



Leatherhead  
Aviation Services:  
the aircraft propeller  
now at  
Leatherhead  
Museum  
- see page 5

Press advert  
for the  
first flights

**LEATHERHEAD AVIATION SERVICES.**

**PASSENGER FLYING AT LEATHERHEAD.**

THE AERODROME WILL BE OPENED AT  
**BYHURST FARM**  
(Main Road between Leatherhead and Chessington),  
**ON SATURDAY, APRIL 17TH, 1920,**  
and for 14 days.

Flying will take place daily from 10 a.m. to dusk (Sundays included). Passengers will  
be taken for Short Flights for a fee of £1.1s. 0d. Other flights by arrangement.

**PILOT CAPTAIN ARTHUR F. MUIR**  
(late Flight-Commander R.F.C. and R.A.F.).

Admission to Ground 8d. (including Tax). Passengers booking flights will not be  
charged ground admission.

SIHG is a group of the Surrey Archaeological Society, Registered Charity No 272098  
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Group Patron: David Shepherd OBE, Group President: Prof AG Crocker FSA

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**Contents**

- 3 Diary  
Surrey Industrial History Group Officers
- 4 Poncelet, Pipes and Pumps: The Albury Waterwheel *by Pam Taylor*
- 5 Leatherhead Aviation Services *by Peter Tarplee*
- 6 Industrial Archaeology News No 143 Winter 2007 *report by Gordon Knowles*
- 7 Industrial Archaeology Review Vol. XXIX No 2. November 2007 *report by Gordon Knowles*
- 8 The Lead Industry in London *by Tim Smith GLIAS*

**Reports & Notices**

Details of meetings are reported in good faith, but information may become out of date. Please check details before attending.

**SIHG Visits, Details & Updates at [www.sihg.org.uk](http://www.sihg.org.uk)**

The deadline for **submitting copy** for the next Newsletter is **two months time**.  
*Submissions are accepted in typescript, on a disc, or by email to [news@sihg.org.uk](mailto:news@sihg.org.uk).*  
**Anything related to IA will be considered.**

***Do, please send in reports / photos of holiday visits or thoughts on local, national or international Industrial Archaeology.***

*Priority will be given to Surrey-based or topical articles.*

*Contributions will be published as soon as space is available.*

*Readers are advised that the views of contributors are not necessarily the views of SIHG.*

This edition of the Surrey Industrial Group Newsletter has been reformatted so that it is more easily read online or printed out as a PDF.

Diary entries have been curtailed to cover SIHG events only.

Other editorial matter is practically as originally published.

Many thanks to all who have sent in contributions.

Website: [www.sihg.org.uk](http://www.sihg.org.uk)



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A good opportunity to record the history and rescue traditional papers and machinery!



If you hear of a factory which is about to close, please report it to us.



See contacts on page 3.



## SIHG Newsletter No 161 January 2008

### DIARY

#### The 32nd series of SIHG Industrial Archaeology Lectures

alternate Tuesdays, 1930 - 2130, University of Surrey (Lecture Theatre F).

Enquiries to programme co-ordinator, Bob Bryson, [meetings@sihg.org.uk](mailto:meetings@sihg.org.uk).

Maps at [www.sihg.org.uk](http://www.sihg.org.uk). Free parking is available in the evening on the main campus car park.

Single lectures at £5, payable on the night, are open to all.

#### Diary

##### January 2008

8 Tue Sites and Surveys - a Review of Archaeological Work in Surrey,  
A SIHG Series Lecture by David Graham, President Surrey Archaeological Society

22 Tue Portsmouth Dockyard & Industry outside the Wall.  
A SIHG Series Lecture by Prof. Ray Riley, University of Portsmouth

##### February 2008

5 Tue The Industrial Archaeology of Somerset.  
A SIHG Series Lecture by Sandy Buchanan, Past-Chairman Somerset IA Soc

19 Tue The Sentinel Steam Wagon.  
A SIHG Series Lecture by Jim Hatfield, Chairman Sentinel Drivers Club

23 Sat Archaeological Research Committee Annual Symposium  
A Surrey Archaeological Society Meeting. SIHG will have a display.  
1000-1645 £10 , members £8 in advance. See [www.surreyarchaeology.org.uk/lectures.htm](http://www.surreyarchaeology.org.uk/lectures.htm) for details.

