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GUNPOWDER MILLS STUDY GROUP NEWSLETTER 6, AUGUST 1989

MEETING AT BIRKBECK COLLEGE, MALET STREET, LONDON WC1E 7HX
SATURDAY 14 OCTOBER 1989

PROVISIONAL PROGRAMME

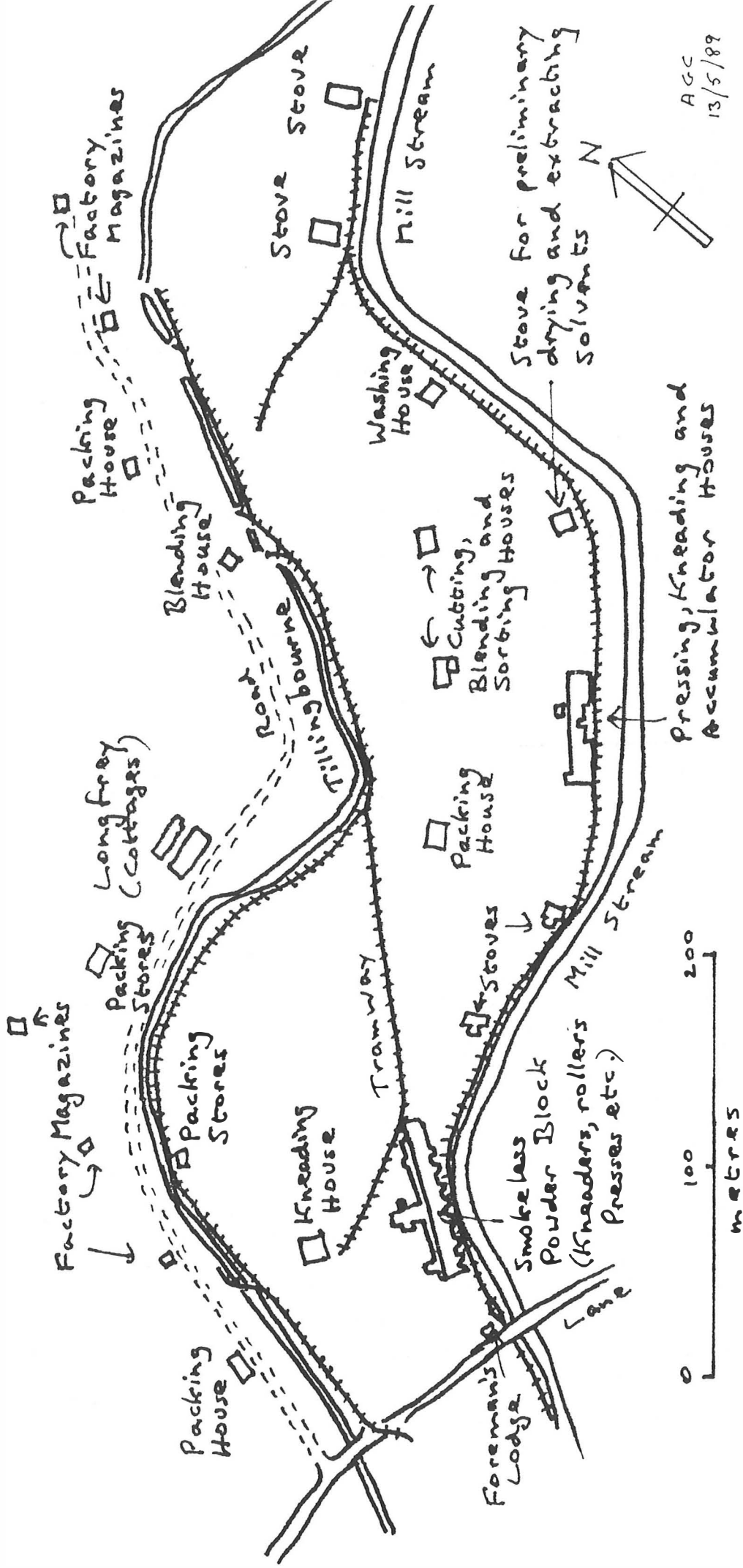
- 10.30 - 11.00 Assemble and Coffee
- 11.00 - 12.00 Alan Crocker: 'Gunpowder Manufacture in Denmark' (An illustrated account of the GMSG visit to Denmark in July)
- 12.00 - 12.30 Keith Fairclough: 'John Samyne: 17th Century Master Gunpowder Maker'
- 12.30 - 12.50 'The Lowwood Gunpowder Works, Cumbria, in the 1920s'. Further selections from a recording of Jim Clark (Courtesy of North-West Sound Archive)
- 12.50 - 14.00 Lunch. Please bring a packed lunch but coffee/tea provided.
- 14.00 - 15.00 Elizabeth Tough: 'The Gunpowder Mills of Scotland' (An introduction to a proposed GMSG visit to Scotland in 1990).
- 15.00 - 15.30 Tony Yoward: 'The Schultze Gunpowder Factory at Fritham in the New Forest, 1865-1923'
- 15.30 - 16.00 Members' Contributions
- 16.00 - 16.30 Business Meeting, Tea and Disperse.

