

**Gunpowder & Explosives History Group**

**Newsletter 7, Autumn 2003**

**GEHG AUTUMN MEETING**

**Saturday 1st November 2003**

**Royal Naval Cordite Factory, Holton Heath, Dorset**



- 10.30 Gather at Holton Heath for coffee
- 11.00 Site tour guided by members of the Royal Naval Cordite Factory Association
- 13.00 Lunch, please bring a packed lunch, but drinks will be available
- 14.00 Afternoon meeting including Annual General Meeting
- 16.00 Disperse'Please

**Advance notice**

It is proposed to hold the Spring meeting of the GEHG at the RGPM Waltham Abbey on Friday 7 May. The suggested theme of the meeting is saltpetre. A note giving further details of the meeting will be sent out in the New Year.

## **GEHG Spring Meeting at the Purfleet Heritage & Military Centre and Tilbury Fort, 17-18 May 2003**

### **THE MAGAZINES AT PURFLEET AND TILBURY**

Our recent meetings have introduced us to some of the broader aspects of the history of gunpowder and explosives, and this visit was no exception. At Purfleet and Tilbury we were able to appreciate the integral part that magazines played in the technology of explosives production, by providing the correct storage facilities without which powder would be subject to disintegration and decay. Having spent a day in the surviving 5<sup>th</sup> Magazine at Purfleet, the 20 members of the GEHG can provide testimony to the constant but low temperature to be experienced there. The thick walls served not only to maintain standards of temperature and dryness, but also to confine the effect of an explosion on a site where five magazines built alongside each other from the 1760s, were each capable of holding 10,000 barrels of powder or more.

We were able to meet in Magazine 5, only because the structure has survived thanks largely to the efforts of a group of volunteers mobilized in 1992 to form the Purfleet Heritage and Military Centre. Their chairman Alan Gosling, secretary Sue Gosling, and several helpers, were our hosts for the day. Especial thanks are due to Alan for his introductory talk and tour of the site, and to Sue for providing hot drinks and sandwiches. Sue was also the custodian of the key for the Proofing House, later to become the Barrel & Hoop Store, and later still a hall with community association facilities. All in all, this was the sort of day our members enjoy – personally challenging but infinitely interesting.

The venue lent itself to the theme of **MAGAZINES**, and our speakers addressed this subject on the basis of their own experience and research. Using an OS map of 1924 **Alan Gosling** introduced us to the layout of the site, emphasizing the importance of the riverside location for security and the movement of stores. The significance of the magazine walls has already been mentioned. These were on average some 4ft 9ins thick with a central cavity filled with straw, and there was a 2ft 6ins void under the floor. The powder barrels were moved by travelling cranes (still to be seen within the rafters), and stored within wooden-walled compartments. Powder was tested in the Proofing House. The significant features are obscured by later uses, but refurbishment monies are now being made available by English Heritage. A tour of the site enabled us to examine this building, and also to appreciate other features such as the Clock Tower (the original weather vane survives, a companion to an identical one in Horse Guards Parade), and some surviving boundary walls. Houses now occupy the major part of this important site, but at least enough survives for us to appreciate its mode of operation.

In the afternoon we had five further talks. **Brenda Buchanan** addressed the question of ‘Purfleet, Benjamin Franklin, and the Lightning Conductor Dispute’. In 1777 the Board House with its administrative offices was struck by lightning. The five magazines close by were not damaged, but the near-miss led to an animated debate on the effectiveness of lightning rods, especially the relative merits of the pointed or rounded styles. The former, pioneered by Benjamin Franklin, were to win the day despite the misgivings of King George III. An account of this episode, as part of a

larger paper, is to be published in a collection now in preparation. **Beryl William's** book on *Captain Pilkington's Project: The Great Works at Weedon, 1804 to 1816* (pub.privately, 2003), formed the basis for a well-illustrated talk which helped explain the intricacies of this still inaccessible site. The references to other places with which we are familiar and have indeed visited recently, including Waltham Abbey, Woolwich, and Purfleet, helped place Weedon in perspective, especially as some workers from Purfleet were sent in 1807 to help establish the new magazines. **Alan Crocker's** talk on 'The Liverpool Gunpowder Magazines' provided further evidence of the inter-dependence of our areas of research. This account of the several magazines built from the 1730s around the mouth of the Mersey, storing powder for trade rather than military purposes, can throw light on conditions in other magazines built for similar use. For a later published version of this study under the title given above, see *Industrial Heritage*, vol.29 (Summer, 2003).

The last two papers demonstrated the importance of observation, especially when encountering the familiar in an unexpected setting. The case presented by **Kenneth Major** was that of a part-demolished gunpowder tower at a continental castle, where the peeling away of the outer casing gave an unexpected insight into the strength of construction of the powder magazine. The example observed was at Heidelberg, but the generalization remains true for all such ruins and the invaluable details they may reveal to us. **Wayne Cocroft's** theme was 'Spandau Explosive Works', and he was able to show us features relevant to our present theme from a site that was of major significance, first for the Prussian and then for the German state.

