

# HMSNEWS

## Historical Metallurgy Society

44

Spring 2000

### Forthcoming events

**Saturday 13th May 2000. The HMS AGM** will be held at Salford Brass Mill, Keynsham near Bristol. Details enclosed.

The **HMS Conference 2000** will be held at the Tank Museum in Bovington, Dorset, at a week-end in September, probably the 23rd-24th. There should be a short history of tank design and presentations on track link, armour plate, projectiles etcetera. The theme of armour, however, will not be confined to C20th tanks!

**The AEA Conference The Environmental Archaeology of Industry** 14th–16th 2000 April at the University of Surrey, Guildford. For particulars apply to Peter Murphy, Centre of East Anglian Studies, University of East Anglia, Norwich NR4 7TJ.

**Archaeometallurgy in Central Europe.** A Conference will be held at the Conference Centre of the Technical University in Heriany (25 km from Kosice) on the 12th and 13th of September 2000. and an excursion to Krasna Horka castle on the 14th. Methods of early metal smelting and early methods of manufacturing metallic objects. Languages English and German. Apply to Prof. Ing. L'ubomir Mihok, Dr Sc. Hutnicka fakulta Technicka Univerzita, Letna 9, 042 00 Kosice, Slovakia. Fax: ++421 95 63 33 429. Tel ++421 95 602 3151. e-mail: pribul@tuke.sk

**Study Tour to Mexico.** The Society's tour is going ahead in conjunction with Atalaya Tours. It will run from 20th May to 1st June 2000. **There are still some places available.**

The tour is open to non-members, but there is a discount for HMS members. The cost to members is therefore £850, plus airfares (around £500 from the U.K.) if required.

Members who filled in the flier in HMSNews 42 should have heard directly from Atalaya Tours in early November, anyone who has not been contacted, and anyone else interested, should contact Jamie Thorburn, Atalaya Tours Ltd, Ceinionfa, Capel Dewi, Aberstwyth, SY23 3 HR; phone/fax + 44 (0) 1970 828989.

David Cranstone

## ARCHAEOLOGICAL METALLURGY

### **Hoard of silver and bronze objects from Dunmore Cave, Co. Kilkenny**

**Andy Halpin** of the **National Museum of Ireland** has kindly provided a fuller description of a hoard, of metallurgical importance, which was reported in the Press in January.

In November 1999 the National Museum of Ireland was informed of the discovery of a hoard of silver and bronze objects in Dunmore Cave, Co. Kilkenny. The hoard proved to consist of 43 objects of silver and bronze, along with one glass bead and small fragments of leather and textile. The hoard is of Viking date and included 14 silver pennies from Anglo-Saxon England, which suggested that the hoard was probably concealed in the cave within a few years either side of 970AD. Another hoard of Anglo-Saxon coins had been found in the same cave in the 1970's. These dated to 925-930 AD and were probably connected with a massacre known to have taken place in the cave in 928AD. The new hoard clearly has no connection with the massacre.

The hoard includes three cut fragments of silver ingots, a small hammered disc-shaped pellet of silver, a cut and folded fragment of a decorated silver brooch pin, a penannular silver arm ring, a looped silver bar and two long, folded ingots of copper or copper alloy. The most interesting feature of the hoard, however, is a group of sixteen objects of woven silver wire, in three sizes; they are hollow and shaped rather like conical buttons, in basketry-style weave. These seem to be associated with fragments of a knitted ornament, formed of extremely delicate coils of silver wire and it is possible that both this and the button-like objects were attached to a garment of some sort. Only a small fragment of textile survives, but this appears to be a very fine imported silk. Also found were a matching copper alloy buckle and strap-end from a

leather belt, both highly decorated in the Hiberno-Norse style. The belt may have been worn with the same garment as the silver ornaments and it is thought possible that the silver coins, ingots and other objects were wrapped in the garment and tied up with the belt, before being hidden in a rock crevice in the cave.

