort, for leisure as much as for health emerged, with day trips to the seaside being encouraged by the Railway Companies with cheap fares.

Congratulations and thanks to SUAG for organising an inexpensive (£4 per head) and very enjoyable day out.

GORDON THOMERSON

LETTER BOXES

Following the article on Sussex Pillar Boxes the following information has been received from Rowena Oliver of the Letter Box Study Group.

The interest in pillar boxes aroused by the survey of 1964 and Jean Farrugia's book led to the formation in 1976 of The Letter Box Study Group. (President Jean Farrugia, Head of Post Office Archives). In the past 10 years a great deal of research has been carried out and about 300 different types have been identified currently in use. Some of these are much rarer than those in the original survey. Of particular interest in Sussex are the following:-

PB27/v Airmail Box made by Carron 1932-38
Shoreham Airport.

Boxes provided for airmail letters were painted blue and had two notice plates, one giving collection times, the other the airmail rates. After 1938 they reverted to ordinary use and were painted red. The box at Shoreham Airport is unique in still having both notice plate holders.

PB17/i EVIIR Pillor Box (Large) made by Handyside.
Brighton, Old Steine, Box No. 25. The only one in Sussex out of 28 known locations. Similar to the more common PB17/ii but differing in details of the Royal Cipher design.

PB30 Oval Pillor Box (Small) originally with built-in stamp machine, made by Derby Castings Ltd 1932-33.
Hastings Station. This may be the only one remaining in Sussex although another was previously noted at Bognor Regis, West Street P/O. (9 small ones and 29 large ones are known.)

WB73. The First Standard VR Wallbox with an added pedimented top made by Smith and Hawkes 1859.

Billingshurst, Rowfold Grange TQ098257. The only one found in Sussex (9 locations).

WB75. Second Standard VR Wallbox (Small) by Smith and Hawkes 1859-61.
Littlehampton, Brooklawn, Lyminster on the A284. (57 known locations.)

LB202. VR Lampbox made by Handyside 1896-1901.

About 100 are still in use, 5 in Sussex:-

Chichester, Up Mardon, Box No. 114.

Haywards Heath, Freshfields, Crossways, Box No. 39.

Haywards Heath, Lodgelonds, Balcombe, Box No. 73.

Lewes, Middle Way, Box No. 27.

Lewes, Stone Cross, Box No. 213.

GR Lamp Boxes made by Derby Castings 1931-33.

LB209/i. Billingshurst, Fittleworth Lane, Box No. 156 TQ030225. (Only 5 known locations.)

LB209/ii. Crowley, Cowdray Arms, TQ308334.

Similar to above but the door does not extend to the bottom of the box (11 known).

Concerning the boxes mentioned in the October Newsletter:-

PB4/i. The large size First National Standard in Brighton is the only one still in use. Four or five of the smaller size are still being used.

Penfolds. The only one in Sussex listed is in Worthing Museum.

The last published lists of anonymous Pillor Boxes showed:-

High aperture. 123 PB10 (Large) and 216 PB11 (Small).

Low aperture. 60 PB12 (Large) and 146 PB13 (Small).

The boxes listed for Sussex were as follows:-

PB11:-

Brighton, Preston Rd/Ditching Rise, Box No. 14.

Brighton, Albert Road, Box No. 53.

Brighton, Stanford Avenue/Southdown Road, Box No. 159.

Chichester, College Lane/Spitolfield Lane, Box No. 45.

Eastbourne, King Edward Parade/Wilmington Square, Box No. 14.

Eastbourne, Grange Road, Box No. 21.

Hastings, Godwin Road/Harold Road, Box No. 49.

St. Leonards-on-Sea, Springfield Road/London Road.

Worthing, Farncombe Road, Box No. 8.

Worthing, Mill Road/Belsize Road, Box No. 26.

Worthing, Chapel Road, Box No. 31.