It was originally intended that this meeting would be held at the headquarters of the Wind and Watermill Section of SPAB but this was not possible because of a clash of bookings. We are very grateful to Michael Wilks for arranging for us to hold the meeting instead at Birkbeck College, where the Inaugural Meeting of GMSG was held in March 1985.

We shall meet on the ground floor of the College which is in Malet Street. Goodge Street, Warren Street, Euston, Euston Square and Russell Square underground stations are all nearby. Parking should be available in the University of London car park - entrance at NW corner of Russell Square.

To cover administrative costs a fee of £2 will be made. It would be helpful to know approximately how many people will be attending. Please therefore let Glenys Crocker know (after 27 September) if you are coming (6 Burwood Close, Guildford, Surrey, GU1 2SB; telephone 0483 65821).

THE LOGO. It was agreed at the Chilworth meeting to adopt a letterhead using the design from the the cover of the *Gunpowder Mills Gazetteer*, which is based on a pair of incorporating mills at Kennall Vale, Cornwall. It was designed by Rowena Oliver, who provided most of the line drawings for the *Gazetteer*, and who has kindly agreed to its use as a logo.



SMOKELESS POWDER WORKS, CHILWORTH (1892-1920)

REPORT OF MEETING AT CHILWORTH, SURREY, 13 MAY 1989

We met at the Percy Arms, within a few hundred metres of the site of the Chilworth mills which operated from 1626 to 1920. The pub had close links with the works and in particular was the venue for the inquest in 1901 after six men had been killed in an explosion. After coffee and biscuits Alan Crocker gave a brief outline of the history of the mills, especially the development of the smokeless powder factory from 1892 onwards. Gerry Moss then gave an introductory technical account of the development and manufacture of nitroglycerine, nitrocellulose, cordite and other explosives and propellants at the end of the 19th century and we saw some historic slides of the equipment used. We also listened to selected items of a 1960s tape recording of Jim Clark, who worked at the Lowwood gunpowder site in Cumbria in the 1920s.

After an excellent ploughmen's lunch, we had a 2½ hour tour of the Chilworth site, concentrating on the smokeless powder factory, which is not normally accessible to the public. A sketch map of this part of the site is reproduced opposite. Back at the Percy Arms we had tea and members contributed short talks, including John Upton on a proposed display on the gunpowder industry at a new museum at Battle and Malcolm Tucker on development threats to the site at Woolley outside Bath. We also had an opportunity to study a display mounted by Bill and Joy Goddard on a detailed survey they have been carrying out of incorporating mills, mixing houses and boiler houses at Chilworth.

A feature of the day was the recognition of German influence at Chilworth. The factory was taken over by the Vereinigte Rheinisch-Westphälische Pulverfabriken in 1885 and Longfrey Cottages (see sketch map) were considered to have a timber-framed construction which is typically German. Also iron girders in a late 19th century range of incorporating mills (Gazetteer figure 6) were noted to be cast in Germany by Burbach, 1884. The weather was beautiful and the 25 or so who attended had a very enjoyable and informative day. Since the meeting the Goddards have commenced a survey of the smokeless powder factory.

REPORT ON THE FIELD TRIP TO DENMARK, JULY 26th - 30th, 1989

1. General observations, by Brenda Buchanan

The trip to Denmark by six members of the GMSG arose from a proposal at a meeting in April 1988, that we should explore the possibility of a visit to continental powder mill sites. As the restored mills at Frederiksvaerk in North Zealand near Copenhagen were known to offer a good introduction to these wider aspects of our subject, the distinguished Danish molinologist Mr Anders Jespersen was approached for his advice on this project. He has for many years been associated professionally with the study and practical care of wind and watermills in Denmark, and we are all greatly indebted to him for the way he drew upon this expertise and gave us unstinting help in the organization of our tour. Plans were discussed by letter and telephone over the following months until they came to fruition in the days we spent under his guidance, visiting places of interest. In the course of studying powder making in Denmark we enjoyed good food and conversation, which culminated in the evening spent at the lake-side home of Anders and Sally Jespersen, for which we wish to record our thanks to them both.

Alan and Glenys Crocker will report on the sites we visited. I should like only to comment on two matters of a more general nature which will

help provide the background to their more detailed account. First, it was a special feature of this tour that our visits benefitted from the documentary as well as the practical approach to the subject. Not only were we provided in advance with copies of many papers, drawings, and photographs relating to the extant works at Frederiksvaerk and the now dismantled mills at Donse, but Anders Jespersen also very bravely arranged for we six non-Danish speakers to spend the better part of a day in the State Archives in Copenhagen. This proved to be a more successful venture than could possibly have been anticipated. Sets of documents of which we had previously seen only selected photocopies awaited us, and of these the plans and drawings were found to be the most useful as these overcame the language barrier with the greatest ease. But more than that, the topographical works on surrounding shelves and the many card indexes were also both open for our inspection. By consulting these with the help of the patient archivists it has become possible to suggest a tentative account of powder making in that part of Denmark with which we are most concerned, North Zealand.