On the following morning we re-convened outside the impressive Water Gate of **TILBURY FORT**. Designed by Sir Bernard de Gomme, Charles II's Chief Engineer and Surveyor General of the Ordnance, it was built in the last quarter of the 17<sup>th</sup> century. The Fort remains substantially unaltered, despite developments in the 1860s when the defences along the River Thames approach to London were being improved. Once inside we were able to explore in particular the two powder magazines, built in 1716 with some modifications over the years, especially the 1860s. The context of these magazines, within a fortress, may have been different from that of the major repositories at Purfleet, but the function was essentially the same and so common features could be recognized: raised floors to prevent damp rising; partition walls, in this case of brick, to separate the stores; and vertical slits or small offset openings rather than conventional windows, to name but a few. A firing display enlivened our visit, especially after **Bill Curtis** had provided some professional advice. As we left **Angus Buchanan** returned to the small granite plinth from Culloden Moor, at the Water Gate. Recently dedicated by the Speaker of the House of Commons in commemoration of the arrival by boat at that spot of Scottish prisoners, punished for their loyalty to the Stuart cause in 1745-46, this provided us with a vivid reminder of the complexity of our island history.

Brenda Buchanan

## VAUBAN POWDER MAGAZINES

David Harding

Gunpowder is a valuable product that needs to be protected against theft, but it also requires to be kept dry, and safe from stray sparks. The security of the powder supplies stored within a fortress could ultimately decide the outcome of a siege, through a combination of the loss of powder and the devastation an exploding magazine might cause. The late seventeenth century fortress engineer Marshal Vauban took great care in the design of powder magazines. David Harding has sent photographs of two Vauban magazines located in fortresses in the Pyrenees to defend France against Spain.



Narbonne



Villefranche de Conflent

## HARRISON AINSLIE AND THE MELFORT POWDER WORKS

Peter Sandbach

The members of the Newland Furnace Trust in Cumbria, have just spent another Friday night casting counterfeit firebrick. The genuine article is a tapered block weighing about 30 kg, produced by Richard Graves at the Lucock Brickworks about 150 years ago. The forgeries will not stand the heat of the furnace, being composed of dyed concrete and vermiculite, but they should serve to prop up the remains of the original firebrick lining, which is alarmingly unsupported.

The Newland Furnace Trust is closely associated with the Cumbria Amenity Trust (CAT) Mining History Society. CAT has explored and recorded Harrison Ainslie's mines, three of which are still accessible underground.

Newland Furnace was built in 1746 by Richard Ford, his son, William, Michael Knott and James Backhouse, the company becoming known as the Newland Company. They were preceded in this area by the Backbarrow furnace, built by William Rawlinson and John Machell in 1711 and by the Duddon Furnace, built by Kendall, Latham and Company in 1736. It is worth mentioning another furnace here, because it became a gunpowder works. The Low Wood furnace was built in 1747 on the site of an earlier bloomery forge. The lease was assigned to the Backbarrow and Newland companies in 1782. They ran it for three years and then dismantled the premises. At the end of the lease in 1798 it was agreed with the owner that he would not allow an ironworks on the site for the next 15 years. The Low Wood powder works was established in 1799.

The eight charcoal iron furnaces built in the Furness area in the eighteenth century, were more than the local woodlands could support, the established furnaces having secured long term contracts with the woodland owners. Charcoal is bulky and expensive to ship. The Newland Company needed a furnace near to untapped woodland, and they found it in Scotland. Lorn Furnace was built at Bonawe by the Newland Company in 1752 on land leased from Sir Duncan Campbell of Lochnell for 110 years. They leased more land from the Earl of Breadalbane to secure the supply of charcoal. Kendall, Latham and Company built the furnace at Goatfield, near Inverary in 1775, presumably for the same reason that the Newland Company expanded to Bonawe. Goatfield is also known as the Argyle or Craleckan furnace, and still stands in the village now known as Furnace.

Agnes Ford inherited Richard Ford's share in the Newlands Company. She married Dr Henry Ainslie and the company became known as Knott, Ainslie & Co. in 1785. George Knott inherited his father's share of the business. On his death, Matthew Harrison became sole manager of the company as a trustee of his will. Michael Knott inherited the shares, and on his retirement in 1812, Matthew Harrison bought them, the company name becoming Harrison Ainslie & Co (referred to hereafter Harrison Ainslie).

The valuation of the company for this purchase is worth quoting in full:

Ironworks and premises at Spark Forge	£2,500
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Newlands Mill, land, etc.	£1,800
Land at Barrowhead and Quay	£700
Moss-land at Newland	£500
Croft End estate in Lowick	£400
Field in Pennington	£200
Lease of land and woods in Scotland	£41,200
Furnace and buildings in Scotland	£3,400
Furnace, forge etc. at Newland	£2,500
Forge, furnace etc. at Nibthwaite	£2,000
Iron ore works at Pennington	£2,000
Total	£57,200

There are several curious points about this valuation. 70% of the value is in 60 year old wood leases. The company seems to own only one mine, and that recently discovered. There are no ships.

The Backbarrow Company began mining in Henning Wood in 1713 and worked the Old Hills area from 1713 - 24. They were largely self sufficient in ore and able to export in quantity from about 1774, when 9000 tons was sent away by the Backbarrow and Newland Companies. Mining by the Newland Company seems to have been carried out on short leases in partnership with others. They had mines in the Buccleuch lands on Lindal Moor which led them to believe that the ore continued into the Muncaster land. A lease was granted in 1799 of an area which later became the Whinfield, Gillbrow and Diamond pit mines. This is the iron ore works at Pennington, valued at £2000.

