



(top) French Mystery Clock - circa 1880
 (bottom) An Accurate Timepiece
 photos by Roy Johnson



Member's Talk
The Story of Two Clocks
by Roy Johnson

The clocks featured in this presentation both came from the end of the Victorian era and represented different social attitudes to time keeping.

The French Mystery Clock - circa 1880 - fitted the genre of ostentatious ornamentation so characteristic of the age with a little of the mystery of scientific progress thrown in.

The black marble base weighs some 301bs (14kg) on its own and is needed to stabilise the assembly so that the imperceptible movement of the bronzed and gilt spelter figure can impart regular impulses to the pendulum.

Originally the whole assembly would have lived under an envelope of glass to isolate it from draughts and dust. Removal of the dome to wind the eight day movement was, as proved in this case, a hazardous procedure!

The Second Clock, strictly speaking a timepiece since it has no striking, was designed to satisfy the needs of that part of the social scene where accurate time-keeping was important and the pendulum regulation of the French eight day movement proves, even to this day, to be a prime example of the clock makers craft.

Little embellishment has been afforded apart from the quality of the halved, walnut veneer applied to the pine carcass, see above.

At the beginning of the twentieth century with the Industrial Revolution in full swing, punctuality - whether it be Parliament time, Railway time or Greenwich Mean Time, was a crucial part of working life.

The stories told related to events in the "lives" of the two purveyors of time and the way they were influenced by the changing fortunes of three generations.

□

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SIHG Visit to NMRC & STEAM in Swindon

National Monument Record Centre & Museum of the Great Western Railway
Tie-in with Leatherhead lectures & ALL SIHG members are welcome!

Thursday 18 February

Estimated cost: £15 for coach & entry fees

Includes introductory talks & guided tours

Coach from Leatherhead via Guildford

Updates at www.sihg.org.uk, or from Alan Crocker,
alanglen@glfd.freemove.co.uk.

Surrey Archaeological Society *Research Symposium*

Saturday 27 February

at Ashted Peace Memorial Hall 0930 - 1700

With contributions from SIHG

Details from SyAS, Castle Arch, Guildford, Surrey GU1 3SX,
www.surreyarchaeology.org.uk

SERIAC 2010

South East Regional Industrial Archaeology Conference

Saturday 24 April at Chertsey Hall

Organized this year by SIHG

Detailed flyer enclosed; updates at www.sihg.org.uk

Surrey Industrial History Group Officers

Chairman & SIHG Lectures Organiser: **Robert Bryson**, meetings@sihg.org.uk

Secretary: **Alan Thomas**, info@sihg.org.uk

Treasurer: (vacant)

Membership Secretary: **David Evans**, membership@sihg.org.uk

Newsletter Editor: **Jan Spencer**, news@sihg.org.uk

SIHG is a group of the Surrey Archaeological Society, Registered Charity No 272098
Castle Arch Guildford Surrey GU1 3SX