Copenhagen's vulnerability to attack from the sea, whether from other states or from Baltic pirates, increased greatly from the middle decades of the 16th century, when it became the capital of Denmark. Gunpowder supplies were essential, and in the 17th century production was centred at two sites on the nearby Mollea or Mill River, at Breda Vaerk (1628-1688) and at Orholm. At the former, production then switched to copper and later paper making, whilst after making gunpowder the mills at the latter then fulfilled a range of uses before they too became paper mills (1794-1933). Of the site at Donse where powder was made for the Navy, little was known at the time of our visit. From material consulted in the Archives however, it seems these mills were founded in 1704. This was near the beginning of the Nordic war of 1700-1720 in which the Danish fleet won several battles. A card index entry referred to documents of the early 1740s but these could not be located despite the best efforts of the archivists who brought out in succession three sets of papers to see if they were the ones being sought. However the existence of the card entry does confirm that the mills were then in use, as they still were in 1765 when they were sold into private hands by Queen Louise. As the more substantial mills at Frederiksvaerk were founded by Royal Decree in the mid-1750s, it seems likely that the control of the Donse mills was relinquished by the Crown when supplies from the new site were secured. But the mills at Donse were not entirely put to civil use for they continued to supply powder for the Navy when required, perhaps at the time of the Napoleonic Wars in the early 19th century, when a British fleet bombarded Copenhagen to safeguard entry to the Baltic, and certainly in the 1880s. In 1910 they were dismantled. Production at Frederiksvaerk continued until 1965.

My second general observation concerns the context within which the Frederiksvaerk mills functioned, for the continuing existence of this environment provided another special feature of our tour. Most of us in our Group enjoy exploring ruined sites, speculating upon the possible functions of different features, and a few of us have had the privilege of visiting the restored Eleutherian Mills in the Brandywine Valley of Delaware, USA. But in Frederiksvaerk we have the special and possibly unique situation of a powder works which has not only been restored to a significant extent, but which continues to exist within its traditional and still-surviving environment. This circumstance is derived from the fact that Denmark's oldest industrial town, named Frederiksvaerk in 1759 after King Frederik V,

was built around the then recently established powder mill and cannon foundry. This close relationship was fostered by the fact that one person, General J F Classen, a founder and owner of the powder mills, played a leading role in the development of industry, town and region, from the mid-18th century until his death in 1792.

Of the powder works themselves, only a part of the site has been officially preserved, but many other buildings survive unofficially, through their present use by small businesses, associations and societies. A major attraction of the town is the substantial canal which runs through it, crossed at several points by pleasant bridges. This was originally constructed in 1716-19 for drainage purposes, as an outlet for nearby Lake Arresø. It then came to supply water and power for the powder works, in the location of which its presence may have been crucial. A suggested walk in the tourist guide takes the visitor over the Krudttarnsbakkerne or Powder Magazine Hills, where powder was stored away from the town. These magazines have now been removed but a scatter of workers' housing remains. Two half-timbered buildings known as Arsenalet may be found in the town square next to the canal. Dating from about 1800 these now house the local museum, but they were originally warehouses for the cannon foundry. The significance of the cannon foundry or Gjethuset itself (also in the town centre) was at the time of our visit obscured by the work of reconstruction then underway, but it is a major structure, high-arched and brick-built, which is claimed to be Denmark's oldest industrial building. Its presence adds considerable weight to the argument here being developed that the significance of Frederiksværk lies in the social and industrial complex as a whole, and not just in the powder mill.

This claim is further enhanced by the fact that the area abounds with features associated with the leading figure of J F Classen. There is his bust on a plinth in the square; the castle he built in 1782 at Arresodal 800m north of the church, where he lived until his death in 1792; and his tomb in the church of Vinderød near the lake. A further monument is the coastal village of Liseleje, named after his step-daughter, where his paternalism extended to the provision of nets and boats for poor fisherfolk.

This interpretation of the importance of the whole complex at Frederiksværk is still only half-formed, but nevertheless it may be of some help in the development of future plans. When we heard of proposals to transfer care of the powder mills from central to local control as an economy measure, our feelings were voiced by Alan Crocker who suggested that perhaps the EEC could be approached as a source of funds. On reflection since our return, it seems to me that their response would be all the more generous if the powder mills were presented as what they undoubtedly are, namely a vital part of an inter-acting environment, a living or ecomuseum such as that developed at the ecomusee of Le Creusot in Burgundy, which is related to the whole community and not just the industrial processes. Help from the EEC to this end would only be a logical extension of the concern for the community already expressed through its substantial support for the steel works, now the single most important employer in the town.

It would be fitting if a visit which we all so much enjoyed could help in the development of an area formerly dependent on the industry in which we have a special interest. Certainly this experience has turned our minds

to the further exploration of powder making in an international context, but of these ideas it will be appropriate to say more on another occasion.