Unfortunately the objects were removed from the rock crevice at the time of discovery and were not properly excavated by archaeologists. As a result, there has been a considerable loss of information on the circumstances in which the hoard was deposited and the relationship of the various components to each other. Conservation of the objects is currently being carried out by the National Museum of Ireland, which should provide further information on the construction and technology of the silver ornaments and, hopefully, about their function.

#### **Excavation of Marshall's cementation furnaces, Sheffield**

Between 1996 and 1999 **Archaeological Research and Consultancy at the University of Sheffield (ARCUS)** excavated a series of trial trenches on the site of a mid eighteenth century steelworks at Riverside Exchange in Sheffield city centre (NGR SK 3566 8782). This work was directed by **Paul Belford** and latterly by Andy Lines, and formed part of the evaluation of a large brown-field development site.

John Marshall founded his Millsands steelworks in the early 1760's. The works was one of the first in Sheffield, and therefore the world, to contain cementation and crucible furnaces on one premises. The trial trenches exposed the flue, chest bases and stoke-holes of three brick-built cementation furnaces, probably dating to the second quarter of the nineteenth century. A fourth furnace was constructed from rough-hewn sandstone blocks. It consisted of a large sub-rectangular platform surviving to over 1.4m in height. At the centre was a finely made arched flue, with areas suggestive of burning on either side.

This would appear to be an early form of cementation furnace unique to Sheffield. Whilst other areas, such as the north-east of England and Birmingham, used the two chest conical furnace more or less as standard, Sheffield steelmakers used

a wider range of furnace types in order to find the most efficient way of producing high quality steel for the cutlery industry. Cementation furnaces without a conical superstructure and with only one chest are described in various eighteenth and nineteenth century publications. The use of a six ton single chest furnace was recorded at Millsands steelworks in 1796 by the traveller Hatchett (Raistrick 1967).

By the early nineteenth century there were over two hundred cementation furnaces in Sheffield. However, before the present work, only four well-preserved cementation furnaces were known: Derwentcote, Co. Durham; Hoyle Street, Sheffield and two partially destroyed at Bower Springs, Sheffield. The project therefore has the chance to add considerably to the current knowledge base on early steelmaking through examining both technological and social concerns at the outset of the Industrial Revolution. An interim report is being prepared whilst further work on the site is expected to commence in the near future.

#### Reference

Raistrick, A (ed.) 1967 *The Hatchett diary :a tour through the countries of England and Scotland in 1796 visiting their mines and manufactories* Truro: D. Bradford Barton

#### **Metallurgy on the Isle of Man**

**Roger Doonan of Bournemouth University** has provided the following details of The **Billown Neolithic Landscape Project**, run by the University in conjunction with **Manx Heritage**, which continues this year with its fifth season of excavation at the Billown Quarry site. Isle of Man. In 1999 excavation uncovered abundant evidence for iron and copper metallurgy in the form of smithing hearth bottom slags, crucibles, moulds, waste metal and other slag remains. The context of these finds was important as they occur together within a feature that is interpreted as a small palisaded enclosure of approximately 6m diameter. Annual research reports for the Billown Neolithic Landscape Project are available, for details contact Louise Pearson, School of Conservation Sciences, University of Bournemouth, Bournemouth, Dorset. UK. Tel 01202 595115.

Also on the Isle of Man, the Billown site, the **Langness Survey** uncovered evidence for copper

mining with the location of rich sulphide deposits associated with stone mining hammers. Work on Langness will continue this season, focussing on the relationship between copper mining and the siting of promontory forts.

### **Experimental copper matte converting**

A campaign of experimental reconstructions in conjunction with an analytical programme has been initiated at **Bournemouth University** investigating the conversion of copper matte to copper metal. Preliminary experiments have succeeded in producing a fluid slag along with copper metal. Analytical results of the first phase of this campaign will be presented at the forthcoming Archaeometry conference in Mexico and should prove useful in identifying evidence for conversion in the archaeological record. Ultimately, it is the intention of the investigators to relate the results of experiment and analysis to finds from the British Iron Age and, in turn, consider their relevance to our understanding of the organisation of metallurgy in prehistory.