Harrison Ainslie bought the Backbarrow Company after it had been advertised for sale in 1824 and the Duddon Company in 1828. They then owned all the surviving charcoal ironworks in Furness, plus the Lorn furnace and had a near monopoly of the Furness orefield.

Matthew Harrison died in 1824. His son Benson inherited his share of the business and the company's general manager, Richard Roper joined the partnership. The new management, together with the end of a 20 year depression in the iron trade brought in a period of 40 years of prosperity for the company. The importance of Richard Roper is seen in the keystone of an arch at Newland marked "HA & R Co 1854". The company embarked on an energetic programme of shaft sinking, and with the wealth of Lindal Moor at their disposal, they became increasingly famous as iron ore merchants.

The Mineral Statistics record mine ownership after 1872 and show the following mines as Harrison Ainslie's:

- Bercune, bought from the Wigan Coal & Iron Co. in 1898.
- Crossgates No2, worked from 1889 after the collapse of the Ulverston Mining Company.
- High Crossgates, worked from 1885 - 90 after the collapse of the Ulverston Mining Company.
- Gillbrow, worked until 1881.
- Green Lane, owned from 1899 - 1913 but not worked after 1903.

Lindal Cote, worked from 1887 - 1913 after the collapse of the Ulverston Mining Company.

Lindal Moor No1, worked until 1913, producing 303,870 tons in 1884 and 90,012 tons in 1913, but these figures seem to be a total for all the Harrison Ainslie mines. For comparison, The Barrow Haematite Steel Company dug 510,909 tons in 1884, 120,724 tons in 1913. Kennedy Brothers Roanhead mines produced 213,901 tons in 1884 and 179,748 tons in 1913.

Lowfield from 1905 - 13, but not worked.

Parkside, taken over from the Parkside Mining Co. in 1893.

Pennington No1, taken over from the Parkside Mining Co. in 1892.

Pennington No3, taken over from the Barrow Haematite Steel Co. in 1898 and worked until 1913.

Whitriggs No2, worked until 1881.

It was during this period of expansion and investment that Harrison Ainslie went into gunpowder production. The site at Melfort, not far from Bonawe, but the other side of Oban, was bought in 1838 but the mills were not established until 1853. The Ulverston Heritage Centre have some letter books of Daye Barker & Co. and transcripts of them. A letter dated 4<sup>th</sup> December 1866 for example refers to an explosion at Melfort in which one man and two boys were killed. The correspondent was unsure whether it was a mill or a granulating house which had exploded. The mills closed in 1874.

It was the possibility of making a similar transcript of a document in Barrow Record Office which sparked this article. It is the letter book of the Melfort works from 1859 - 65, BDB2/20. Amongst other things, there are letters instructing the captains of the smacks *Melfort* and *Earl of Glasgow*. These vessels seem to have been the main means of communication with the Melfort works, operating between Melfort, Oban and Glasgow.

Harrison Ainslie are said to have owned three sloops, six schooners, and part owned another three schooners. These vessels are not easy to identify because the managers of Harrison Ainslie held shares in at least eighteen ships. It is not possible to say which shares were held personally and which were as company nominees. These are the ones where they held more than 16/64ths or were managed by Harrison Ainslie.

*Ellen & Sarah*: 53 ton schooner built in Ulverston in 1837 and owned by Roper & Co.

*Eliza*: 53 ton sloop built in Ulverston in 1842. Richard Roper held the shares.

*Earl of Glasgow*: 35 ton sloop bought by Ashburners (Shipbuilders) of Barrow from Harrison Ainslie after being wrecked on Walney in 1852. Repaired and sold to a Fleetwood fisherman. But the vessel seems to be back in the company service in 1859 from the Melfort letter book.

*Jane Roper*: 93 ton schooner built in Barrow in 1852. James Davies, a rival ironmaster, had four shares, William Ainslie held eight shares and Thomas Roper two. Aymer Ainslie bought four shares in 1872 and became managing owner in 1875. When she foundered off the Frisian Islands in 1886 she was owned by the company's shipping agent, James Geldart.

*Gillbrow*: 87 ton schooner built in Liverpool in 1856 for Thomas Roper. Sold 1874.

*Lindal Moor*: 87 ton schooner built in Liverpool in 1856 for Thomas Roper. Sold 1874.

*Melfort*: 36 ton sloop built at Chester in 1856. Thomas Roper held 8 shares and Montague Ainslie 16. Sold 1875.

*Whittriggs*: 77 ton schooner built in Liverpool in 1856 for Thomas Roper. Sold to James Ashcroft in 1874, James Geldart bought 32 shares in 1880.

*Newland*: 28 ton sloop built at Tarleton in 1859 for Thomas Roper. Sold 1874. The vessel frequently carried firebrick and ironstone to Ulverston from Whitehaven.