Group Patron: David Shepherd OBE, Group President: Prof AG Crocker FSA

Other IA Organisations

- Amberley Museum & Heritage Centre:** next to Amberley railway station, West Sussex, www.amberleymuseum.co.uk.
- Basingstoke Canal Authority:** 01252 370073.
- Brighton Circle (London, Brighton & South Coast Railway):** www.lbscr.demon.co.uk.
- Chatham Historic Dockyard:** Kent ME4 4TZ, www.chdt.org.uk.
- Cobham Bus Museum:** London Bus Preservation Trust, Redhill Road, Cobham, Surrey KT11 1EF, www.lbpt.org.
- Croydon Airport Visitor Centre:** Airport House, Purley Way Croydon CR0 0XZ, www.croydon-airport.org.uk.
- Croydon Natural History & Scientific Society:** meetings: Small Hall, United Reformed Church Hall, Addiscombe Grove, E Croydon.
- Cuffley Industrial Heritage Society:** Northaw Village Hall, 5 Northaw Road West, Northaw EN6 4NW. www.cihs.org.uk.
- Didcot Railway Centre:** Access via Didcot Parkway Station, www.didcotrailwaycentre.org.uk.
- Docklands History Group:** Museum in Docklands, No 1 Warehouse, West India Quay, Hertsmere Road, London, E14 4AL, www.docklandshistorygroup.org.uk.
- East London History Society:** Latimer Church Hall, Ernest Street, E1, www.eastlondonhistory.org.uk.
- Enfield Society:** Jubilee Hall, 2 Parsonage Lane, Enfield, EN2 0AJ, www.enfieldsociety.org.uk.
- Fetcham U3A:** <http://fetchamu3a.org.uk/home.htm>.
- Greenwich Industrial History Society:** Old Bakehouse, Age Exchange Centre, 11 Blackheath Village, SE3 (opposite Blackheath Station).
- Hampshire Archaeology Society (HIAS):** Underhill Centre, St. John's Road, Hedge End, SO30 4AF.
- Hampshire Mills Group:** contact 01962 852594.
- Kempton Great Engines:** Feltham Hill Road, Hanworth, Middx TW13 6XH (off elevated section of A316), www.kemptonsteam.org.
- Kew Bridge Steam Museum:** Green Dragon Lane, Brentford, Middlesex TW8 0EN, www.kbsm.org.
- Lewisham Local History Society:** Lewisham Methodist Church SE13 6BT.
- London Canal Museum:** 12/13 New Wharf Road, N1 9RT, www.canalmuseum.org.uk.
- London Transport Museum, Acton Depot:** 2 Museum Way, 118 - 120 Gunnersbury Lane, London, W3 9BQ, 020 7565 7298.
- London Underground Railway Society:** Upper Room, All Souls Clubhouse, 141 Cleveland Street, London W1T 6QG, www.lurs.org.uk
- Lowfield Heath Windmill:** near Charlwood.
- Newcomen Society London:** Fellows' Room, Science Museum, Exhibition Road, London SW7 2DD.
- Newcomen Society Portsmouth:** Room 0.27, Portland Building, University of Portsmouth, St James Street off Queen Street, Portsea.
- Portsmouth Historic Dockyard**
- Railway & Canal Historical Society:** The Rugby Tavern, Rugby Street, London WC1, www.rchs.org.uk
- Rotherhithe & Bermondsey Local History Group:** at 1945, £1.50. Time & Talents Centre, Old Mortuary, St Mary Church Street, Rotherhithe Village, SE16, www.kingstairs.com/rotherhithe.
- Royal Gunpowder Mills:** Waltham Abbey, www.royalgunpowdermills.com.
- Rural Life Centre,** Old Kiln Museum, Reeds Road, Tilford, Farnham Surrey GU10 2DL.
- Shalford Mill** (National Trust), Shalford Guildford Surrey GU4 8BX.
- Southwark and Lambeth Archaeological:** Housing Co-op Hall, 106 The Cut.
- Surrey & Hampshire Canal Society (The Basingstoke Canal):** Parish Pavilion, Station Road, Chobham, ww.basingstoke-canal.org.uk.
- Sussex Industrial Archaeology Society (SIAS):** www.sussexias.co.uk.
- Sussex Mills Group:** www.sussexmillsgroup.org.uk.
- Wealden Iron Research Group:** Nutley Memorial Hall, Sussex, (North end of village, West side of A22).

SIHG Newsletter No 173 January 2010

DIARY

The 35th series of SIHG Industrial Archaeology Lectures

starts on 29 September 2010 on alternate Tuesdays, 1930 - 2130 at the University of Surrey (Lecture Theatre F).
 Enquiries to programme co-ordinator, Bob Bryson, meetings@sihg.org.uk. Maps at 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.

The Autumn 2010 Thursday Morning Lecture Series at Leatherhead

starts on 23 September 2010.
 Enquiries to Leatherhead programme co-ordinator Ken Tythacott, Ken.tythacott@btinternet.com.
 As seating is strictly limited, enrolment is for the whole course only; casual attendance is not possible.

Diary January 2010

26 Tue Surrey Industrial History Group Lecture Series: Beginnings of Public Utilities in Surrey, by Peter Tarplee, VP SIHG

Diary February 2010

- 9 Tue Surrey Industrial History Group Lecture: Atkinson's High Efficiency Engines, by Ed Marshall, Newcomen Society.
- 18 Thu SIHG Visit to NMRC & STEAM in Swindon, see page 2.
- 23 Tue Surrey Industrial History Group Lecture: Leather Manufacture at Gomshall, by Colin Woolmington.
- 27 Sat Surrey Archaeological Society: Research Symposium, with contributions from SIHG, see page 2.

Diary March 2010

- 09 Tue Surrey Industrial History Group Lecture Series: Bridges of Britain, by Peter Cross-Rudkin, ICE Historical Panel.
- 20 Sat AIA: Surrey Industrial Buildings Day School. The Gunpowder & Paper Industries at Chilworth, see page 2.