### **Geophysical surveys of early American blast furnace remains**

Resistivity, magnetometry and GPR survey were performed on the site of the first blast furnace in North America (1619–1622) at Falling Creek, Chesterfield County, Virginia, USA, where there may have been as many as 3 other attempts to start a blast furnace. Also on the site was a 1749–1781 forge. Resistivity showed anomalies highly suggestive of elongated structural remnants in a location consistent with habitation or working areas. Magnetometer survey showed the extent of a previously unidentified dam abutment, and several small anomalies suggestive of in-situ firing. In addition, a massive anomaly was identified which is quite suggestive of in-situ firing, probably of the furnace or the forge. Contributed by **Lyle E. Browning, Browning & Associates, Ltd.** with Archaeo-Physics, LLC. 2240 Chartstone Drive Midlothian, VA 23113, USA

### **Dates for iron bloomery site at, Burlescombe Town Farm near Willand, Devon**

**Cressida Whitton** has provided an update on the three adjacent iron smelting furnaces excavated by **Exeter Archaeology** at Burlescombe Town Farm, near Willand, Devon, originally reported in

HMSNEWS 39. The site had been located during an archaeological evaluation test pit for a proposed quarry development, leading to a full open area excavation in May/April 1998. The furnaces were found beneath an extensive spread of furnace slag (0.15m x 0.8m x 0.25m depth). Each furnace area had a diameter of c.0.5m, with one furnace having a large block of slag remaining in situ in its base. No tap slag has been recorded and the character of the deposit is in the process of being examined by **Gill Juleff** and **Chris Salter**. Two of the furnaces had their vitrified clay linings intact, including the preserved tuyère holes. The furnace lining had been sampled for archaeomagnetic dating\* by **Don Tarling** and **Peter Davis** of **Plymouth University** and this produced a most likely age range for both furnaces of between AD 650–750, although a date as old as AD 1000 could not be excluded. Two recently returned radio-carbon dates (SURRC) from charcoal samples that were impressed into the base of the iron furnace slag (probable fuel residues), now give confirmation of an Anglo-Saxon date for the furnace use (sample no. 678321, cal AD 690–976 at 2 $\sigma$  and 678320, cal AD 775–1000 at 2 $\sigma$ ).

### **New radiocarbon dates for iron-working sites on Exmoor**

Evidence for Late Iron Age/Roman iron smelting on Exmoor was reported in this newsletter in 1997 (35). Continuing work in the area by the **Exmoor National Park Authority/National Trust's, Greater Exmoor Early Iron-Working Project** and by **Exeter Archaeology** has now shown that iron smelting during this period occurred at a number of locations along the southern edge of the moor. The Greater Exmoor Early Iron-Working Project, led by **Gill Juleff**, has also recently secured a further six radiocarbon dates which demonstrate that iron smelting and working has been an important element of the archaeological landscape of Exmoor from the Later Iron Age up to recent times. The dates and the sites they derive from are as follows, in chronological order.

**Sherracombe Ford** — (Beta-132448; 2030 $\pm$ 50 BP) cal BC 170–AD 75 (2 $\sigma$ ). This is the second date for the site and derives from the second large slag heap, which appears to have formed at the same time as the first, (Beta-98972; 2000  $\pm$  50 BP, reported in HMS News 35).

**Blacklake Wood** — (Beta-132445; 1520±60 BP), cal AD 415–650 (2σ). This is a large undisturbed slag deposit in woodland in the Dulverton area. The assemblage at the site is dominated by uniform, low viscosity tapped slag reminiscent of that at Sherracombe Ford which suggests an important technological continuity into the early post-Roman period.