##### March 2008

4 Tue Mills of the Muslim World.  
A SIHG Series Lecture by Michael Harverson, International Molinologist.

##### April 2008

19 Sat SERIAC 2008 - The Making of London & the South East  
South East Region Industrial Archaeology Conference  
Docklands Campus, University of East London. SIHG will have a display.  
0940-1630 , £10.50, + visit. See leaflet enclosed.

#### Newsletter Editor

David Evans has been obliged to resign as Editor of the Newsletter because of ill health. David's first issue was No 52 in November 1989, and his last No 158 in July 2007 - a total of 107 issues, a remarkable record. David is one of the longest-serving members of the Committee, having been elected in 1982. He will remain as Membership Secretary, a post he has held since 1986.

The Newsletter was first published in November 1979, shortly after SIHG was formally established in July of that year. The editorship is now being taken over by Jan Spencer, who, as acting editor, was responsible for issues Nos 159 and 160.

We wish David well for the future, and look for an improvement in his health.

*Alan Thomas Secretary SIHG*

#### Surrey Industrial History Group Officers

Chairman & Lectures Organiser: **Robert Bryson**, [meetings@sihg.org.uk](mailto:meetings@sihg.org.uk)

Secretary: **Alan Thomas**, [info@sihg.org.uk](mailto:info@sihg.org.uk)

Treasurer: **Robin Turier**

Membership Secretary: **David Evans**, [membership@sihg.org.uk](mailto:membership@sihg.org.uk)

Newsletter Editor: **Jan Spencer**, [news@sihg.org.uk](mailto:news@sihg.org.uk)

Members' Talks - 4 December 2007  
**Poncelet, Pipes and Pumps:**  
**The Albury Waterwheel**  
*by Pam Taylor*



Inspecting the tank

Today the peaceful valley of the Tillingbourne belies its industrial past. Since Tudor times it has been the home, and source of power, for industrial processes as diverse as gunpowder, brass and papermaking. The waterwheel on the Albury estate, however, was of a later date and is thought to be of a type unique to Britain.

The wheel is made to a design engineered by Jean-Victor Poncelet, who was a typical graduate of the École Polytechnique in Paris in his mathematical approach to engineering problems. The blades of the wheel are curved so that the water hits them tangentially, rising up the blades as they turn. With this system he was able to produce 60–70% efficiency, a huge improvement on previous empirical designs. The wheel works well with a relatively small fall of water, as at

Albury. The pump driven by the wheel delivered water to many parts of the estate in a system that became more elaborate with time.

SIHG became involved with the wheel through Alan Crocker. Our first task was to clear the site of plant growth, then to conduct a detailed survey of the wheel and the pump; parts of the latter are now missing. Since then members have located the main reservoir or tank served by the wheel; this is a large structure still in a very good state of preservation, which has again been recorded.



Before and During Clearance of Vegetation  
*(The rivetted-on plates were probably for adjusting the balance)*



Meanwhile, Alan has researched amongst firms' archives to establish its history. The wheel and pump were installed at the relatively late date of 1895, the installation being featured in Easton, Anderson and Goolden's advertising catalogue of that time.

The project is envisaged as being open-ended, involving several people, and continuing as more facets are investigated. □

## Leatherhead Aviation Services by Peter Tarplee

### Introduction

My interest in the firm **Leatherhead Air Services** arose after we received at Leatherhead Museum an aircraft propeller which had been stored for a number of years in the workshop of Luff's Garage in Kingston Road, Leatherhead. The propeller was donated by the person who had the job of clearing the garage before it was used by another company.