A Visit to the Roman Glassmakers by Glenys Crocker

The Surrey Archaeological Society's Roman Studies Group organised a visit to the Roman Glassmakers workshop near Andover on 26 November.

Mark Taylor and David Hill make glass at Quarley, where the redundant buildings of Lains Farm have been converted into an expanding craft complex called Project Workshops. They make reproduction glass of periods ranging from Hellenistic and Roman to medieval and post-medieval – up to the introduction of lead crystal in England. They use modern furnaces in their studio but their research interest is in Roman glass making. They set up their first experimental Roman furnace in 2005 with support from English Heritage and other sponsors and a second in 2006.

It is not known exactly what Roman glass furnaces looked like as historic illustrations are from later periods. Excavated furnaces can be up to a metre across but the ones here were smaller. We were first shown the furnace from the 2006 firing. It was built of clay daub, about 6 inches (15cm) thick. As it was built up from the base, a shelf was made inside for the crucibles to stand on. These were put in position and the rest of the structure, with its domed top, was built up around them so they could not be taken out again. There were three gathering holes through which the molten glass

was collected and the pots were recharged with raw materials. There was also a stoke hole in the side through which the fuel – wood not charcoal – had been fed and there was a hole in the top of the dome. We also saw the furnace that had replaced the original 2005 one and a few remains of the adjacent annealing oven. Annealing is necessary to remove potential weaknesses where the glass could fail. The 2005 furnace consumed 10-12kg of wood per hour and the 2006 one used 15kg. The temperature was

1050C for firing and 540-550C for annealing, a little higher than temperatures used in the studio furnaces, which were 1035C and 520-530C respectively. Modern methods of monitoring were of course available for the experiments but the Romans had to judge temperature by colour and viscosity.

We went indoors to see Mark demonstrate the skills of making glass vessels, which include fusing, slumping, mould-blowing and free-blowing techniques. It went on for about two hours and we were spell-bound. In the New Year, Mark and David will be moving across the farmyard into one of the new buildings that are being erected and Project Workshops is planning a grand re-opening event in May.

The website www.romanglassmakers.co.uk gives a lot of information about the projects, about booking visits and even booking glass-

blowing lessons, and it has some interesting links. There is also a new book, just published when we made our visit: John Shepherd & Angela Wardle, with Mark Taylor and David Hill, *The Glassmakers of Roman London*, MoLA (Museum of London Archaeology) 2009. ☐



Experimental furnace at Roman Glassmakers,
Quarley, Hampshire

Below: view through the gathering holes



SIHG Lecture Series
Industries of Farnham

by Chris Shephard, Director Rural Life Centre report by Celia Gregory

Chris Shephard's talk, which was illustrated by numerous slides, enlightened members on many less well-known industries of Farnham.

He began by reminding us of Farnham's former main industries, growing hops and brewing beer. Initially hops were grown on single poles which had to be pulled out of the ground when the hops came to be picked. This was very labour intensive. Later, when hops were grown on lengths of twine, machines could be used to strip them, but leaves and other debris still had to be removed by hand.

Many breweries were built in Farnham, which at one time boasted the most public houses per street space of any town in the south. Mention was made of Farnham Maltings, now converted to community use. Its lower floor used to flood frequently. Several photos were shown of old hop kilns which have been converted to luxury houses and flats, some more sympathetically treated than others. In 1880, the town had the distinction of having the first poured concrete hop kiln.

An industry which sprang up to support hop-growing was the manufacture of twine, for which there was a great demand. A matting, rope and twine warehouse was situated in Castle Street. The Long Garden Walk, straight for half a mile, is believed to have been laid out to help the rope and twine industry.

Several mills were shown. Most of these had ground the Bishop's corn, although some were fulling mills. Weydown Mill has been converted to cottages. Hatch Mill, now an Abbeyfield residential home, was a laundry at one time in its history.

A laundry service industry was needed by the Army stationed at Bordon. This was provided by Hale Laundry, which was the biggest employer. A photo of their former site showed many buildings and rows of covered drying racks. Nowadays this area is occupied by a housing estate.

An unusual industry was the Camouflage Development Unit, which, together with the Home Guard Bomb Disposal Unit run by Basil Crosby, was situated in Farnham Park. We saw a photo of a large practice bomb in situ. Andrew Crosby, Basil's father, was originally a sanitary plumber, who, through entrepreneurship, expanded his business into building Bailey bridges, assault boats and radio transmitter units for the Navy.