PB13:-

Eastbourne, Watts Lane, Box No. 24.

Eastbourne, Royal Parade, Box No. 31.

Eastbourne, The Avenue, Box No. 35.

Eastbourne, Stanley Road, Box No. 115.

Hove, Denmark Villas, Box No. 64.

EVIIR Pillor Boxes. All boxes have now been traced with the exception of one in Littlehampton, which may still be waiting to be discovered.

Brighton, Warndene Road, Patcham.

Crowborough, School Lane, Box No. 253.

Worthing, Trent Road/Robson Road, Box No. 169.

The LBSG has been responsible for preservation orders being placed on some of the rarer boxes and several in the country are now 'listed buildings'.

A survey is being carried out at present of the rectangular boxes made from 1968-74 by Vondyke and from 1974-80 by Corran Co. The complicated internal mechanism has made these boxes expensive to maintain and they are rapidly disappearing. They may be found either singly or in pairs.

PB44 Vondyke. Three boxes were formerly at:-

Brighton, Norfolk Road/Western Road.

Hastings, Seafont.

Littlehampton, Harbour entrance.

But none are now known in Sussex.

PB45 Carron Co. Three have been noted at:-

Arundel, Canal Road, Yopton.

Horsham, Coltsfoot Drive P/O TQ180325, Box No. 230.

Worthing, West Worthing Station.

These boxes should not be confused with the rectangular moulded plastic cabinets in Brighton Station and Gatwick Airport made by Toggle Mouldings of Newhaven. If any SIAS members would care to join in the search for PB44 and PB45 boxes the Letter Box Study Group would be very glad to hear of new finds.

There are many more interesting boxes than could possibly be mentioned in this brief list. Anyone who would like to explore the subject further would find membership of the LBSG useful as a great deal more information is available. The address of the Secretary is: W.L. Morton, 11 Morven Road, Beersden, Glasgow G61 3BU.

ROWENA OLIVER

Tony Baxter who is working on an IA survey of the Worthing area has confirmed the existence of all the boxes listed for Worthing but notes that the one at Chapel Road has been removed for road widening and may not be replaced.

CHALK PITS MUSEUM - AMBERLEY

One of the delights in being involved at the Amberley Chalk Pits Museum is the constant variety of interest that the project has for those close to it. One never knows quite what the next post or telephone call will bring in the way of exhibits to be considered.

Recently a telephone call was received from the Agent from the Norfolk Estate, to say that a water pump was available at the house of Lady Sarah Fitzalan Howard, on the estate. As the Museum has already a number of water pumps I felt that this would probably not be of very great interest, but that I ought to go and look as it was local and the diplomatic thing to do.

Having visited early one morning on my way into work I discovered that the building which housed the water pump was also to be demolished, and it was, in fact, the complete entity which would be of interest to the Museum.

There was a small 2½ hp Lister stationary engine, driving a well head gear and a deep well pump and also evidence that the engine has driven a generator which was mounted on the floor which, in fact had been removed, but the wiring and switch board were still intact for the electrical supply to the cottage. The building which was approximately 12 ft x 8 ft had served, therefore, since 1908 to provide electricity to the house and also the water supply. It had obviously been out of use for a number of years, both mains electricity and mains water having been installed at the cottage, and as the cottage itself was to be demolished we decided that it would be worth rescuing the building.

On return to the office that same morning, a telephone call was made to our Chairman, John Warren, as there would be insufficient time to contact the Trustees before demolition to ask whether we could, in fact, afford to rescue the building or not. One should at this point note that almost every exhibit that is offered is offered free of charge but there is obviously a considerable amount of cost to the Museum in terms of rescue and restoration. John Warren left his office almost immediately to come and look at the exhibit, and we both agreed that it was indeed very exciting and we would rescue it, and an operation was set up for the following day to prepare the building for removal at the end of the week. As the only person available who did not have a full diary on that particular day, I joined Ian Powell, the Museum's technician and we prepared the building for rescue. The timber framed structure with tiled roof, was set on three courses of brick, and we decided that by placing two rolled steel joists under the building, we would be able to lift it in one piece with the crane. The building was freed from its footings, holes were knocked in the foundations and the rolled steel joists were put into position preparatory to lifting. The engine was unbolted from its plinth, the well head gear released, and all prepared and strengthened and braced ready for lifting on Friday morning.