2. Account of field trips, by Alan and Glenys Crocker

As Brenda Buchanan has explained, we visited two gunpowder manufacturing sites. First we spent a morning at The Gunpowder Mill Museum at Frederiksvaerk, near the coast 45km north-west of Copenhagen. We started our tour at the charcoal cylinder house, which is outside the museum area and not normally open to the public. It appeared to be as it was left when the works closed in 1965, with plenty of tar around the back of the furnaces. There were four cylinders about 1m long and 0.5m in diameter but one of these is now displayed, packed with timber, in the Museum. The mills were established in 1756 and powered by water from the Arresø Canal. The first steam engine was installed in 1844 and electrical power was introduced in the early years of this century. Currently water and electric power are used to demonstrate the equipment which survives in several of the mill buildings. These include pulverising, mixing, corning, glazing and dusting houses, but not unfortunately an incorporating mill. Other buildings are used to explain the history of the site and the gunpowder industry and to describe the manufacturing processes. It was fortunate that Anders Jespersen was with us as the very friendly and knowledgeable custodian knew no English and the descriptive captions of the items on show and the text of the excellent display panels were almost entirely in Danish. There was however a useful leaflet in English.

It soon became apparent that several of the manufacturing processes were quite different from those with which we are familiar in Britain. For example, stamp mills which became illegal in 1772 (except for Battle powder) were used at Frederiksvaerk until 1868. Also safe binary mixing of charcoal with sulphur and of charcoal with saltpetre was carried out in separate drums before the two resulting mixtures were combined to produce a ternary mixture in a third drum. The drums contained lignum vitae balls of various sizes and the custodian gave us a ball each. Ours measure about 53 and 45mm in diameter. The greatest surprise was the corning machine which we later discovered (from volume 1 of Oscar Guttman's *The manufacture of explosives*, 1895, pp 211-15) was developed by Lefebure and used mainly in German and French factories. A plan and elevation of this machine, taken from Guttman's book, are shown in figure 1. It works by a central vertical crank-shaft rotating and hence vigorously and noisily shaking twelve sieves, each containing a block of wood weighted with lead and of course broken cakes of gunpowder.

Safety precautions provide an important aspect of the displays. We tried on some rush overshoes used in danger buildings, grasped metal earthing balls to discharge our static electricity, and purchased copies of notices explaining that cursing and swearing on the site could lead to explosions. Near the entrance is mounted one of the bells which used to hang from the mill buildings and were tolled while work was in progress. It was a fascinating visit but the museum deserves more publicity and additional funding to extend its displays and improve its presentation to overseas visitors.

After lunch we visited a restored forge at Hellebaek near Helsingør, 45km north of Copenhagen. Here water-powered hammers and bellows are used to make barrels of hand-guns by bending strips of iron into long tubes. We then went to the second gunpowder site at Donse (somewhere in North Zealand). This still has a large mill pond with a head of about 4m, but

little remains of the factory which closed in 1910 and we had no detailed plan of the site. A cottage just below the dam (occupied by an Irish man!) used to have a waterwheel, and a dry leat leads to a strange tall building with a decaying waterwheel. It appears that this powered a high-level cable drive to remote buildings. We found what seemed to be the foundations of some of these but the site is too difficult to interpret without documentary information. However our visit and the material located in the Archives, as Brenda Buchanan has explained, has prompted Anders Jespersen to conduct further research into the history and archaeology of the site.

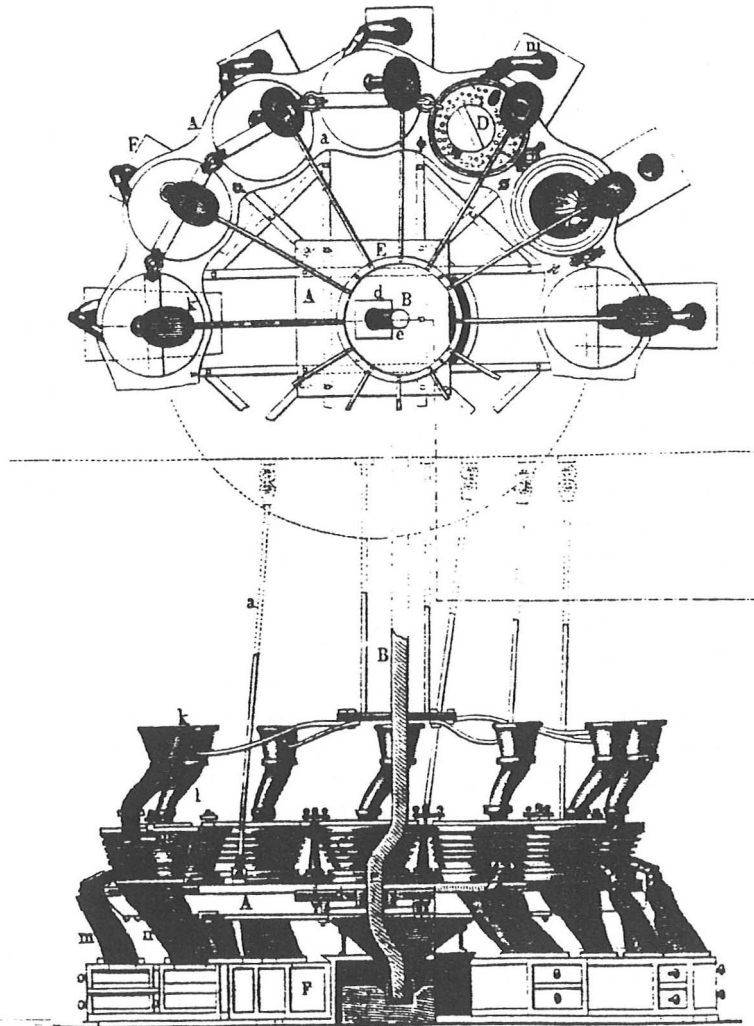


Figure 1. Corning machine.