Mention was made of ancient industries. Fish ponds were farmed by the monks at Waverley for the Bishop at Farnham. Roman and medieval potteries produced tiles. The pottery tradition continued with the much later green and blue glazed ware for which Farnham is famous. The pottery of A. Harris & Sons used to have

four updraught kilns near to extensive clay pits. Terracotta bricks and tiles were produced there. We learnt that the first concrete roofing tiles were made at Farnham.

Timber has always been an important industry, thanks to the proximity of Alice Holt forest. The Westminster Hall hammer beam roof, the greatest in the world, was made in Farnham and Timber Close is so named because it is thought that is where the practice assembly of the roof took place.

We were shown photos of old printing works, forges, wheel-wrights, hardware shops, gasworks and gas mains carried on a steam lorry by the transport company A Robins. Warehouses were everywhere. A corset factory's former existence on the site of the Conservative Club's garden was verified by the finding of whalebone.

Another of Farnham's claims to fame (or notoriety!) was John Henry Knight's car, which committed the first bookable driving offence in the country by being driven "outside the permitted hours".

Car manufacture was big business. E D Abbott's firm grew by converting Ford cars to estates. They expanded into making coaches, light aircraft and the gliders Scud I, II and III. This glider, known as the Flying Flea, was not a commercial success. Even when modified to make it safe, it was only bought by employees and tended to end up in their gardens.

In contrast, Pilgrim Cars were built to an engine size of 5 litres and upwards. Their successful pump, designed for motor bikes, was exported all over the world. The former factory site now only houses cleaning sheds for trains.

The old sand and gravel pits of Hickley & Co Ltd alongside the railway were shown. The photo had a view of the narrow track railway which used to service the pits. Part of this narrow gauge track survives at the Rural Life Centre, Tilford. Other pieces of track were used to fence off the pits.

Finally we heard about Harold Faulkner, the architect, who created an industry out of the restoration of old houses. He used to remove the frontage of buildings and rebuild them in a more appropriate style according to his own ideas. The Spinning Wheel is an example of his work.

Chris extended his talk by answering several questions from members, for which he was warmly thanked. □

Who Invented the Aeroplane? *Letter to the Editor from Gordon Knowles*

I found John Day's article, 'Who Invented the Aeroplane?', in the November 2009 issue very interesting. May I add my own comments. I have always understood that there is no doubt that the Wright brothers were indeed the first to make a sustained and controlled flight in 1903. The key words are "sustained and controlled". Earlier attempts did not achieve this, or if they did, they were not photographed or officially recorded at the time. In several cases claims were made as much as thirty years after the event.

Preston Watson did indeed fly, but not until after the Wrights, or Cody in this country. Unsubstantiated reports have been made that he flew in 1903 and 1904. He volunteered for the new Royal Naval Air Service during WWI and was killed when his aircraft exploded in flight. As to the claim for Pearse, I have not been to New Zealand and thus have not seen the remains of his machine but, according to reports from several reliable sources that I have read, he made no more than a series of hops, landing in a ditch at the end of the field. Just like A V Roe did at Brooklands in 1908, prior to Cody's successful flight. Roe was not to achieve a full, controlled, flight until he took his new triplane to Hackney Marshes, after Cody and Moore Brabazon had flown. Brabazon was finally credited in 1928 with having made the first powered, sustained and controlled flight by a British subject, at Leysdown on the Isle of Sheppey in 1909. Cody of course was still a US citizen when he made his flight, becoming a naturalised British subject later.

Philip Jarrett, the well-known and respected researcher and writer, is adamant that the New Zealand reports are exaggerated, just as those for Roe were. It would indeed be interesting to learn more. Claims for Pearse have been made that he flew as early as 1901, 1902 or 1903; again there is no firm evidence that he achieved sustained and controlled flight.

The same can be said for the third claimant that John refers to, Gustave Whitehead. Although John quotes that a press reporter witnessed his early attempts, officially he did not make a sustained or controlled flight. He is supposed to have flown a steam powered aircraft as early as 1899 with a witness aboard. His supposed later flights in 1901 in a petrol-engined aircraft have equally been discounted as there were discrepancies in the newspaper reports of the time.

Among other early claims made was one for Sir Hiram Maxim, the inventor of the machine gun, although not by the man himself. He built a gigantic test rig as early as 1894. The steam-powered machine broke away from its restraining rails and careered some 600ft (185m) at up to 3ft (1m) high before crashing. Maxim and three others were aboard. Clement Ader in France claimed to have flown his steam-powered Eole and Avion III aircraft in 1897. A Government investigation eventually discounted his claims in 1910. He is however considered to be the father of French aviation and I have seen the Avion III displayed at the Musee de l'air et de l'espace in Paris. The German Karl Jatho and the Americans August Herring and Samuel Langley were also contenders, the latter was the principal competitor to the Wrights. He almost managed to fly his Aerodrome off the river Pontiac in Washington days before the Wrights success.