**New Invention** — (Beta-132446 and 132447; 680±50 BP and 720±50 BP), cal AD 1260–1400 and cal AD 1225–1310/1360–1385 (2σ). This is one of two similar medieval riverside smelting sites, again in the Dulverton area. New Invention comprises two small, discrete slag mounds of tapped slag. The second site lies less than a kilometre from New Invention and has evidence of two or more small buildings or structures associated with, again, two small mounds of slag.

**Horner Wood** — (Beta-133315 and 133316; 420±40 BP and 300±40 BP). cal AD 1425–1515/1590–1620 and cal AD 1480–1660 (2σ). Documentary evidence describes this site as an iron mill which was in operation during the late 16th century (Chadwyck Healey 1901). The site itself comprises the remnants of a large earth and stone dam across a valley bottom with an associated building complex and an extensive charcoal-rich debris deposit containing smithing slag. Smelting slag has also been collected from the site but it is not yet clear whether this predates or is contemporary with water-powered smithing and refining activities. Recent surveys of the wooded slopes surrounding this site have identified a high concentration of charcoal-burning platforms with interconnecting trackways.

The most striking feature of Exmoor's archaeometallurgical record is its exceptional state of preservation. Of the 14 smelting sites being investigated by the Greater Exmoor Early Iron-Working Project over half appear to be undisturbed. The Project is also examining numerous mining sites and a small number of smithing sites.

#### Reference

Chadwyck Healey, C.E.H. 1901. A History of part of West Somerset, Henry Southeran and Co., London.

**Iron Age smelting at Trelvelge Head, Cornwall**  
**David Dungworth** and **Justine Bayley** at the English Heritage Centre for Archaeology have recently begun work on the iron working debris from the Iron Age promontory fort of Trelvelge Head, Cornwall. The site was originally excavated in 1939 and has not been published fully before now. During excavation furnaces and hearths were recorded and large quantities of iron working slag recovered. The presence of iron ore sources within the fortifications of the site may be particularly significant. The Cornwall Archaeology Unit is now undertaking the full publication of the site. The current analysis by the English Heritage Centre for Archaeology of the surviving iron working evidence includes morphological examination of the slag. Out of 200 kg of debris there are 20 kg of ore, 81 kg of slags diagnostic of smelting and only 2 kg of slag diagnostic of smithing (the remaining slags are undiagnostic). Future work will include metallographic examination and chemical analysis (including ICP analyses of raw materials, waste and finished metal).

#### Research on nineteenth century structural iron

Approximately 60 tonnes of nineteenth century cast iron in the form of beams and columns and a small but significant quantity of wrought iron has passed through the **Heavy Structures Laboratory in UMIST's Department of Civil and Structural Engineering** since 1993. Acquisition of 'scrap metal' on such a large scale was necessary to provide specimens for an experimental programme with the aim of providing more reliable data for the structural assessment of iron in bridges and buildings. EPSRC supported experimental and theoretical research on the strength of cast iron beams and English Heritage and DETR have supported several site-based testing projects in iron framed buildings. Part of the iron frame to one building was removed during demolition, shipped to Paris, then used as the entrance piece to an exhibition in the Pompidou Centre on 'the Art of the Structural Engineer'. A similar piece of framing, dating from 1845, is now a splendid permanent exhibit on the UMIST campus.

A considerable amount of background historical research has been carried out, one of the early outputs of which was a paper by Tom Swales in the May 1995 Proceedings of the Institution of Civil

Engineers (Civil Engineering) 'The design, manufacture and reliability of nineteenth century cast iron beams'. The most recent technical publication is an Institution of Civil Engineers' Design and Practice Guide, sponsored by DETR and published last year by Telford, 'Structural appraisal of iron framed textile mills'. Both these publications give details of nineteenth century manufacturing processes and manufacturing defects. A great deal has been learned in the course of the research about how iron components were made. Work in progress includes a Technical Advice Note for Historic Scotland 'Scottish Iron Building Structures' and a technical paper reporting full-scale destructive tests on cast iron columns.