Some years earlier Mr Tony Pearce had called at the museum saying that his grandfather, **WG Chapman**, had run an aviation business in the town. He allowed us to copy some notes he had made of the flying activities of his grandfather, together with licences issued to Mr Chapman for aerodromes at Chessington, Cobham, Tartar Hill and Rifle Range Meadow, Dorking, Long Ditton, Sunbury-on-Thames and Slough. There are also references to the use of aerodromes at Croydon, Guildford, Ripley, Epsom, Sonning, Beaconsfield and High Wycombe. We also knew, as reported in a *Leatherhead & District Local History Society Newsletter* article in February 2002 by Gordon Knowles, that Chapman had flown a new Avro to Cheltenham and Kidderminster from Leatherhead.

This new acquisition led me to look further into the provenance of the propeller and to find out more about the man who used it.

### WG Chapman

William George Chapman was born on 29 March 1879 in Aldwinckle, near Thrapston in Northamptonshire. He came to Leatherhead to work as a gentleman's valet after which he was employed by Thomas Hersey in the cycle trade. Thomas Hersey who owned Epsom Cycle Works and Epsom Motor Works in South Street, Epsom also had a branch in Bridge Street, Leatherhead. The shop in Bridge Street was subsequently used by other cycle dealers; at the time of its demolition in 1971/2 it was occupied by WG Holland & Co Ltd, florists.

Hersey had been an apprentice with the coachbuilders Venthams in Leatherhead and he achieved fame in later life by battling for good causes. He defended rights of way over Epsom Common against actions by the railway and he tried to keep the Downs free for both gypsies and cars. He also took an action against the then owner of Randalls Park, Robert Henderson, challenging public rights in Common Meadow. He owned seven houses in Epsom which he named Controversy Cottages!

Early in his life William Chapman won many medals and trophies as a rac-



WG Chapman's DH 6 Aircraft at Croydon  
Courtesy of The Croydon Airport Society from the Williams Collection

ing cyclist but he moved on to motor cars and worked for Karn Bros, probably at their works in Lower Fairfield Road.

Eventually he ran his own garage and workshop in Kingston Road, Leatherhead (**Leatherhead Motor Services**) where he also is said to have started the bus route between Kingston and Leatherhead. His house, no 268 Kingston Road, and his workshop are still there and are at present used by Hardy Engineering who are also motor engineers.

Among the papers deposited with the Society by Mr Pearce are photographs of Chapman as a cyclist, valet, motor mechanic (at Karn's and Leatherhead Motor Services) and as a pilot.

In 1913 Mr Chapman bought a Deperdussin aeroplane in which he taught himself to fly. This plane was powered by a 29 hp engine and had a maximum speed of 65 mph. The war interrupted his flying activities but in 1919 he bought a DH 6 plane with which he set up **Leatherhead Aviation Services** - see page 7. This operated from Byhurst Farm, owned at the time by Prewett's Dairies, in Malden Rushett, on the west of Kingston Road (A 243) just south of Fair Oak Lane. Chapman erected an RE 8 hangar there which he had bought from Brooklands, and the company started operations on 16 February 1920, one month before the first commercial flight from Croydon. [Note that the present aviation operations at Rushett Farm Airstrip by John Day Restorations are on a completely different site.] Byhurst Farm was purchased by the Crown Estate in 1939 and is at present operated by Balanced Horse Feeds.



William Chapman (Crouching in the foreground) working at Leatherhead Motor Works in Kingston Road

The plane on which our propeller was used, G-EANU, was one of only two civil conversions of a DH6 that had the Curtiss OX-5 90 hp engine fitted. The cockpit was modified into two separate compartments with the passenger being carried in the front cockpit. The plane was used for joy riding and charter work. It was reported in the Times that in one week 1,000 passengers were taken up at Guildford indicating the demand for this type of operation at the time.