*Lorn*: 69 ton sloop, at least the second with that name. She was built at Ellesmere Port in 1864 for Thomas Roper, ironmaster, of Newland Furnace. The shares passed to Aymer Ainslie on his death in 1876, but she was owned by J Gilbert (A misspelling of Geldart?) when she was wrecked on the Isle of Man in 1890.

*Mary Atkinson*: 93 ton schooner built in Ulverston in 1868. Aymer Ainslie held 14 shares and was managing owner.

*Warsash*: 67 ton schooner built in Ulverston in 1869 for Aymer Ainslie. Sold to James Geldart in 1890.

The *Mary Atkinson*, *Warsash* and *Lorn* sailed as far as France with pig iron for the Honfleur cutlers, but the majority of the recorded voyages are more mundane, charcoal from Scotland, iron to Liverpool or Barrow. Harrison Ainslie may also have ventured into steam, because in 1862 they were offering the hull of an iron screwsteamer for sale, but it might have been bought for the engine and boilers.

Abraham Derby succeeded in smelting iron using coke in 1709, so all of the company's blast furnaces, like their schooners were out of date before they were built. Henry Schneider brought the new technology to Furness with a vengeance. Working first with James Davies and then with Robert Hannay, he explored the mineral potential of Furness, taking a useful lease of Whittriggs mines in 1843. In 1850, Schneider and Hannay made a discovery at Park that exceeded the wealth of Lindal Moor. Following his example, Myles Kennedy took the lease of the adjoining Roanhead royalty where he found ore on a slightly smaller scale. Schneider and Hannay went into iron production on a grand scale. When their first two furnaces were blown in in 1859, Harrison Ainslie were outclassed in mining and smelting. But the Barrow ironworks did not stop there. Henry Schneider set up a steelworks to convert the iron to steel, using Bessemer converters and in 1864, the Barrow Haematite Steel Company took over Schneider and Hannay.

I have no information on how the Hampshire Haematite Iron Company came to be part of Harrison Ainslie, but James Dickenson was sent to manage the Warsash furnace in 1867, and the schooner *Warsash* was launched two years later. The furnace relied on an ample supply of wood, which was converted to charcoal in a chemical works next door. The chemical works closed in 1882 and the Warsash furnace closed shortly afterwards.



The Duddon furnace is reported to have ceased production in 1867, but there is a reference to the furnace being in blast, if only briefly, in 1873, while Newland was being converted to the hot blast process.

Faced with an outdated process, decreasing ore reserves and increasing pumping costs, the Ainslies went into coke smelting, but not as Harrison Ainslie. The board of the North Lonsdale Ironworks Company held their first meeting in November 1873, with W G Ainslie as chairman and Myles Kennedy as vice chairman. Also present were Aymer Ainslie, Mr Ridehalg, Mr Woodburne, Mr Rawlinson, the manager, Edmund George Tosh, and Edward Wadham, mining agent to the Duke of Devonshire, amongst others, probably the most important character in Furness mining. Their first furnace was blown in 1876 and the fourth in 1879. The flow of ore from Furness was now reversed, and ore was being imported from Northern Ireland and Spain.

Newland Furnace closed in 1891 with large stocks of unsold pig iron, leaving Backbarrow as the last surviving charcoal ironworks in the country. Writing in 1908, Alfred Fell reports that “the old furnace struggles on bravely, and there is no reason to doubt that it will survive to celebrate its bicentenary.” That it did, and lasted another fifty years. With the company in increasing difficulties, Harrison Ainslie commissioned an independent mining engineer, Mr J D Kendall, to make the case for a reduction in rent and royalties in 1893. They had been paying the Duke of Buccleuch £2000 a year in rent and 1s 8d per ton in royalty. He concluded that a fair rate would be £500 a year rent and 10<sup>1</sup>/<sub>2</sub>d royalty. The report was sent with a submission that they were the victims of “The extreme depression which characterises the iron trade and the cheap production of haematite iron made from Spanish ore”. The letter also explained that owing to the demise of the senior partner, Mr W G Ainslie “who, for the past 30 years has had the entire control and management of the firm’s business”, the directors would be seeking to convert the firm into a limited company. This came about in 1899 through an amalgamation of Harrison Ainslie with part of the Barrow Haematite Steel Company’s mining division and the iron mines of the Wigan Coal and Iron Company. The new company would put all the mines from Crossgates to Lindal Cote and from Mouzel to Gillbrow under a single management. By sinking the Crossgates No5 pit behind the Melton Hotel, they might have solved the pumping and haulage problems which had beset the mines. The new company had an issued share capital of £160,000. Harrison Ainslie provided three directors and the chairman and BHS and the Wigan Coal and Iron Co. provided three directors between them. Alfred Hewlett and Francis S Ainslie were appointed as managers.

There is a small field on Lindal Moor which can still be seen today due to its distinctive shape. Harrison Ainslie had taken ore from this area as early as 1889. But it was not Buccleuch land. The ore belonged to the Earl of Derby, who had leased the field to the Millom and Askham Company. The ensuing lawsuit, in which it was alleged that Harrison Ainslie had furtively carried away 20,000 tons of ore was settled in 1903. The Crossgates No 5 scheme was never completed. In 1904 the receivers were called in. The company was re-formed under the old name, but completely new owners. The new company had an issued share capital of £325,000. They embarked on a scheme to build a new power station at Maskels and electrify the pumping and winding at Grieveson, Brecune, Lowfield, Diamond pit and Gillbrow. The scheme

was completed, but it was not sufficient. Harrison Ainslie's mines closed for the last time in 1914, and that was the end of the story, except for the Backbarrow furnace, which, as the Charcoal Iron Company, carried on until 1964.