Structural analysis work has included the wrought iron roof to the **Royal Albert Hall** from which building wrought iron floor joists were obtained for testing. These date from c.1867, were probably imported from Belgium and have a high yield strength but very low toughness. One failed very alarmingly in bending by brittle fracture at room temperature, albeit at a high stress. Other wrought iron samples include material from one of the early railway bridges of Sir Thomas Bouch, the designer of the ill-fated Tay Bridge that collapsed in 1879.

Before disposal -of sections after structural testing, large pieces are cut out from which samples for mechanical testing and metallurgical investigations can be made. This residue from the full scale testing programme is a rich potential resource for the historical metallurgist. Peter Northover's group at Oxford are to study some of the wrought iron samples in parallel with their work on rails (see HMSNEWS 43). For details contact Mr Tom Swailes, Department of Civil and Structural Engineering, UMIST.

#### **Analysis of artifacts from the end of the Bronze Age**

A hoard of some ninety objects, consisting of unfinished and finished Sompting type socketed axes, axe fragments, sprue, and ornaments was found in 1993 on the Downs at **Tower Hill, Ashbury**, near Wantage, Oxfordshire. These axes, dating to the last stage of the British Late Bronze Age, the Llyn Fawr period, from the 8th through the 7th century BC, were shown by excavation to be connected with a settlement. A full study of the hoard, undertaken by **Peter Northover** of the

**Materials Science-Based Archaeology Group** at the **University of Oxford** funded by **English Heritage** is nearing completion. Because this is the least studied of any period of Bronze Age metalwork, other contemporary finds are also being analysed. The Tower Hill hoard relates to the production of axes, and provides useful data on how they were worked and finished after casting. Interestingly the sprue matches the compositions of the axes but the associated scrap does not.

Comparison with what contemporary material has been analysed, including the Llyn Fawr deposit itself, shows a number of different alloying traditions co-existing. Existing results suggested that leaded bronze was being used less frequently but it now seems more likely that the different workshops used either leaded or low lead bronze. The Tower Hill hoard is one of only two hoards with scrap and metalworking debris from this period. The other, Kings Weston Down, was found close to the rampart of a hillfort near Bristol and has been sampled for comparison.

**Any archaeometallurgy contributions for the summer 2000 issue, by 11 June to: David Starley, Royal Armouries, Armouries Drive, Leeds LS10 1LT. UK. Tel. (0113) 220 1919, Fax (0113) 220 1917, email david.starley@armouries.org.uk**

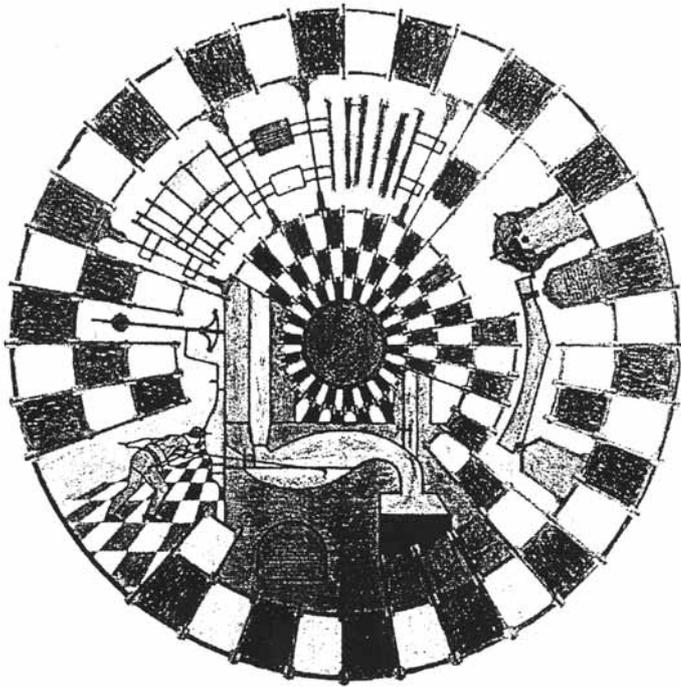
#### **The Henry Cort Millennium Project, Fareham**