The suggestion that the Smithsonian, where Langley was Chief Administrator, deliberately withheld any alternative claims to the Wrights is interesting. I have never seen it challenged in print, which is surprising. I fear that it would be difficult, or probably quite impossible, after over 100 years to now deny the Wrights. Jeff Scott, writing in 2004, sums up the position. 'While each of the pioneers can make a serious claim to being the first to fly, the ultimate determination really comes down to how you decide to measure success. It is not in question whether any of these innovators had a keen insight into aviation, for they all designed and built amazing creations that pushed the boundaries of existing knowledge. Some even managed short hops in the air, but how do we decide what constitutes flight? The criterion most researchers have applied is that a craft could only sustain its flight thanks to the power of its engine and was fitted with a control system allowing the pilot to maintain his course. The flight must have been well-documented by first-hand witnesses, and perhaps most important of all, be repeatable. The accomplishments of all but the Wrights failed at least one of these criteria. Most of the men themselves admitted that they had not accomplished what the Wrights had done.' □

We are still seeking a new **Treasurer**.

This is a very useful & rewarding role & a relatively light task as SIHG is
part of the Surrey Archaeological Society.

The formal accounts are thus presented by the parent body, not by the SIHG Treasurer.

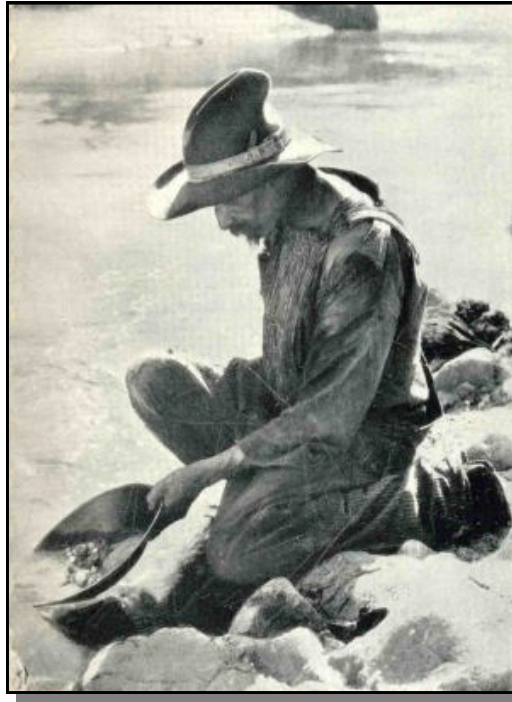
The Klondike Gold Rush of 1896-99 by Alan Thomas Part 1 - Bonanza!

On 17 July 1897 the SS *Portland* docked at Seattle carrying a party of prospectors and the gold they had found around the Klondike river in the Yukon. There had been a major strike in that area on 16 August 1896 - a public holiday in the Yukon to this day. A few days earlier the SS *Excelsior* had docked at San Francisco with another party, and between them the two ships carried 68 prospectors and about three tons of gold.

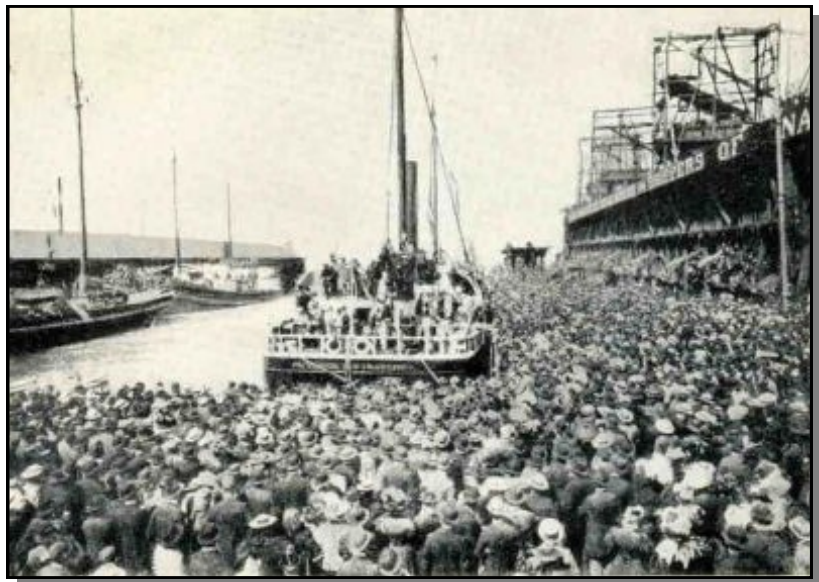
An immediate frenzy of would-be prospectors or *stampedeers* followed. The 1890s had been years of economic depression, with bank failures and unemployment, and the possibility of literally picking up a fortune was of great appeal. Others viewed a journey to the Yukon as an adventure, an escape from boring routine - perhaps in the same way as some enthusiastic volunteers for Army service in 1914. In neither case did they know what they were letting themselves in for.