Harrison Ainslie's London office was at 3 East India Avenue

### References:

- The Early Iron Industry of Furness and district*, Alfred Fell  
*The Iron Moor*, Alen McFadzean  
*The Lancashire and Westmorland Mineral Statistics*, Roger Burt et al  
*Gunpowder Mills Gazetteer*, Glenys Crocker  
 Barrow and Lancaster Shipping Registers at CRO, Barrow  
*A Short History of Warsash*, FWL  
*Guide to the Iron Trade of Great Britain*, Samuel Griffiths, 1873  
 Directors Minutes of the North Lonsdale Ironworks at CRO, Barrow, BDB47, box 16

### HARRISON AINSLIE & Co. AND THE MELFORT POWDER WORKS: A POSTSCRIPT

The article by Peter Sandbach is full of interesting details about the history of this important Cumbrian iron company with its outpost in Scotland at Bonawe east of Oban, and it takes us to the brink of providing much-needed information about their Melfort Gunpowder Works south of Oban, but then it draws back at the point where we would like to know more. The reference to an entry from the Daye Barker & Co. Letter Books for example, referring to an explosion at Melfort in December 1866, is tantalising. May we encourage the author to tell us more? Similarly, we are given a list of the vessels operating from the Melfort works, and would love to know not just their names and owners, but the volume of powder they were carrying and its destination. Also, it is easy enough to understand that the estate at Melfort was desirable as a source of charcoal for the Cumbrian iron masters, but by what stages did they come to think it would be profitable also to use the charcoal on site for gunpowder making?

We are able to ask these questions because the interest of our Group in the Melfort Gunpowder Works is well-established, especially as some of us had the pleasure of visiting the site during a cold and snowy trip to Scotland in April 1990. The expedition to Scotland was a successful piece of organization by Alan and Glenys Crocker, for it encompassed visits to some ten sites. Alan gave a full report in Newsletter 7 of the GMSG (May 1990). Many of the buildings at Melfort had by then been converted into time-share accommodation so our access to the site was limited, but we had the advantage of the entry in the *Gunpowder Mills Gazetteer*, edited by Glenys Crocker and then recently published (1988). Here, Figure 2 provides a sketch plan of the works in 1870, just after the explosion referred to above, and pp.47-8 provide a brief survey of their known history from the purchase of the site by Harrison Ainslie & Co. in 1838, the establishment of the powder mills in 1853, and their closure some twenty years later. The site has also been covered by the Royal Commission on the Historical Monuments of Scotland, one of whose officers, our

member Miles Oglethorpe, kindly provided information on the situation at the time of our visit.

This contribution by Peter Sandbach reminds us that we are still have much to learn. It supplies us with so much new and welcome information about the iron working business of Harrison Ainslie & Co., but leaves us greedy to know more about their gunpowder making activities, especially as recorded in the Melfort Letter Book, 1859-65, BDB 2/20.

Brenda Buchanan

## **EXTRACTS FROM THE *CAMBRIDGE CHRONICLE***

*Peter Filby*

During the course of his local history research in the *Cambridge Chronicle* Peter Filby has come across the following references to gunpowder mills. Spelling and punctuation follows the form of the articles.

### Explosion at Brede powder mills 1787

Wednesday last, between ten and eleven o'clock in the forenoon, Brede powder-mill, belonging to Messrs. Brooke, Jenkins, and Co. blew up, by which accident two men, who were in it at the time, were most miserably burnt, one of whom, named James Gurfel, languished till the next day, and then died in great agony; and the other lies with but little hopes of recovery. The deceased though he had the presence of mind to strip himself of his clothes immediately after the accident, was scorched from head to foot, and in that miserable condition ran home to his family, who lived about a quarter of a mile off. The other in some degree lessened his suffering, by jumping into a pond and extinguishing the fire about him. Had they been at the other end of the mill, where the powder was running, they must have been blown to atoms. The explosion was felt at Westfield, a few miles distant, like a shock of an earthquake. The accident was occasioned by driving a large iron bolt from the troughs. A powder mill at the same place blew up some years ago, when a man was blown to pieces, whose limbs were afterwards found scattered a great distance from the other.

21 July 1787, page 2

### The Government's purchase of the Waltham Abbey mills 1787

Also an account of the sums voted for the ordnance department during the last four years.

That a copy of the agreement for the purchase of the powder mills at Waltham Abbey, be laid before the house. That an account of the men employed in the royal powdermills at Feversham, with an account of the quantity of the powder manufactured there during the last year, be laid before the house.

The purchase of the mills at Waltham he (sic Mr Pitt) approved of, as we should have the greater opportunity of making experiments in the manufacture of our gunpowder, which our officers had found, during the last war greatly inferior to that of the enemy.