(Continued on page 6)

(Continued from page 5)

Chapman also bought a number of Avro 504K three-seater biplanes; the first, G-EAHL, obtained its Certificate of Airworthiness (C of A) on 12 August 1919 at the Cambridge School of Flying and was sold by Chapman in March 1923 to Manchester Aviation Company but it crashed in Cheshire on 7 July 1923. The second, G-EBAV, received its C of A on 20 April 1922 but it crashed in the grounds of St Bernard's Convent near Slough, injuring Chapman. The plane was being piloted by Arnold Graham and a friend, Arnold Cude, was also a passenger. They were performing aerobatics at the time; after looping the loop they did an Immelmann turn and the machine went into a spin and nose-dived into a tree. The crash was witnessed by many spectators. After nar-

rowly missing the convent buildings the plane struck a lime tree, carrying part of it away, and hit the ground. The injured were rescued from the wreckage and taken to King Edward VII Hospital in Windsor. Chapman had been badly cut and bruised, Cude had a broken leg whilst Graham, the pilot, was more seriously hurt and was not expected to recover. Had they not hit the tree all three occupants of the plane would probably have been killed instantly.

The third, G-EBCQ, received its C of A on 22 May 1922, crashed in Surbiton in July 1922 and passed to Manchester Aviation Company in December of that year. After being rebuilt it crashed in Barrow-in-Furness on 24 December 1923. ☐ To be concluded)

## Industrial Archaeology News No 143 Winter 2007 *report by Gordon Knowles*

There is extensive coverage in this issue of the Summer Conference at Preston and the accompanying pre-conference seminar, the latter this year on 'Urban regeneration and adaptive re-use of industrial buildings: problems and potential'. Speakers gave papers on varied topics - the contribution of the Heritage Lottery Fund; challenges at the former Royal Arsenal at Woolwich; prime industrial locations around Bolton; social, economic and environmental benefits of historic buildings; problems and solutions in the east Lancashire textile industrial area; sustainable development in Lancaster and West Cumbria and the importance of archaeological recording in Greater Manchester.

The conference was held at the University of Central Lancashire, unfortunately in various scattered locations on the site, some, ten minutes walk from each other. Lectures were given by David Lewis of the Northern Mill Engines Society on 'Steam engines, boilers and line-shafting'; Ian Gibson of Lancashire County Museum Service on 'The development of knitting frames'; Roger Holden on 'Spinning and weaving sheds' and Fred Brook on 'One street in Oldham which housed 43 mills in its heyday'. Further talks were on 'Listed buildings in Lancashire' by Peter Iles; Dr Geoffrey Timmins on 'Weaver's housing' and Richard Newman on 'Rural industries in historic Lancashire'.

Visits on Saturday included Helmshore Textile Museum in a virtually unchanged 1798 water-powered fulling mill; Blackpool, including the tram system, the Tower, the 1876 seawater works and the 1895 sea defences. Sedgewick gunpowder mill (1857) and Carnforth Station was another alternative visit.

The Rolt Memorial Lecture, 'The Society of Friends in nineteenth-century Ireland and technological change as a 'colonial' discourse', was given by Dr Colin Rynne of the University of Cork. Award winners were Birmingham Archaeology for work on the Ministry of Supply factory at Rhydymwyn; Ingleborough IA Group for Ingleton Hoffman kiln and limekilns; and the Kelly Mine Preservation Society gained the Dorothea Award for restoration of the micaceous haematite mine at Bovey Tracey. Further

Field Awards were made to the Sow Kiln Project in the Yorkshire Dales; to M H Jones and the Exmoor Mines Research Group for work on the West Somerset Mineral railway incline winding house and to David Ramsey for research into Leicestershire slate and granite industries. The Publication Award went to the John Wheelwright Archaeological Society for their publication on Low Mill, Dewsbury and the Journal Award to the Hampshire Industrial Archaeology Society.