Gold mining, as practised by the resident prospectors or *sourdoughs* in north-west Canada and Alaska, was a matter of finding gold in the beds of rivers and creeks as nuggets or dust - usually the latter. This gold had been released from its location in seams or *lodes* of quartz or similar rock by crushing of that rock by geological forces, and by being subsequently washed down streams. The larger pieces of gold would be deposited on the stream beds near the source, and progressively smaller particles would be deposited further downstream, sometimes in the sand of the sea-shore. Further geological changes might cause a stream bed to be covered by later deposits of earth or rock.

Mining for gold released in this way is termed *placer* mining, from a Spanish word meaning 'pleasure' or 'delight'. The simplest way to find it is by *panning*, leading to the image of the sourdough armed only with a pan and a shovel - an image which no doubt led the stampedeers to believe that placer mining was a simple matter. A yield of 10 cents of gold per pan was thought good, but in the early days of the Klondike strike it might amount up to \$800. A prospector, having found some gold, had to make and register a claim of 500 feet of river or creek. Once no more gold could be panned from the stream the prospector could look for ancient streams within his claim covered by deposits of rock or alluvium. This required a shaft to be sunk in the hope of finding such an ancient stream bed. In the Yukon, where the ground was frozen, the summer sun would melt the first few feet, but the only way to go lower was to light a fire at the bottom of the shaft, melt a few more feet, excavate and repeat until bedrock was reached, at a depth of up to 30 feet. The dangers of this process can be imagined. Furthermore, the miner might dig sideways from the bottom of the shaft to find more gold.



**A sourdough
panning
for gold**



**Klondike Gold Rush -
San Francisco dockside scene,
1897**

(Continued on page 8)

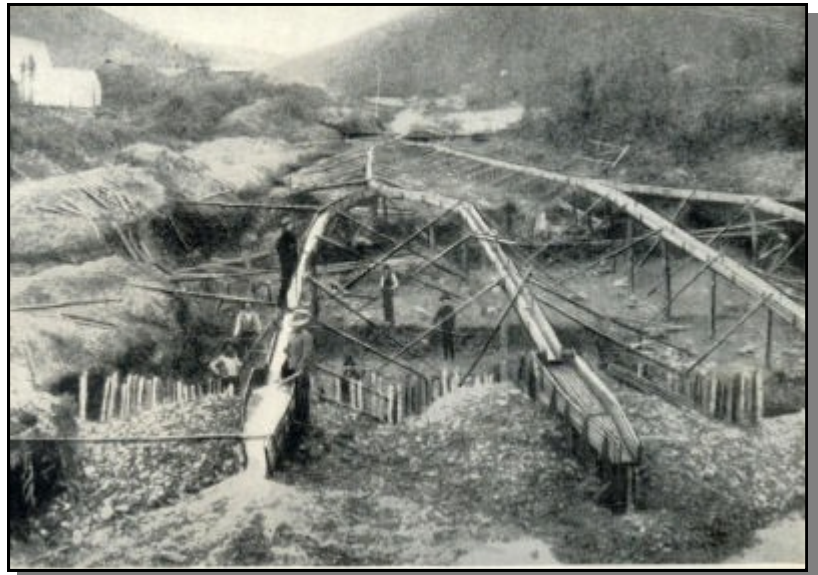
(Continued from page 7)

This work could be done in the winter, and the gold-bearing gravel or soil piled up adjacent to the top of the shaft, where it would freeze. In the spring it would melt and then, the streams also having thawed, could be panned. This required more than a simple pan. Sluice-boxes had to be built of many tens of feet in length, down which the gold-bearing soil would be washed. Cross-pieces in the sluice-boxes would catch the heavier constituents of the soil, and these would then be panned individually to find the gold. The soil might be treated with mercury to make an amalgam, which would be easier to extract. The mercury would be driven off by heating - another hazard.