Fortunately the building adjacent to the Pump House, is being demolished and contains a number of bricks of the same type and we will, therefore, be able to repair the damage to the plinth bricks, and the tiles match as well, so we will be able to restore the building visually with authentic materials from the same site, and these were rescued at the same time.

By the time members read this article the pump house will have been craned out using a 15 ton rough terrain crane, and transported by low loader to the Museum and placed in store ready for restoration work to commence. We would hope that by the beginning of the 1987 season the building will have been refurbished, the Lister Stationary engine put into operational condition and the pump and pump gear also put into working order.

On return to the office on the same day as the recovery operation was taking place a message had been left on my desk to say that we had been offered an 1851 circular rock saw bench, made in Coalbrookdale and exhibited at the Agricultural Exhibition of 1851. Fortunately time is on our side with this exhibit, as I do feel we will have to talk with the Trustees on this matter. But what a splendid addition this would make to our timber yard.

Although we are seeing many more visitors this year and the Museum is fully active, work does continue all through the year on various projects. The 1890s Lime Kiln adjacent to the entrance is under restoration, work is proceeding on setting up the rack saw bench in the timber yard area, and, of course, the major project of the year, the Southdown Bus Depot is now proceeding apace.

Once again, by the time the Museum opens in 1987 following our winter period of volunteer work much will have been added and new displays will be open.

If members of S.I.A.S. feel that they would like to be involved, with restoration work or with the recording and research work undertaken at the Museum then I would be delighted to hear from them. There is always more to do than our very small but enthusiastic staff can cope with, and we are always happy to strengthen our links with the Society.

IAN DEAN, Director

FROM STONE BLOCKS TO CONCRETE SLEEPERS

A traveller "steaming" through Burgess Hill station can no longer be said to be in East Sussex, but on 1890's view of this station is included (plate 6) in a new book Steaming through East Sussex by Peter Hoy (Middleton Press) and recommended to us in S.I.A.S. Newsletter No. 50 (April 1986). If our traveller stands on the platform or preferably alights at either platform he will notice that the stone blocks in the vertical faces of both platforms at Burgess Hill are still in position as shown on the 1890's photograph and if we are to believe Peter Hoy, these are some of the original stone sleeper blocks from the early permanent way. If we now examine Plate 7 a view of Hossocks Gate station, it will also become apparent that the platforms were raised height with courses of brickwork from the original Hossocks Gate level of sometime after 1870 and before the turn of the century. If these are original sleeper blocks, it is surprising that they appear to have no fixing holes for chairs, or perhaps they have all been positioned with the undrilled side facing the track - or perhaps they were never drilled (?). They certainly seem to be large compared with earlier stone blocks as used on the Croydon and Merstham ploteway for example, but this is consistent with the much heavier loads to be carried in the steam era.