Sunday visits were walks around Preston, to mills and housing, including the 1822 Corn Exchange, Ribble Motor Services offices and garage and the iconic 1960s bus station. A second walk included the 1796 Hanover Mill, Aqueduct Street Mill (1846) and Arkwright Mill (1854). A coach ride alternative took in Preston Docks, the Ribble Steam Railway and the millennium canal link.

Further evening lectures during the post-conference meeting were Colin Dickinson on 'The Lancaster Canal', Peter Keen on 'The Sankey Canal', Brian Tomlinson on 'Aircraft manufacture and development in Burnley and elsewhere', Mike Nevell on 'Water-powered sites on the River Irwell', Jack Smith on 'Archaeological sites in central Lancashire' and Ian Gibson on 'Queen Street Mill and the weaver's triangle at Burnley'. The additional conference visits took in these sites as well as Glasson Dock in Preston, to Nelson to see Bridge Mills (1893), Barrowfield, Park Hill House (1696) and the 1824 weaving site and the packhorse bridge at Higherford Mill.

Later visits were to St Helens glass sites on the Sankey canal, including the 'World of Glass' museum; aviation around Preston at Warton and Squires Gate at Blackpool, Stanley Park and BAE Systems at Salmesbury; the East Lancs Railway and the Leyland Museum at Chorley,

The 2008 conference will be at Chippenham, hosted by the Wiltshire Archaeological & Natural History Society.

Christine Ball, who played a major role in this year's SIHG visit to Sheffield, has taken over as Affiliated Societies Officer; she will not be organising the traditional Ironbridge weekend in 2008, but will instead be hosting a joint meeting at Leicester with the Post Medieval Archaeology Society on 'Crossing Paths or Sharing Tracks'. ☐

## **Industrial Archaeology Review Vol. XXIX No 2. November 2007 report by Gordon Knowles**

This issue has an international flavour with major articles from the United States, the West Indies and Britain.

Tim Allison is an economist with Argonne National Laboratory, Chicago and writes on Industrial Building Design and Economic Context: The Railway Freight House in Chicago, 1850-1825. He describes the rapid increase in scale and scope in railway freight operations in Chicago between 1850 and 1925 and the effect it had on North American freight house design.

Early freight houses were small, single-storey brick buildings designed to handle the straightforward exchange of freight shipments, while later ones were large, multi-storey, concrete and steel structures featuring mechanical freight handling systems. Allison puts forward a simple framework for studying influential factors in freight house size, function and design. Market factors include developments in the railway freight marketplace, notably traffic growth and the need to offer storage and warehousing facilities. Supply factors include those that limited or facilitated changes in design resulting from changes in the market-place, notably local freight delivery costs, increases in land values, advances in construction materials and labour-saving freight handling techniques.

Over the years covered in the article 25 different railway companies operated out of the Chicago yards, 14 of them from the same in and out sites, while the rest had separate facilities for incoming and outgoing traffic. By the 1920s railway companies operating out of Chicago were leading the way in US freight house design with 5 out of the 12 multi-level warehouses built in the US being in Chicago. The downtown location however became increasingly undesirable in the late twenties. The character of shipping was changing towards a network of motor trucking routes making local, suburban and regional trips. Operation of interchange terminals moved to cheaper land on the urban outskirts of Chicago.

The William James Foundry 1817-1843: An Exposé of Local Metallurgical Enterprise by Veront Satchell, of the University of the West Indies and Shani Roper, Assistant Curator in the Museum of History and Ethnography, the Institute of Jamaica, reports recent research into a short-lived enterprise in Kingston, Jamaica. They suggest that it is a traditional view that slavery retarded industrial enterprise and would be considered alien in such a society. Their research suggests that this is not necessarily always the case and that technological innovations including technical enterprises were evident in slave societies and thus challenged the 'incompatibility thesis' that slavery retarded economic development.