Placer mining, once all the easy deposits had been found, therefore needed much more than a pan and a shovel. Money was needed for wood for the sluice-boxes, for ladders, a windlass, firewood, mercury and so on.

If the gold had not been released from the rock by natural forces, this could be done by mining the lodes and crushing the rock to powder using sets of stamps, similar to those used in Cornish mines. The powder could be processed in a similar way to the soil excavated in placer mining, but this required the operation to be on an industrial scale, because the amount of gold in the rock was, and is, very small. One mine in the Yukon was said to process the rock for \$1.25 per ton and gave a yield of \$1.85 per ton. In the 1890s the value of gold, depending on purity, was \$15-20 per ounce (about the weight of four gold sovereigns). For comparison, yields in 2009 are as low as 3 g per tonne, and the gold price is about \$1,200 per ounce.

Sourdoughs had been roaming north-west Canada and Alaska for decades, but the Indian tribes and the Hudson's Bay *voyageurs* had no use for gold, except perhaps for ornament. To them, wealth lay in the fur trade; in Russian Alaska, gold prospecting was forbidden. Some small-scale gold-mining was taking place near Circle City, on the Yukon river just below the Arctic Circle and at Forty Mile, downstream of its junction with the Klondike river. Veterans regarded the area at that junction as an impossible place to find gold - 'only good for moose pasture'. However, a prospector named Robert Henderson found some gold on a tributary of the Yukon, which he called Gold Bottom Creek. A small party of the Siwash tribe, led by an American *squaw man* named George Washington Carmack and including his brothers-in-law of the Tagish tribe named Skookum Jim and Tagish Charlie, met Henderson and learnt of his discovery, but thought little of it and went on their way. Their main interest was catching and drying salmon for use as dog food - they were not prospectors. So it was by chance, when they stopped by another tributary called Rabbit Creek, that they found some gold in the stream. They collected a sample in an empty cartridge-case and proceeded to register a claim and then, as was the custom, to tell others of the discovery. Carmack however had a reputation for tall tales and at first he was not believed - but as the gold, from its appearance and purity, was not from any



Sluices for washing pay-dirt from pits

existing claim, he was eventually believed and the rush began. Rabbit Creek was renamed Bonanza Creek and another rich stream was named Eldorado Creek.

Some news reached the outside world, but again it was not believed and it was not until word came that gold was loaded onto the SS *Portland* and the SS *Excelsior* that excitement began to mount in Seattle, San Francisco and adjacent ports. The rush started and thousands sought any available ship or other means of transport to reach the Klondike.

In the meantime, one John Ladue, who owned a sawmill downstream at Forty Mile, heard of the strike and moved his mill up to the Klondike, where he bought a tract of land at the confluence with the Yukon river and began to build what became Dawson City. Ladue realised, as did many others, that the way to make money out of gold was not to mine it but to sell supplies and services to the miners. Dawson grew very rapidly, and by July 1898 it had two banks, two newspapers, five churches and a telephone service. The great hazard was fire during the winter as any water that could be found froze in the hoses, and much of the town was burnt down more than once - a constant hazard for any settlement built on the permafrost.

The stampedeers eager to set off from the south faced great obstacles. The sea and river journey, for anyone who could pay the fare, appeared the easiest, but the distances were great. Seattle is at about the latitude of Paris, whereas Dawson is at that of southern Iceland. The sea journey to the mouth of the Yukon river was of about 2,750 miles and the journey up-river about 1,500 miles. The fare, initially \$150, soon rose to \$1,000, and the journey took about six weeks. This meant that anyone who set out after the end of July could not reach the Klondike before the Yukon froze. In 1897-8 some 2,500 people, many ill-prepared, were stranded at various points on the way as the strike had only been confirmed on 17 July.

Alternative routes - and the trauma of travel - will be described in Part 2. □

Industrial Archaeology News No 151: Winter 2009

review by Gordon Knowles

This issue contains a comprehensive review of the Lincoln Conference held in September. Glenys Crocker gave us her review in the last Newsletter so there is no need to repeat the details here.

Vanessa Trevelyan writes on *Industrial Archaeology and the Norfolk Museums & Archaeology Service*. It supports the preservation of IA in Norfolk in several ways and welcomes interest and participation by interested groups or individuals. There are six aspects to the work of the Service.