We also spent a day visiting three watermills, two windmills, a pumping station and a large prehistoric mound, on Zealand and the three small islands of Falster, Bogø and Møn, to which it is linked by bridges. Anders Jespersen had arranged for the owners of the mills to be available and two of the watermills and a post mill were set in motion for us. It is interesting that mills still have timber lantern gearing and clasp arm timber waterwheels. Danish windmills do not have fantails to turn them into

the wind, so that the miller has to crank the tail-pole by hand. This appears to arise from the late arrival of the industrial revolution in Denmark, there being no native coal or iron. The pumping station had an Atlas (Copenhagen) steam engine, with a high pressure cylinder inside the low pressure one, which powered an Archimedes screw. At the last mill we visited we signed the visitor's book earlier signed by Queen Margrethe. We also presented Anders Jespersen with a copy of our *Gunpowder Mills Gazetteer*, which we all signed, and decided to make him the first Honorary Member of the GMSG, which he was pleased to accept. Thanks to his efforts, the trip was a tremendous success. It was of course a pity that more members were unable to take part, but those who did come benefitted from a greater share of attention from our host.

Finally we would like to thank Brenda Buchanan for suggesting the visit to Denmark, making the contact with Anders Jespersen, and sorting out all the arrangements. We are also pleased to report that, stimulated by the visit, Brenda, who with her husband Angus has world-wide industrial archaeology contacts, has agreed to become our International Secretary.

WOOLLEY GUNPOWDER MILLS

A planning application for conversion into a house of one of the derelict buildings at the Woolley gunpowder site near Bath has been considered by Wansdyke District Council. The application has been refused but has gone to appeal. If this is successful it is anticipated that further applications for conversion of other buildings will follow. It is also understood that the clock tower at the neighbouring site at Littleton might be threatened. Malcolm Tucker (who with Brenda Buchanan described and interpreted the features at Woolley in *Industrial Archaeology Review*, 5[3], 1981, pp185-202) has been campaigning for the sites to be scheduled as Ancient Monuments and thus protected. The case rests partly on the remains being 18th century, a period for which there are few surviving features at other sites, and partly on the fact that much documentary information on Woolley survives. However because the buildings were reused for agricultural purposes from the early 19th century and some are now derelict, much of the present interpretation is speculative. Thus there is a case for archaeological excavation on the site. On behalf of GMSG I have written to the Avon County Planning Officer supporting the cases for scheduling.

Alan Crocker

GEORGE KELLEHER'S THESIS

In Newsletter 4 we reported the sad news that our member George Kelleher, authority on the gunpowder industry in Ireland, and indeed throughout the British Isles, had died. Since then his mother and brother John have worked tirelessly to ensure that his extensive research, summarised in an unpublished thesis *Gunpowder to Guided Missiles: Ireland's War Industries*, which George had hoped would lead to a higher degree, would be recognised. I have just heard from John and Mrs Kelleher that their efforts have been rewarded and that the degree will be conferred posthumously at a ceremony at University College Cork on 2 September. In addition, arrangements to publish the thesis have progressed well and John is currently checking the proofs prior to printing. A prospectus will be circulated to GMSG members when it becomes available.

Alan Crocker

AUTHORISED GUNPOWDER MANUFACTURE IN THE WEST COUNTRY IN THE SECOND QUARTER OF THE 17th CENTURY, BY Charles Trollope

The origins of gunpowder production in the West Country can be identified if we put together an item from the Privy Council minutes with the notes extracted from the State Papers recorded in the chronology of the *Rise and Progress of the British Explosives Industry (R&P)*:

1. In the Privy Council minutes for 1625 (PC2/32) there is a request by Bristol to cast 100 guns at Cardiff (Pentyrch Furnace?) and to make gunpowder, to be made with imported saltpetre. The entry does not say whether the request was granted but at this date entries were normally only made if they were.
2. In *R&P* p266 of 24 Sept 1631, we find a complaint against John Corseley and William Baber for bartering for saltpetre with John Hilliard.
3. In *R&P* p269 of 19 April 1634 we find a petition answering the above complaint, stating that Bristol was granted leave to make 400-500 barrels of powder in the last year of Charles I (i.e. 1625) and that the petitioner John Corsley (or Corseley) was appointed by the City to make part of Bristol's powder and spent £22 on building a powder house.
4. In *R&P* p274 of 7 Feb 1635 there is a further complaint re West Country saltpetre being sold to Bristol for around Bath, Bridgewater and Taunton.
5. This can be summed up as follows:
 - a) Before 1625 gunpowder was not produced on the West Country otherwise this would have been noted in the Bristol petition to the Privy Council.
 - b) From 1625 Bristol was authorised to produce for itself 400-500 barrels a year with imported saltpetre.
 - c) The authorised producers were John Corseley and William Baber.
 - d) The local purchase of saltpetre was unauthorised but possibly unstoppable.