Original equipment for the sugar plantations and processing factories came from Britain and major repair work had to be sent back there but minor repairs and replacement parts were handled locally. Many plantations relied heavily on millwrights and blacksmiths, who were mostly enslaved blacks, to maintain and repair their equipment. The William James foundry was set up by two young Englishmen and became strategically placed as part of the support services for the sugar industry at a time

when rising costs of production, increased competition and the potential loss of slave labour threatened to overwhelm the sugar industry in the island.

It was obvious that this foundry was of great importance to the maintenance and repairs of equipment, as well as the manufacture of new ones. A local newspaper advertisement in 1825 was typical of the company's activities. "For sale ... water closet, on the most improved construction; also cast iron pumps to work by breeze, cattle or the Hand, which can be furnished at the shortest notice." The foundry shared a large order for 2000 wrought iron stretchers "for the use of His Majesty's Troops on the Island Establishment" with the Smithies foundry at Falmouth. Unfortunately a shortage of unwrought iron on the island caused a delay, material having to be brought from England.

The unfortunate demise of the foundry in 1843 brought to an end this important metallurgical enterprise. A fire broke out on 26 August which as well as destroying the foundry also laid waste a large section of the city of Kingston. Earlier in 1828 the death of Thomas, one of the brothers in the partnership, had led to financial difficulties in the business which was continued on by William James until the disastrous fire.

An article on The Stone Dam Mill Engine House is written by Ron Fitzgerald who runs Structural Perspectives Ltd. He has previously contributed on the theme that Industrial Archaeology has failed to establish a distinctive identity and is being over-run by social studies graduates which leads to an alienation from science and technology. Fitzgerald attempts to right this perceived wrong in this article, a view which, incidentally, your reviewer agrees with.

The Stone Dam Mill is one of the four oldest surviving textile mills in historic Halifax. The beam engine house, with the remains of the engine, is the oldest unaltered part of the complex. The engine was never replaced by a later horizontal engine and was partially dismantled in the inter-war period. Fortunately it was not completely scrapped as the built in components were too difficult to remove without causing structural damage to the building.

The remains of the engine are described and illustrated by both photographs and excellent line drawings. It was calculated that the beam was 21ft long and the fly-wheel was 24ft in diameter. The 19th century method of defining the power of rotative steam engines is discussed; from this it is postulated that the Stone Dam engine could have had a nominal horsepower of 60nhp, making it one of the largest in the area. It is likely that the engine is one of four referred to in correspondence in 1843 when they were ordered from Low Moor Ironworks for installation in mills in Halifax.

Sublime Cascades: Water and Power in Coalbrookdale by Paul Belford, Head of Archaeology and Monuments at the Ironbridge Gorge Museum Trust, describes historical and archaeological investigative work undertaken between 2000 and 2006 as part of an extensive renovation of the water-power system in the area. The results of the work suggests that the basic layout of the

*(Continued on page 8)*

(Continued from page 7)

original 16th and 17th century system is preserved in the present-day arrangement of culverts, sluices and pools. This inter-disciplinary project has provoked new ways of looking at the apparently well-known landscape of industry.

The whole project had a budget of £2.2 million, most of which was spent on engineering, infrastructure and related works. The main drive of the project was to ensure the stability of the various watercourses. At its height the Coalbrookdale water-power system comprised six pools and a network of channels, tunnels and engines to power the various enterprises of the Coalbrookdale Company.

When the Coalbrookdale Company reached an agreement with the Great Western Railway in 1864 to

‘replace and reconstruct the floodgates, sluices and culverts’ affected by the railway construction, the use of water power should have been in its final years. But reconstruction of an outdated technology not only prolonged its use but also fossilised elements that would otherwise have been lost. Thus the railway enabled the survival of the watercourses, even though the system itself was close to redundancy.