The Society's measures to achieve recognition for the achievements of Henry Cort are bearing fruit. In 1983, to mark the bicentenary of his first patent, HMS commissioned two works. One was a book from Peter Singer, then lecturer at Fareham Technical College, who drew much of his information from a large tome amassed by Dr D A Mott of Sheffield University. The other was a commemorative plaque attached to what was once the wall of Cort's rolling mill.

Two years later a nearby school was renamed the Henry Cort School, ensuring continuing interest in Cort's work. More recently Fareham Borough Council embarked on a project which brought it

literally into the centre of the town.

Central to the project is “an environmental improvement scheme for a major length of West Street” (to quote the council’s promotional material) “a permanent and unique exhibition of sculptural wrought iron work produced by some of the finest contemporary artists/blacksmiths in Europe . . . the largest exhibition of its type ever held in Great Britain.”



**Commemorative plaque by Michael Hasse (Germany)**

*Materials wrought iron with inlay of pebble, clinker, and stone mosaic. The designs is based on the patents of Henry Con, and shows:*

- *the puddling furnace, with a puddler stirring the charge with a long pole (the “rabble”);*
- *rollers for making iron bars;*
- *a forging hammer.*

When this proposal was put to the Millennium Commission, they responded with a £641,000 grant, and selection of artists began. The project was advertised Europe wide, with designs requested for a band-stand, two gateways, street furniture, a large commemorative plaque and a variety of sculptures: “Materials and techniques to be those in use during the first years of the 19th century”.

The selection panel included two HMS members, notably this Newsletter’s Editor, and Paul Cort..

Their initial task was to sift through around 600 designs from over a hundred entrants. Eleven artists were eventually selected, including six from overseas (a Finn, a Pole, a German and three Russians).

The first piece was installed in mid-December, and the project should be complete and ready for viewing by the end of March (shortly after which I aim to publish a guide). For anyone who likes to see blacksmiths in action, the British Artist Blacksmith Association is planning a “forge-in” in West Street on the week-end of the 24th–25th June.

One outstanding mystery is the current whereabouts of Peter Singer. He seems to have disappeared in Brunei some five years ago. Has any member any clues?

Eric Alexander (former editor, British Blacksmith)

## **Isaac Wilkinson (1704–1784) and the Little Clifton Blast Furnace (1723–1781)**

Whilst being a small and sparsely populated county, we cannot claim to have produced many famous scientists, engineers or metallurgists.

One who appears not to be accredited with being born in Cumberland is Isaac Wilkinson, the father of the celebrated 18th century Ironmaster, John Wilkinson whose early days were spent in the Lake District, and whose later dynamic days were spent near the coalfields of Shropshire, Staffordshire and Wales. There have been more than 120 books and papers written about “Iron Mad” John, but few about his father, Isaac, who starting out life as a farmer, became a practical foundryman, metallurgist and engineer in his own right.

Several writers have suggested that Isaac was not a Cumberland man, others postulated he belonged to a Shropshire family. From church records Isaac was the son of a farmer John Wilkinson, born in the village of Lorton near Cockermouth in late 1704. He was baptised Isaac Wilkinson on 24th of January 1705 in Lorton Church.

When he was 23 years of age, he was married in Brigham Church on the 9th of November 1727 to Mary Johnston by Banns certified by John Stanley, Rector of St. Michael's Church, Workington (1726–1753).

Besides having a small farm, Isaac was an "overlooker" at the small Clifton blast furnace which began operations near the adjacent coalfield in 1723 and was operated for 58 years, mainly by the Cookson family who originally came from the Newcastle area.