Evidence to support a, b and c should be in the Bristol City Archives (with sites?) as the initial petition was from Bristol, not from Corseley and Baber, who were the authorised producers. Annual output represented one month's production by Evelyn.

A POWDER MILL IN DORSET IN THE LATE 16th CENTURY AND CIVIL WAR PERIOD

Jeremy Harte, Curator of the Bourne Hall Museum at Ewell, Surrey has provided the following information on two mills in the parish of Stockwood, Dorset, one of which was a powder mill. The other, which was a grist mill, still exists and has been surveyed. Reference numbers are to documents in the Dorset Record Office (DRO).

In 1592 WILLIAM STROUDE of Stockwood granted the mills to his son THOMAS, JOHN FOYE of Bubb Down, gentleman, and JOHN ELFORD, chandler. The property is described as 'all that powder myll messuage ... lands ... called Southparke or Upper Stockwood, And also all those two mylles and the dwelling house wherein the said William Stroude now dwelleth And all the lands thereunto belonging', together with other lands in the parish and a

tenement in Sherborne. (DRO K57)

In 1625 JOHN PITMAN of Nether Compton, gentleman, and others granted the mill to JOHN FITZJAMES of Holnest, gentleman, and ROBERT WHATCOMBE of Sherborne, gentleman. The property is described as 'two messuages and oane Mill called a Powder Mill and certayne parcellis of land meadow and pasture conteyninge ffower acres called South Parke alias upper Stockwood now or late in the tenures of WALTER PARKER and JOHN MASTERS alias POPLER ... And one capitall Messuage or manoriall house ... And all those the two Mills the one beinge a Grist mill and the other a Mault Mill om Stockwood' with other lands as before. (DRO K57)

It is clear from these description that the grist and powder mills occupied separate sites, though probably in the same area. The present Stockwood Mill is doubtless the grist mill. There may be a later reference to the other: in 1648 the Minute Books of the Dorset Standing Committee (p.453) record 'RAYNOLD COOPER of Sherborne is this day adiudged within the ordynance for sequestration, for that he set forth a horse, as himself confesseth, under Sir John Hele, and did himself in person with others, take away the County powder from Parke's powder mill, and carry it to Sherborne for the use of the King's partie, which powder was eight score pounds weight.'

In 1884 a contract was made for the sale of Stockwood mill and lands. (DRO 0124)

THE GUNPOWDER MILL AT WOORBURN, BUCKINGHAMSHIRE

Douglas Pluck has provided further information on the Wooburn powder mill (SU 898872) which was noted in Newsletter 5, p.8. In particular he points out that the mill known as Gunpowder Mill was not the one called Fuller's Mill. This was the nearby Princes Mill (SU 901 873), now demolished, which was a fulling mill before being converted to paper making.

A few years ago Douglas Pluck made a study of the mills on the River Wye but found no evidence other than place-names for gunpowder manufacture at the mill known as Gunpowder Mill. A four-acre field (number 287) south of the mill is named Powder Mill Close on a Du Pre estate map of 1813.

In an unpublished MS, c.1946, entitled *Watermills on the River Wye, Bucks*, Stanley Freese refers to the mill as Gunpowder, Eghams Green or Jackson's Lower Mill no 285 (the paper mill excise number, which should be 286), but gives no evidence for the manufacture of gunpowder there.

L J Mayes (Librarian and Archivist of High Wycombe, 1935-71) states that no trace of gunpowder manufacture has ever been traced to the mill and that what is known is that in 1705 it was occupied by Emmanuel Wright, probably as a paper mill, and in 1729 it was certainly a paper mill by the name of Francis Rance's Mill. ('Paper in the Wye Valley, Buckinghamshire' in *Three Hundred Years in Paper* by G T Mandl, privately printed, 1985)

In an article in the Bucks Free Press Centenary Supplement of 1956, it is stated that Gunpowder Mill was originally used as a corn grinding mill in conjunction with a large farm in the neighbourhood.

The mill finished its working life making mill boards and at one time was referred to as Jackson's Lower Mill.

THE DERBY POWDER MILL

Christopher Snape has followed up the entry on the powder mill in Derby in the *Gunpowder Mills Gazetteer* (p.54). He reports that a saltpetre bill dated 24 July 1645 (PRO SP28/266) indicates that the mill was working during the Civil War.

On the site, the mill race, which created the island on which the mill stood, has been filled in and the dam just south of St Mary's Bridge has been removed. However the position of the mill race can be distinguished and part of it still floods when the water is high. George Sorocold erected his water house etc in 1692 on the foundations of the earlier gunpowder mill. The foundations can still be seen underneath what is now Lombe's silk mill, which houses the Derby Industrial Museum. Public access to the area is unrestricted and it is possible to view the remnants of the mill race and see the earlier foundations under the arches of the present building.