22 December 1787, page 2

Explosion at the Battle powder mills 1787

Early on Wednesday morning of the magazine of gunpowder, belonging to Mr Hervey at Battle in Sussex, by some unknown accident took fire and immediately blew up.

It happening so early as four o'clock in the morning it fortunately prevented any lives being lost, as none of them were at that time at work.

There was about twenty hundred weight of gunpowder and the whole of the magazine and the adjacent houses were blown to atoms, and the shock occasioned at the explosion, was felt at an immense distance.

It is not known by what accident this misfortune was occasioned; but it is conjectured that an iron had by some means have slipped into one of the bags that contained salt-petre, and which having been emptied the trough where the different ingredients fed in the manufacture of powder are thrown for the purpose of being pounded happened to come into contact with the pestle, a large beam of hickory, and consequently very hard, the collision it is conjectured; produced the fire, which occasioned the explosion of the powder, and all the consequences that attended it.

29 December 1787, page 1

Explosion at the Dartford mills 1796

Four persons lost their lives by the explosion of the powder mill at Dartford, on Wednesday last, who were literally blown to pieces. The shoulders and parts of the body were thrown over a stream which turned the mill above one hundred and fifty yards; and part of a skull was found at a considerable distance; several other parts were also found, all of which were much scorched, and black with the fire; the timbers of the premises were thrown over the heath, to the extent of half a mile; the trees in the neighbourhood were stripped of their bark, not a vestige even of the foundation of the mill is left, and houses about Dartford, Crayford, and other places adjacent, experienced its effects, in having their windows broken: the father of one of the sufferers had left the premises about half an hour before the explosion took place; and one of the persons lost was going into the mill with a rope as it blew up. The cause is not at present known.

20 August 1796, page 2

Explosion at the Hounslow mills 1796

Between eight and nine o'clock on Saturday morning, the Powder-Mills belonging to Mr Hill, at Hounslow, owing to wheels of the mills not being properly supplied with oils, took fire, and blew up with a dreadful explosion which not only terrified the inhabitants of the place but alarmed the cities of London and Westminster and the

houses of the people several miles around the Metropolis experienced the effects of its powerful .....

Three men who were at work in the Manufactory, (Parry, Hollinge, and Winterman) who all resided near the spot, have lost lives, and the flames from mill communicating to a punt in the mill river, in which were 30 barrels of gunpowder, set fire to the whole, which blew up with a terrible explosion, the man who had the care of the vessel being shattered to pieces, and the boat blown out of the water. Not a vestige of the mill is left standing, and Hounslow Heath is covered with bricks, tiles, and the mangled limbs of the unfortunate suffers.

The houses in Hounslow, Isleworth, and even Brentford, have suffered considerably; the Crown Inn, at Hounslow, and the Kings Head, at Brentford, have not a whole pane of glass in the windows; and the inhabitants were so terrified near the spot, that they not only forsook their dwellings, but a great number of women, with their children, through fear, appeared half naked in the streets, expecting every moment that their houses would fall and bury them in the ruins. The scattered limbs of the unfortunate victims, who for the most part have left large families, to lament their loss by this unforeseen event, were, by order of the Magistrates, collected together and disposed in the Church Yard. The loss of this valuable Manufactory is estimated at 20,000l. A similar disaster happened to the same concern about 20 years ago.

30 November 1796, page 2

#### Explosion at the Faversham powder mills 1802

A most melancholy scene was witnessed at Feversham on Tuesday night, by the blowing up of the Powder mill, shaking every house to the very foundation, doing much damage to the buildings, and destroying windows without number. No certain cause for the accident can be assigned: as, on these melancholy occasions, no one is left to give us the real cause. As soon as any one would venture near the spot, it was discovered that five poor fellows, and two horses, had lost their lives, their limbs being scattered in all directions, by the explosions. The unfortunate men were all workmen in the mill.

On a further search, another poor creature was found, named Symonds, still alive, but dreadfully torn and mangled. Instant care was taken of him, and every means used to get from him the cause of the accident; but he was unable to utter a word, and died in about an hour and a half. The general opinion is that the grinding machine was going with too much velocity, and that the wheels had in consequence taken fire.

Some peculiar circumstances on this occasion are worthy of notice:- the gentleman, who conducts the business, had left the door of the mill only two minutes before the explosion, and thus escaped death; and one poor fellow had only a minute gone into the mill and was destroyed.

8 September 1802

## GUNPOWDER POEMS

Arthur Percival



Thomas Hood

Arthur Percival, while carrying out research for *Faversham Gunpowder Personnel Register 1573-1841*, and preparing the entry for James Wright (the first Storekeeper at Waltham Abbey), has discovered a number of gunpowder related poems. The verses are by a nineteenth century poet and humorist, Thomas Hood, a friend of James Wright.

The first poem, *A report from below*, also known as *Skying the copper*, first published in 1834, was based on an incident in Hood's house. Gunpowder was used to clear domestic chimneys of soot, and this poem tells of a blocked wash-house copper flue and how a house-keeper decided to 'sky' (clear) it in this way. Despite protestations from the maid, she used a whole pound of powder. The result was an explosion that killed her, bringing the copper down on her 'like a percussion copper cap'.

A short extract from:-

**A report from below**

*'Blow high, blow low.'*-Sea song.