Isaac's children were:-

- 1 John, who became the famous Ironmaster, was born in 1728. First married Ann Mawdesley in 1755, who died one year later, then married Mary Lee of Wroxeter in 1763.
- 2 William (1743–1808) also an Ironmaster.
- 3 Henry
- 4 Mary (1744–1796) married a dissenting minister from Leeds. Dr Joseph Priestly who is accredited with discovering oxygen, nitric acid, HCL and SO<sub>2</sub>
- 5 Sarah (1745–1796) married Thomas Jones of Leeds (surgeon) who later changed his name to Wilkinson.

There are several interesting stories associated with the Clifton furnace where Isaac Wilkinson worked. In 1755 there are several records of accidents, one which caught the eye was when Joseph Brown Jnr., son of the manager was killed by being crushed by the levers of the blast furnace bellows. In 1765 Gabriel Jars visited the plant and described the 12 foot "meilers" which made the coke for the furnace.

The best record of this furnace is that it was between 20–30' in height, the blast being supplied by water power. It was between 8' and 10' in width, the middle being narrower above and below. It was charged up a ramp with charcoal and coal in its early days. The coal came from the Boorlands and Reelfitz pits belonging to Sir James Lowther.

"Catscalps", or iron carbonate nodules came from Branthwaite and Limestone from Dean and Brigham for the flux. The metal was run into furrows made in a bed of sand. 2 - 3 tons were run out in 24 hours. A small adjacent foundry made many types of light castings for the local farming community.

### **One analyses of Clifton Iron:**

(C) 3.36%. (Si) 1.54%, (Mn) 0.71%, (S) 0.16%, (P) 0.37%.

This furnace was closed down in 1781 by an action of James Lowther (1736–1802) in a fit of pique, when he accused his agent of being in league with the owners of Barpot Works who were receiving coal cheaper than he expected. Wicked Jimmy or the Bad Earl who had made the agreement tried every conceivable avenue to escape his commitments which no doubt was costing him money without success, so he closed all his pits at a day's notice. Prior to this action it was calculated that some 2 million tons of coal had been extracted from his collieries and he had very recently had two large atmospheric engines installed down his pits.

Sir James's tantrums figured prominently in his very erratic life and it probably gave him a little satisfaction to thwart a profitable little swindle which no doubt was going on. Regrettably, Lowthers' pumps also drained Cooksons' pits at Clifton which were immediately "drowned out" and he was forced out of business.

Why I have dwelt on this old furnace is because in the 1970's, D.R. Wattleworth and myself did some work on this old site and found a single "bear" which someone had tried to cut without success with an oxygen lance. The old site I think has changed hands on a few occasions and the new owner has turned up several "bears" weighing 2 ½–3 tons each now strategically placed as decorations in front of his new bungalow.

As in the first "bear", lead again is predominant in all the unearthing masses as well as several well defined crystals of unknown elements glistening in the sun.

To return to Isaac Wilkinson. He moved with his family to cast ironware at both Backbarrow and Leighton furnaces and it is not absolutely clear if he did own or lease the dwelling house "Bare Syke" at Backbarrow. In 1998 a plaque was erected by a group of engineers to commemorate Wilkinson's contributions to ironmaking in the area.

Isaac Wilkinson took out several patents for irons, rolls for crushing malt oats, etc including bellows

and collars. At Bersham, besides casting ironware, he experimented with casting cannons. In the mid 1750s, Isaac Wilkinson lived in Wales and collaborated with others with West Cumberland Associations at Merthyr Tydfil. These other investors were Anthony Bacon and William Brownrigg. This should have been a lucrative investment for Wilkinson but in 1761 he became insolvent. Isaac left Bersham to engage in another business in Bristol which also failed and he was dependent upon his two sons until he died in 1784 aged 80 years.

### References (at Whitehaven record Office) concerning Isaac Wilkinson's birth and marriage.

- 1 Lorton Church records. Box 457 & 459 (1686–1718)
- 2 Brigham Church records.
- 3 Cumbria Family History Newsletter No 22, February 1983 "John Wilkinson 1728 - 1818" by Rev L.F. Pelter, Rector of Willey.