We need to turn to another source for details of the track as laid for the Brighton line between 1838 and 1841. J.T. Howard Turner in his book The London Brighton and South Coast Railway Vol. 1 (page 140) describes with a drawing the original 75 lb./yd. double headed* iron rail set in chairs and with timber cross sleepers - except in cuttings where the track is carried on stone blocks (?). (there was such a cutting near Burgess Hill). Why this discrimination? Did the timber tend to rot in the wetter situation of a cutting? Perhaps our "railway buff" can explain. John Urpeth Rostrick who engineered the line under Sir John Rennie would probably at this time have been more familiar with stone blocks than wooden sleepers, having previously gained most of his railway experience with tramways, notably the Wern Tramroad, Llanelly and the Stratford on Avon to Moreton-in-the-March "edge" railed tramway of 1826. Birkinshaw's (1820 patent) "rolled" wrought iron rail was used on the Stratford line with chairs, and in 15 ft lengths, a milestone in rail development. The London & Brighton Railway, to use its original title, was engineered at a time when the railway mania had gripped the nation and improvements in permanent way were constantly demanded by ever more stringent running requirements. However the London & Brighton line was not the first line to use what might be described as bull head metal. A visit to the Science Museum (South Kensington) will enable us to examine earlier specimens of track such as the Bodmin and Wadebridge mineral line of 1834 with chairs and transverse 6 ft blocks at intervals(?). Birkinshaw's single headed rail, one learns, was adopted by John Buddle to have a fish bellied web and it becomes apparent that problems were soon experienced with sagging rails and maintaining the gauge, once heavy steam engines replaced horse traction. There was the need to increase the stiffness of the rails and to improve the method of support (The Bodmin and Wadebridge used only 42 lb./yd. rail compared with the 75 lb./yd. of the London & Brighton Railway). Replacing blocks with cross sleepers would have helped to maintain the gauge, but no doubt the problem of bending the heavier and stiffer rail to suit the curves imposed a restriction on rail development for some time, particularly when after Birkinshaw, the double headed and later the flat bottom rail appeared. However the advantage of rolling in long lengths was soon realised, Birkinshaw in his patent even recommended welding rail lengths although this innovation did not appear as far as the Brighton line was concerned until 1937 (according to A. Gray in his book The London and Brighton Line 1841-1977 p.89) - and then only in The Quarry tunnel (Merstham) where presumably, the small ambient temperature change was less likely to cause buckling - or was it something to do with reducing the frequency of track maintenance in tunnels (Railway

but please note the question(?)). The stage in track development was a "double headed" rail equal at head and foot with the intention that a worn length could be reversed. Such a rail was introduced in 1850 on the Midland Railway in 20 ft lengths at 80 lb./yd. and must have been popular at least with the accountants! However even Summerson's patent padded chair of 1858 did not apparently overcome problems such as uneven wear on the non running surface of the chairs, so this idea was eventually abandoned.

Tilting of stone sleeper blocks must also have been a hazard in early days. William Jessop of canal fame and incidentally of the Offham "inclined" tramway (Lewes) is credited with the "edge rail" as an improvement on his partner, Benjamin Outram's, trolly. In 1833 Jessop patented a chair with a universal pivoting joint which might have been suitable for Birkinshaw's rolled section. However we do not seem to hear of its use and it was presumably overtaken by the replacement of stone blocks with transverse sleepers, less inclined to tilt. Perhaps Rastrick used Jessop's chair in the cuttings on the London to Brighton Railway - another question for our railway buff! - the pivoting chair must have seemed to Jessop, as with the reversible rail, "a good idea at the time" but was probably not widely used.

From the original stone blocks in the platform faces to the modern concrete sleepers with flat bottomed steel welded rail, secured by the ingenious Pandrol clips, we have examples at Burgess Hill of the full range of permanent way development over a period of nearly 150 years. However the subject does not seem generally to be very well covered in the very abundant literature on railway history and it would be useful therefore, if members can develop the theme further in future issues of the Newsletter.

Finally a plea to British Rail if improvements to Burgess Hill station are inevitable. Please remember the stone sleeper blocks!

- The original double headed rail with "similar" but not identical top and bottom section is attributed to Joseph Locke by Frank Fernyough in his book The History of Railways in Britain (p.12). This rail appeared in 1835 and was probably the type used on the London & Brighton Railway.

T.E. EVANS

THE THOMAS PAINE CONNECTION

Referring to Tom Evans' very interesting article on p.8 of News Letter No. 50 April 1986 the explanation of Paine's reference to spiders webs lies in the type of bridge he was developing. The structural members were arch ribs made up of concentric wrought iron bars. The bars were in lengths of about 4 ft jointed with very short radial bars that kept the concentric members in position.