STOBSMILLS GUNPOWDER MILLS, GOREBRIDGE, MIDLOTHIAN

Members of the Gorebridge & District Local History Society are investigating the history of the powder mills and are recording the remains on the site. Most of the buildings were demolished by the landowner in 1874 but there is still plenty of evidence remaining.

Messrs Hitchener & Hunter & Co obtained a licence and a 50 year lease of the land in 1794. The partners were from Surrey, William Hitchener from Thames Ditton and John Hunter and John Merricks from Kingston upon Thames. Hitchener had a 4/8 share, Hunter 3/8 and Merricks 1/8. John Merricks was to supervise the erection of the mills and act as resident manager. He put no capital into the concern and was guaranteed a minimum of £100 a year. In 1803 the co-partnery was dissolved. (Deed of Copartnery registered in Midlothian Sherrif Court, 1803). John Merricks afterwards set up a new gunpowder works at Roslin a few miles away. Hitchener and Hunter were in business at Stobsmill until the early 1860s.

A reference to sales in 1839 states that 'The Company export gunpowder to almost every quarter of the globe, and during the late war had a contract with the Government for a supply'. Further information on sales, contracts etc would be welcome, also information about the partners.

In particular is there any record of John Merricks working at other gunpowder mills? Regarding the other partners, who were probably entrepreneurs without gunpowder making experience, William Hitchener seems to have been a man of some substance and although he had a house at Gorebridge he appears to have stayed at Thames Ditton where he died in about 1823. He had four surviving children (at least): Harriet, George, Charles and James, by his first marriage, and four children, Henry, Mary Ann, William and Thomas by his marriage to Ann Gardener. The Surrey Record Office has discovered in the land tax records that in 1804 Mr Hitchener bought the site of the Assembly Rooms at Epsom Wells.

Would anyone who has any information on Gorebridge or the company please contact Alasdair Anderson, 54 Hunterfield Terrace, Arniston, Gorebridge, Midlothian EH23 4BG

A VISIT TO ROSLIN GUNPOWDER MILLS IN 1877. A description of the Roslin powder mills is contained in *The Builder*, October 1877, pp 1072-4. (Information from Mr John Robertson)

THE '1796' FAVERSHAM DRAWINGS, by Alan Crocker

The principal source-book of information on gunpowder manufacture in Britain is probably *The Rise and Progress of the British Explosives Industry (R&P)* edited by E A Brayley Hodgetts and published by Whittaker in 1909. This book contains 11 full page drawings of gunpowder manufacture at Faversham and a pair of drawings of testing equipment at Purfleet (figures 6-11, 13-18). Two of the Faversham drawings are dated 1796 and one 1798; the Purfleet drawings are dated 1796. However the captions to all of the drawings give the date as 1798. The text (page 29) explains that the drawings were taken from 'a MS book, evidently compiled by John Ticking, Master Worker of the Royal Faversham Mills in 1798, now owned by Messrs Curtis's and Harvey' (C&H).

When Glenys Crocker was preparing her Shire Album *The Gunpowder Industry* (1986) she discussed using some of the Faversham drawings with Arthur Percival, author of *Faversham's Gunpowder Industry* (Faversham Society, 3rd edition 1986). He said that the originals were in the Kent Archives Office (KAO) at Maidstone, which at that time was closed for reorganisation. However he had photographic copies of 25 of the drawings including the 12 used in *R&P*. He kindly gave us photocopies of these (five dated 1796 and none 1798) from which it was clear that the originals displayed better draughtsmanship than the copies in *R&P*. However the photocopies could not be used for reproduction so I traced five of them, including one not in *R&P*, and Glenys used these in her book. We assumed that for some reason the editor of *R&P* had also used tracings of the KAO originals and that this explained the poorer quality.

In April this year I had a telephone call from a descendant of the Curtis family explaining that he was interested in selling several books and documents in his possession relating to C&H. He explained that these included a manuscript booklet with 16 drawings from which the 12 *R&P* drawings had been selected. Glenys and I promptly went to visit him and examined the booklet. It was immediately clear that the drawings were indeed the ones used in *R&P* and that the extra four, which are undated, have parallels in the set at KAO. The drawings had been pasted into a notebook with the following inscription on the title page. 'Papers & Sketches relating to the Manufacture of Gunpowder at the Royal Gunpowder Factory Faversham in the last Century, 23/10/[18]78'. The drawings are accompanied by 23 pages of compactly written text including two tables of information on proof testing, one of which is signed 'Jno Ticking, Master Work'. This is the only reference to John Ticking in the booklet, so it is difficult to justify the statement in *R&P* that he was the compiler. The 23 pages occupy 12 sheets of paper. Eleven of these have writing on both sides and have therefore been tipped-in rather than pasted down in the booklet. This is very fortunate as it means that the watermarks in the paper can be deciphered. These consist of a Fleur-de-Lis on a shield with the date 1797 below. Thus the drawings could not have been made in 1796 which suggested that they are copies of the rather better versions at KAO. Before making an offer to purchase the booklet therefore we decided to look at the KAO version first.