Further work is continuing since it is now evident that the role of the watercourses as part of a ‘designed landscape’ was just as significant as any strictly functional role as an industrial feature during the 18th and early 19th centuries. □

SIHG Lecture 3 - 23 October 2007

### **The Lead Industry in London**

*by Tim Smith GLIAS*

*report by Margaret Levett*

Tim Smith started his lecture by showing us a picture of a very impressive crescent-shaped facade bearing the sign ‘George Farmiloe & Sons Ltd Glass and Lead Merchants’, one of the few surviving buildings of the prosperous lead industry in London. He described how, in the late 1980s, English Heritage had begun to realise that evidence of London’s industrial history had almost disappeared and asked for surveys of various industries. Tim Smith undertook the Lead Industry.

The lead industry can be divided into three main parts: smelting, refining and desilvering metallic or blue lead as used in pipes, sheet, shot etc, and white lead as used in paint manufacture. Red lead was never made in London.

Smelting and refining of lead was usually undertaken near the actual lead mines but by the middle of the 19<sup>th</sup> century there was some smelting of foreign ores near the docks in Millwall and Rotherhithe and notably by Locke Lancaster & Co at Shad Thames in Bermondsey in 1854. Many of the London lead companies had interests in the lead mines in the North and West of England and in Wales and they smelted, refined and desilvered near the mine but some such as the London Quaker Lead Co desilvered their lead in Limehouse from as early as 1746. Lead, as prepared from galena, contains up to 2% silver, and the silver was extracted by first enriching the lead using the Pattinson process followed by cupellation. The cupellation process is more than 2000 years old and consists of melting the enriched lead in an oxidising atmosphere over a bed of bone ash. Quirk Barton & Co smelted, refined and desilvered at Rotherhithe as did Enthoven & Sons. Locke, Lancaster moved to Bridge Road, Millwall in 1872 and eventually set up three blast furnaces there.

Metallic or blue lead was manufactured by five main companies who, over a period of 250 years, split, amalgamated and took new partners several times. Many of the sites of their manufacturing complexes were detailed on Goldfire Insurance plans giving some idea of the processes they used.

Walker, Parker & Co Ltd had a pipe factory, a roll-

ing mill and a shot tower on the South Bank. The latter was incorporated into the Festival of Britain site and not demolished until 1962.

Pontifex & Wood from Shoe Lane in Farringdon made sheet lead and lead pipes.

George Farmiloe & Sons Ltd with & W Farmiloe Ltd ran the Island Lead Mills built on an island in the basin of the Limehouse Cut. These mills had been started by Thomas Key whose family also had interests in the lead shot tower at Toppings Wharf. The island site was destroyed when the Regents Canal Dock was redeveloped.

Grey & Marten in Southwark Bridge Road made lead pipe, sheet and solder and were one of the first customers of the London Hydraulic Co. The firm became part of the Bilton group and the building was demolished in 1982.

White Lead or Ceruse is basic lead carbonate and throughout the 19<sup>th</sup> and early 20<sup>th</sup> centuries was made by the Old Dutch or Stack process. Lead was cast into thin plates called wickets and these were placed on top of earthenware pots filled with vinegar on a layer of spent tan bark. Up to ten layers were stacked in square brick cells mainly by women workers. The stacks were sealed for thirteen weeks by which time the wickets were covered by white lead. The stacks were then dismantled and the wickets put on trays for the women to carry to the cisterns where the white lead and unchanged metal were separated. The work was dangerous and unhealthy and Tim Smith read us a harrowing description by Charles Dickens of the effects of lead poisoning on a young girl. He then listed some of the legislation brought in to protect the workers.

T & W Farmiloe had white lead stacks in their Nine Elms works, part of which still survives.

The London Quaker Lead Co had a white lead plant on the Isle of Dogs with a windmill for grinding, but this had gone by 1782.

Despite the dangerous manufacturing methods white lead made by the stack process continued to be used and in 1936 Henry Grace & Co were advertising white lead paint as produced by the present firm for 150 years.

Most lead working sites in London have been redeveloped, but some remain to be decontaminated. Farmiloes, with its warehouse designed to carry heavy loads, is one of the very few remains of the lead industry in London. □