'....'That dratted copper flue has took to smokin' very often,  
But please the pigs,"- for that's her way of swearing in a passion  
"I'll blow it up, and not be set a coughin' in this fashion!"

Well, down she takes my master's horn – I mean this sort of horn for loading,  
 And empties every grain alive for to set the flue exploding.  
 Lawk, Mrs Round ! I says, and stares, that quantum is unproper,  
 I'm sartin sure it can't take a pound to sky the copper;  
 You'll powder both our heads off, so I tells you, with its puff,  
 But she only dried her fingers, and she takes a pinch of snuff.  
 Well, when the pinch is over – "Teach your grandmother to suck  
 A powder horn," she says – Well says I, I wish you luck...'

The second poem *A blow-up*, first published in 1839, describes an explosion at the Battle powder mills.

A short extract from:-

### A Blow-up

*'Here we go, up, up, up'-The lay of the first minstrel.*

Near Battle, Mr Peter Baker,  
 Was powder maker,  
 Not Alderman Flower's flour, the white that puffs  
 And primes and loads heads bald, or grey, or chowder,  
 Figgins and Higgins, Fippins, Filby, -Crowder,  
 Not vile apothecary's pounded stuffs,  
 But something blacker, bloodier, and lounder,  
 Gun-powder!

This stuff, as people know is *semper*  
*Eadem*; very hasty to in its temper-  
 Like honour that resents the gentlest taps,  
 Mere semblances of blows, however slight;  
 So powder fires, although you only perhaps  
 Strike light.

To make it therefore is a ticklish business,  
 And sometimes gives both head and heart a dizziness,  
 For as all human flash and fancy minders,  
 Frequenting fights and Powder-works we'll know,  
 There seldom is a mill without a blow,  
 Sometimes upon the grinders.

But then-the melancholy phrase to soften  
 Mr B.'s mill *transpir'd* so very often!  
 And advertised-than all Price Currents louder  
 'Fragments look up- there is arise in Powder,'  
 So frequently, it caused the neighbours' wonder,-  
 And certain people had the inhumanity  
 To lay it all to Mr baker's vanity,  
 That he might have to say-'That was *my* thunder!'  
 One day-so goes the tale,  
 Whether, with iron hoof,

Not sparkle-proof,  
 Some ninny-hammer struck upon a nail,-  
 Whether some glow-worm of the Guy Faux stamp,  
 Crept into the building, with Unsafety Lamp-  
 One day this mill that had by water ground,  
 Became a sort of windmill and blew round.  
 With bounce that went in sound as far as Dover, it  
 Sent half the workmen sprawling to the sky;....'

A third poem, *Ode to Madame Hengler*, continues the gunpowder theme by celebrating the skills of a fireworker maker.

A short extract from:-

### **Ode to Madame Hengler**

Firework-maker to Vauxhall

Oh, Mrs, Hengler!-Madame,-I beg pardon;  
 Starry Enchantress of the Surrey garden!  
 Accept an Ode not meant as any scoff-  
 The Bard were bold indeed at thee to quiz,  
 Whose squibs are far more popular than his:  
 Whose works are much more certain to go off.

Great is thy fame, but not a silent fame;  
 With many a bang the public ear it courts;  
 And yet through arrogance we never blame,  
 But take they merits from thy own reports.  
 Thou hast indeed the most indulgent backers,  
 We make no doubting, misbelieving comments,  
 Even in thy most bounceable of moments;  
 But lend our ears implicit to thy crackers!-  
 Strange helps to thy applause too are not missing,  
 Thy rockets raise thee,  
 And serpents praise thee,  
 As none beside are ever praised-by hissing!

Mistress of Hydroptics,  
 Of glittering Pindarics, Sapphics, Lyrics,  
 Professor of Fiery Necromancy  
 Oddly thou charmest the politer sorts  
 With midnight sports  
 Partaking very much of *flash* and *fancy*!

What thoughts had shaken all  
 In olden time at thy nocturnal revels,-  
 Each brimstone ball,  
 They would have deem'd an eyeball of the Devil's!....'



From *The complete poetical works of Thomas Hood*, edited with notes by Walter Jerrold (1935), Oxford University Press, London.

If any members would like to see the poems in full please contact the editor.

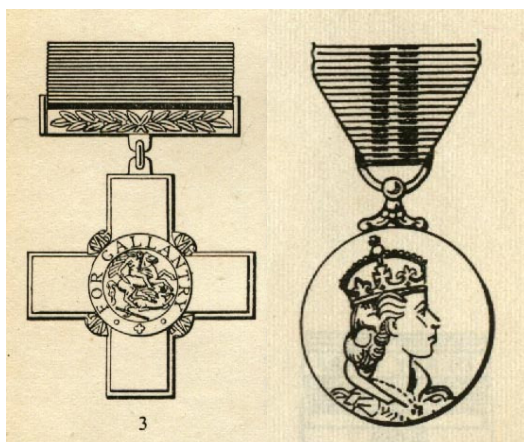
### JOHN HALL & SONS POWDER TINS AND MULLERITE POWDER



Left, John Halls & Sons FFF Gunpowder Faversham & London  
Right, Hall's Southern Cross Coarse grain Sporting Gunpowder for breech loading cartridges. All the tins are red.