The Kent Archives Office at Maidstone is now housed in splendid new accommodation and the staff are extremely helpful. On our arrival we were surprised to find that their version of the drawings form part of a large bound volume of about 400 pages. It is entitled 'Royal Laboratory Courses' (ref U269,018/1) and was the property of Francis Whitworth, a member of the Sackville family of Knole House, Sevenoaks. It covers many aspects of

artillery and has over 100 beautiful drawings, some of which are in colour. At first it seemed clear that these were the true originals of the ones in the C&H booklet and hence in R&P, but on examining the watermarks we discovered that the paper was made in 1799 and 1800. Thus these drawings could not have been prepared in 1796 or even 1798 and are probably later than the C&H ones, although it is possible that the artists used old paper. Thus it appears that both versions are copies of a lost original drawn in 1796 and that Francis Whitworth was either a better draughtsman or wealthy enough to pay a professional to make fair copies for him. One can only speculate about the original owner of the C&H copy. The partnership between Charles Berwick Curtis Esquire, Thomas Curtis Esquire and William Gillmore Harvey Gunpowder Manufacturer was formed in 1820. Previously the Curtis family do not appear to have been associated with the gunpowder industry, but the Harvey family were at Battle in the 1790s. The booklet therefore could have belonged to William Gillmore Harvey or one of his employees. Alternatively C&H might have discovered the booklet at Faversham when they took over the works there in 1898.

Glenys and I concluded that although the C&H booklet was not as important as it would have been if it provided unique information it was still worth acquiring. In practice the owner naturally had a sentimental attachment to it but we eventually agreed a price, which also included a copy of R&P and the 1820 co-partnership deed of C&H, written on both sides of four sheets of parchment. I have transcribed the text of the booklet and have had preliminary discussions with a publisher about producing an annotated version of it as a limited edition book. However KAO have decided to microfilm their version and we are purchasing a copy of this. It may be that a publication based on this copy, with its more attractive illustrations would be more appropriate. Members interested in purchasing a microfilm copy should contact Miss K Topping, Kent Archives Office, telephone Maidstone (0622) 671411 x4267); our copy is costing about £30. The deed of co-partnership appears to contain only snippets of information about the industry, hidden amongst a plethora of repetitive legal jargon!

I shall keep members informed of Progress on the Project (PoP).

BARGES FOUND AT LITTLETON, SOMERSET

The *Western Daily Press*, 28 July 1989 reports the discovery of two flat bottomed boats in the mill pond at Powder Mill Cottage, Littleton, near Chew Magna. Only the bases and a few inches of the sides of the boats remains. It is reported that an archaeologist has confirmed that they date from the 18th century and were therefore probably used to transport gunpowder within the Littleton works.

THE LAKELAND MINES & QUARRIES TRUST MUSEUM AT THRELKELD, CUMBRIA

Mike Davies-Shiel reports that the Trust has been given planning permission to proceed with the creation of an active working museum, reference and information centre at the former A.R.C. granite quarry site at Threlkeld, east of Keswick. As Manager of the site he is keen to promote links with all peripheral or ancillary aspects of mining and quarrying which might be displayed there. They have a 99 year lease and envisage that a display on gunpowder might be set up in 5 or 10 years' time.

BARRELS AND KEGS

Following Brenda Buchanan's query in Newsletter 4 about the size of units in gunpowder, Alasdair Anderson has sent the following quote from the *Edinburgh Advertiser* in 1825, when 90 'working barrels' had exploded in the stove house and charge house: 'They contain about one hundred weight and a quarter, being 1/5 more than the casks it is generally sold in'.

ICI BLACK POWDER WORKS IN AUSTRALIA

Ron Grosvenor reports that he has interviewed a former supervisor of the black powder section of the defunct ICI Deer Park works near Melbourne and has made some 3 hours of audio tapes of very valuable memories. He also found one of the three known surviving powder men, who is now in his seventies.

He has arranged to save the old machinery from the works and has so far retrieved several items including a small edge runner mill, which he estimates would hold about 20-25 lbs, and has obtained a copy of the black powder factory method book of 1938.

As reported previously he is keen to obtain a sample of alder buckthorn (*Rhamnus frangula*), having tried unsuccessfully to obtain some locally and from Switzerland and Yugoslavia. If anyone can help he would like them to send a small quantity in a padded post bag and he will reimburse them for the postage.

GUNPOWDER MUSEUM IN THE PELOPONESE A request for information has been received from the Cultural Foundation of the Hellenic Industrial Development Bank S A in Athens, who are preparing 'an exposition for the fabrication of gunpowder in Dimitsana (Arcadia, in Peloponese) in an ancient restored gunpowder mill'. I have sent information about the GMSG and its publications and have asked for further information about their museum. I hope to have some news about it for the next newsletter. GMC

SUBSCRIPTION

A subscription of £3 (individual) and £4 (joint) was due on 1 April 1989, to cover the cost of future newsletters, postage, photocopies etc. If you have not renewed (see p1) and wish to continue on our mailing list, please send to the Treasurer/Membership Secretary Glenys Crocker at 6 Burwood Close, Guildford, Surrey GU1 2SB, with the return slip enclosed.

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