The Great Yarmouth Museum collects items of maritime interest, since 1984 concentrating on collections that reflect Yarmouth's maritime heritage. The Savage Pattern Store in King's Lynn holds some 2,000 wooden patterns, being the moulds for the iron castings made for the Savage fairground carousel rides. The firm had been in existence for over 100 years when it closed down in the 1970s. The collection also includes some 3,000 plans and drawings, which are accessible to researchers. The Bridewell Museum of Trades and Industries in Norwich opened in 1925 and was the first in the county dedicated to local trades and industries. It is currently being updated to provide more information on the people who worked in these trades and industries.

The Tower Curing Works in Great Yarmouth is the finest example of a complete Victorian herring curing works in the region. Displays recreate a typical 1913 Row and the Fish Wharf in the 1950s. The photographic archive consists of over 20,000 images and there are also ship's plans, seamen's charts and other original documents.

Gressenhall Farm & Workhouse houses steam engines, which are steamed on special event days, and large agricultural equipment

The service is also involved in recording and, where possible, preserving industrial sites through the work of Norfolk Landscape Archaeology, which gives advice to local planning authorities on the implications of development in accordance with PPG 16. Recent work includes exploring the remains of the Boulton & Paul works in Norwich. They famously made the prefabricated huts for Scott's Antarctic expedition and Sopwith and FE aircraft during WWI. They then started to make their own designs of aircraft and moved to Wolverhampton in 1934. No trace of the factory has been revealed, but the offices have been recorded and planning conditions placed on other remaining parts of the site.

There is a look back by Marilyn Palmer to the first Conference organised by the Council for British Archaeology (CBA) 50 years ago to raise interest in the then very new concept of industrial archaeology. She feels that this landmark should not go unrecorded. She looks at the origins and growth of 'industrial archaeology' beginning with the reference to it in 1955 by Michael Rix for the first time. She notes that after 50 years the AIA and the CBA are working together on the continued training of volunteers in the recognition of industrial buildings through a series of day schools utilising an English Heritage National Capacity Building

grant, so continuing the 50-year tradition of the involvement of the CBA in the promotion of industrial archaeology.

Two obituaries are recorded. Michael Davies-Shiel (1929-2009) dedicated his life to researching the industries of Cumbria, especially the Southern Lake District and the Furness Peninsula. His interests ranged from water mills, through bloomeries to forges and blast furnaces and their associated woodland industries. He was an author and was active in the Cumberland and Westmorland Archaeology Society Industrial Archaeology Committee and was still serving at his death. Michael was a founder of the Cumbria Industrial History Society and had been elected President in January 2009. He was an active member, lecturing and leading field trips, including to another of his passions, the gunpowder works at Elterwater.

John Kenneth Major (1928-2009) was a well-known and significant figure in the world of mills. He was an architect by profession and first attended meetings of the Wind and Watermill Section of SPAB in the 1950s. In 1961 he was commissioned to prepare drawings of Woodbridge Tide Mill and later was instrumental in making a survey of mills in Berkshire. This was followed by studies of mills on the Isle of Wight, in Wiltshire and in Northumberland. Kenneth organised a survey of the Kennet & Avon Canal, the results appearing on a map 18 feet long. He was Chairman of the Wind & Watermill Section of SPAB from 1978 to 1984 and of the International Molinological Society from 1977 to 1993 and he was a prolific author.

SIHG member John Day writes to the editor adding to an article on Strong's pump patent in an earlier edition. John comments that in Strong's day there was no call for the exact nature of the invention to be described, as there were so few patents at that time. There is no clear indication of what Strong really invented, leaving him the opportunity of claiming infringement on anybody who made a pump having any resemblance to his. John's view is that Strong produced a pump which could easily be taken apart for repair.

Regional news includes concerns that various preservation projects in Cornwall have stalled owing to the economic situation and that 200 years of Holmans in Redruth has finally ended with the closing of the Compair sales office there. On a positive note, the National Trust has completed the conservation of its acquisitions at Wheal Trewavas. In Wales there has been a similar decline in developer-funded archaeology. However, the extension of the Welsh Highland Railway (the subject of a recent SIHG talk), is mentioned. The Glyn Valley Tramway Trust has been formed to conserve and develop the route of the former narrow-gauge tramway from Chirk to the quarries beyond Glyn Ceiriog, which worked until 1935. In the North of England, English Heritage has started on a five-year project to investigate the Landscape of Alston Moor Manor with particular reference to the relationship between miners and farming. Lead mines in the Northern Pennines have recently been surveyed and work started to stabilise the base for an Armstrong hydraulic engine at Low Slitts in Weardale. □