### Measurements of Clifton "Bears" 15/7/1998.

- No 1. 1.1m x 0.6m deep.
- No2. 1m x 0.8m x 7m deep.
- No 3. 1.2m x 1.1m x 0.6m deep.
- No 4. 0.7m x 0.5 x 0.6m metal and slag.
- No 5. 0.5m x 0.4m x 0.4m metal and slag.

John Y Lancaster.

## Correspondence

### Apologies

We wish to apologise to Robson Davies who, to avoid ambiguity in the historical record, would like to amend a paragraph on page 2 of No. 42 of HMSNews. The sentences relating to his contribution should read:

Robson Davies gave a brief account of the history of Millom Ironworks. The works had been fortunate in having its own source of low phosphorus ore which enabled it to produce merchant pig iron for acid steelmaking for foundry use. With a sharp fall in demand for acid steelmaking in the 1960s Millom saw the need to become steelmakers themselves, adopting the novel spray steelmaking process which Robson described. Despite the success of a pilot plant, the development was stopped by the Iron and Steel Board. (To whom *big* was *beautiful* — PH)

### Help needed

**From Christine Grainge** of Kent Christine (a mature student) is working on Continental documentary evidence of early iron-making. She has found evidence that the iron deposits of North Devon and the Brendon Hills might have been exploited in the early Middle Ages. Can anyone offer references to onsite evidence of this?

**From Rolande Haase of Ottobrunn Germany.** Rolande is writing a biographical treatise about Andrew Carnegie. He is looking for a source of any biographical data for Thomas Dodd and/or F.W. Webb who held patents in the late 19th century relating to steel covering of wrought iron railway rails. F.W. Webb was a Director of the LNWR iron and steel works at Crewe.

**Katherina Decker (a student at Cologne)** is looking for information on the use of lead (in ancient times) for "lost lead casting". She is looking at ring headed pins and has reference to a pin found at Magheramore, Co. Donegal, Ireland, which is made of lead. (R.Wamer 1998, 'An Iron Age lead pin from County Donegal', In M.Ryan (ed) *Irish Antiquities. Essays in memory of Joseph Raftery*). Does anyone know where she might find anything else?

**For contacting any of the above please contact the Hon, Gen Secretary, Peter Hutchison, 22 Easterfield Drive, Southgate, Swansea SA3 2DB. Tel 01792 233223 e-mail 100044.1633@compuserve.com**

**Dr. D.M. Lilley** Dept of Civil Engineering, Cassie Building, University of Newcastle Newcastle upon Tyne NE1 7RU. E-mail: d.m.lilley@ncl.ac.uk. is looking for information about his grandfather (on his mother's side) who was **George William Langford**, and who was employed by the Admiralty as some form of inspector for the quality of steel used to construct British warships.

My mother, who died three months ago, told me that he worked in this role during the First World War and the years following the that war. At the time of the second World War he was kept on by the Admiralty beyond the normal retirement because he had skills that were rare at the time, and were important to the war effort. He was working in Glasgow in 1913, and also worked in Portsmouth and Newcastle.

I was told that each inspector has his own mark or stamp which was used to indicate that a piece of steel had passed its quality test (whatever that involved), and I would like to find out what was my grandfather's mark.

Do you know of any source of information that might help me to identify my grandfather's mark, or provide a history of his working life?

**The Hon. Editor Amina Chatwin**, The Coach House, Parabola Close, Cheltenham GL50 3AN. Tel 01242 525086 welcomes contributions for HMSNews by, the end of February, June 11th, and November 5th. If possible on Apple Mac or ascii.

**Membership Secretary, Mrs Lesley Cowell** "Little Gables" 17a Thorncote, Northill, Beds, SG18 9AQ. Direct e-mail address is: lesley@mcowell.flyer.co.uk.

**Website for HMS now hist-met.org**