Above, Belgium Mullerite powder package



The George Cross and Coronation Medal 1953

*London Gazette*, 6<sup>th</sup> February 1940, page 714

The King has graciously pleased to approve of the following awards. The Medal of the Civil Division of the Most Excellent Order of the British Empire for Gallantry.

Leo Francis O'Hagan: Stanley William Sewell

'When the explosion took place in the factory on the 18<sup>th</sup> January, these men were engaged in the nitration of glycerine, the most critical stage in the process of manufacture, when the liability to detonate is greatest.

The building in which the process is carried out is some 150 yards only from the area of the explosion, and was damaged. The hot water and air services, whereby the process is carried out, were also cut off by the explosion.

Over 1,000 lbs of nitroglycerine were under process and in a condition of instability. O'Hagan and Sewell, realising the effect to life and property of a further explosion, stood by their posts for some two hours, until the services were restored and then continued with their work until the whole charge had been brought to a state of stability. Had they fled for safety, it is highly probable that the charge of nitroglycerine under their care would have been destroyed. This would not only have caused wide-spread damage and loss of life, but further delay in the resumption in the Factory. Both men showed great gallantry and devotion to duty, and complete disregard for their personal safety.

This incident took place only some few weeks prior to the institution of the George Cross and, under the provisions of Warrant for the George Cross, the Edward Gallantry Medal awarded to Mr Sewell was 'converted' to the George Cross. I

understand that neither Mr Sewell nor Mr O'Hagan received the Edward Gallantry Medal but, instead received the George Cross as their initial award.

A third George Cross was awarded for gallant conduct in this incident but in a different context. The recipient was William George Sylvester.

The actions for which the George Cross is awarded generally lack that 'dash' which is associated with the winning of the Victoria Cross but whereas the Victoria Cross is generally won in the heat of battle. The George Cross is virtually always awarded for acts performed coolly and in full knowledge of the perils involved by men and women who choose 'not to walk away'. I believe there is no higher form of courage.

The gallantry of O'Hagan and Sewell was the subject of a Radio dramatisation and with this pair is the original script of the broadcast and a cutting from a national newspaper concerning the incident containing a photograph of the three men concerned, unfortunately the section showing Mr Sewell is rather damaged.

Extremely Fine £750.00

Source Medal Catalogue Jan-Feb 1974, copy loaned by Willian Hanna of Bath

For further information *see* Eliot, B 1996 *The Royal Gunpowder Factory Explosions 1940 After the Battle* **93** 34-49

Note :- The Edward Gallantry Medal was the Edward Medal, instituted in 1907 in recognition of the heroism of miners or quarrymen. The George Cross, or GC, was instituted in 1940 and awarded primarily to civilians, in honour of great courage.

## **GWAITH POWDWR, PENRHYNDEUDRAETH, NORTH WALES**

An article in *Natural World* reports that the former ICI explosives plant at Penrhyndeudraeth, North Wales has been acquired by a Wildlife Trust for £1 and is to become a nature reserve. The factory was established in 1865 to produce mining explosives, during the world wars it also produced TNT, in addition 17 million hand grenades were also filled there. At its height the workforce stood at 600. The factory closed in 1995 and subsequently all but nine of the factory buildings have been demolished. Buildings, which have been retained, include the pendulum shed, this still houses the pendulum, which was packed with explosive to test the strength of an explosive by its swing. Three former nitroglycerine stores, with eight feet thick blast walls and steel doors, have also been retained and are now home to a colony of horse shore bats.

Bright, D 2001 Tread lightly upon the earth, *Natural World*, **2** Winter, 32-33.

*Arthur Percival*

## **DAVID ASHTON**

It is with regret that I have to pass on the news of the death of one of our members, David Ashton, who died earlier this year.

David Ashton studied chemistry at the University of Liverpool, graduating during the Second World War his knowledge was put to immediate use firstly at Royal Ordnance Factory Wrexham and later at Sellafield. David Ashton stayed with the Ministry of Supply until 1947 when he joined Greenwood and Batley Ltd. The company was a traditional engineering company, and during the war as well as manufacturing explosives processing machinery, it also produced and filled ammunition. At the end of the war, the company began to look for alternative markets and began to explore the manufacture of 12-bore shotgun cartridges, it also decided to manufacture its own propellant, fearing that ICI might restrict supplies to a potential rival. Production was to be centred on its pre-existing filling factory at Farnham, Knaresborough, Yorkshire, and the company engaged a Mr Bagley to design the explosives plant, but he did not provide any manufacturing instructions. One of David Ashton's principal tasks was to develop a new propellant for use in the firm's cartridges, later called Smokeless Powder Greenbat; it was so successful that it became the preferred powder for the British Olympics team. In addition to manufacturing sporting cartridges, the company also continued to fill 303 rounds for the government, but this work was ceased as the new 7.62m NATO round was adopted by the services. Greenwood and Batley therefore decided to withdraw from ammunition manufacture, and David Ashton moved on to a new industry in 1956.

Based on a paper 'The last of the powder makers' David Ashton wrote for the group in 1997, *Newsletter* **20** 11-18

Wayne Cocroft

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