Thus a drawing of a proposed bridge at Wearmouth prepared by John Soane, and based on Tom Paine's demonstration bridge at Paddington, shows a 200 ft span arch 25 ft rise. The concentric iron bars of the ribs are each made up of 38 short lengths joined by 37 lines of radial bars. Five of the circumferential lines of bars are continuous from springing to springing and above them are seven lines on either side curtailed where they meet the bridge deck. The effect is not unlike a piece of spider's web.

The President of the American Society of Civil Engineers in 1905 had in mind the popularity on both sides of the Atlantic of mild steel open lattice rib arch bridges and these could be seen as a development from Tom Paine's work.

ALAN ALLNUTT

BRICKMAKING EXHIBITION

The brickmaking exhibit at the Horam Farm Museum, mentioned in Newsletter No. 46, has now been fully installed. It has had to be refurbished as a result of damage done by starlings which nested in the roof of the barn last year. There is unfortunately no guarantee that the birds will leave it alone this year, but the photographs and some of the other items have now been sealed with protective plastic. The exhibit occupies the end bay of a large six-bay barn, which also houses the reception and refreshment areas. Other exhibits in the barn include: the landscape of the Cuckmere Valley, the Wealden iron industry, woodlands and pond life.

The Museum is situated behind the Merrydown cider factory at Horam but access is from the public car park alongside the village hall (grid ref. TQ 576 171).

M. BESWICK

PUBLIC STUDY EVENING

Another public study evening for the benefit of those studying some aspects of the history of the East Grinstead area or of their house or family is being arranged by East Grinstead Town Museum for Friday 24 October. Books, maps, documents, photographs, etc. in the Museum's collections but not on public view will be available for consultation on request and the Hon. Curator will be on hand to give guidance.

Those who propose to come are asked to contact him in advance, either by writing to the Museum or by telephoning East Grinstead 22511, with details of their special interests. There can be no guarantee that those who turn up unannounced will find what they want available to them. There will be no charges for either admission or information but contributions in the donations box will be expected.

The Museum, which is at East Court, East Grinstead, will be open from 7 to 9 pm for the purpose. (Strangers should follow signs to the police station.) M.J. LEPPARD, Hon. Curator, 20 St George's Court, East Grinstead (22511); if no reply 'phone 23636 (Town Council) and ask if Mr Leppard is working in the Museum.

COMMITTEE

Members will be pleased to hear that Ion Deon, the Director of the Chalk Pits Museum, has been co-opted to the committee. His wide experience and wise counsel will be a great asset to the Society.

I.A. COURSES

We should like to draw attention to various courses which are organised with an I.A. interest. They vary from one day, one weekend, to a week, or sometimes longer.

Industrial Archaeology - Evening class at Lewes - Tutor, Geoffrey Mead.

Members may be interested in a 20 week series of classes and field trips that Lewes Technical College are running starting September this year. The course will concentrate on Sussex industries, but these will be set in their larger, national context. This will be an informal course (I hope!) with plenty of opportunity for student participation in discussion, venues for trips and subjects to study.

More information on dates, times etc from Lewes Technical College Lewes 476121 Adult and Continuing Education Dept.

The Field Studies Council runs a series of courses, not all I.A. related at the Drapers' Field Centre, Bettys-y-Coed, Gwynedd LL24 0HB 06902-494.

Tours are occasionally available from Industrial Heritage, Tourist Information Centre, Aberdulais, Neath, South Wales SA10 8EU 0639-53531.

The Association for Industrial Archaeology also runs courses and since this Society is affiliated to the AIA members are welcome. Individual members may also join the AIA for a subscription of £12.00 p.a.

Our General Hon. Secretary, Ron Martin, is able to supply fuller details.