

91

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THE STORY OF THE OLD GUNPOWDER WORKS AT BATTLE.

By HERBERT BLACKMAN.

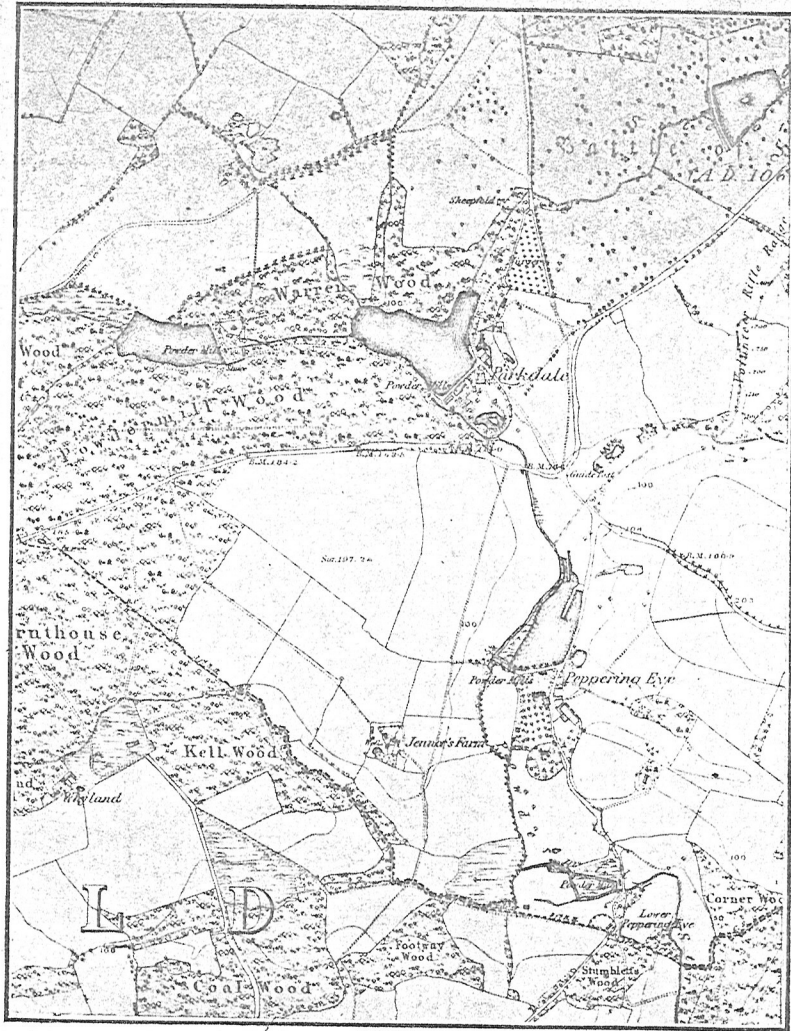
THE interesting pages of the Memoirs of Lady Dorothy Neville afford us fleeting and pleasant glimpses of many of the old industries of Sussex which have passed away, of iron works, foundries, glass-works and potteries, down through many useful and forgotten arts and crafts to the manufacture of "Gospel Ships," which carried messages of faith to distant seas and over unknown waters.

The story of these enterprises have been told in various forms, but one extinct industry has had the distinction of inspiring the sprightly fancy of our most fanciful and jesting poet, and yet appears to have been without its historian.

It may reasonably be surmised that Tom Hood found his way to Battle, for between the lines of his whimsical account of a "blow up" we can discern the keenness of the eye-witness, there is the characteristic streak of extravagance, but there is, too, the characteristic streak of knowledge; and we conclude the poet knew the Powder Mills at Battle, and drew his information from some observant friend while visiting Battle.

Strangely, the old industry which interested this famous poet does not appear to have appealed to any serious historian or moved any student to compile its fascinating story; we regard this as a serious omission, a blank in the voluminous history of life and work in the Sussex of yesterday.

Although a period of less than fifty years has passed since work ceased at these old Gunpowder Works, the traces of the industry are rapidly disappearing; very



From the Ordnance Survey Map, 1874, with the sanction of the Controller of H.M. Stationery Office.

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SITE OF BATTLE GUNPOWDER MILLS.

This shows a section of the Ordnance Survey of 1874, in which is shown the "Farthing," "House," "Pepper-in-eye," and "Brook" Mills, a close inspection shows several of the buildings dotted about by the ponds and in the surrounding woods.

The upper part of view is in Battle Parish running up nearly to the Abbey. The lower part beyond the dotted lines is in Catsfield parish.

few of the buildings remain, and the site is fast losing traces of the activity that once marked it.

For these reasons we have been moved (with diffidence) to step into the breach we had wished a worthier historian to have filled; it is our sincere hope that by giving the facts in the form they take in the following pages we shall help to preserve the story of one of the most important vanished industries of the county.

We have been fortunate in our sources of information, as in addition to our own observation and recollection of the workings, the ledgers of the writer's father and grandfather, who were builders acting in connection with the works, have yielded some useful matter; Lady Westland, a great grand-daughter of a former proprietor of the works, has given us many valuable notes; we have had the highly informative assistance of Mr. Alfred Blackman, J.P., and, finally, we have been able to draw on the wonderful memory of Mr. James Morgan, the last survivor of the works, who died in 1922, in his 100th year.

Two centuries are spanned by the story of the manufacture of gunpowder at Battle, and it therefore follows that the mills were of use to the country in some of the most famous victories in its history. We get the first mention of the industry as far back as 1676, and the closing reference as recently as 1874; between these two dates the rise, progress and ending of the works is embraced.

To clearly comprehend the historical allusions it is necessary that we should first describe the site of the old works; they were situated on the banks of the little stream known as the "Asten," which rises on high ground about two miles west of Battle Abbey, and flows in a south-easterly direction through what was the Great Park of the Abbot of Battle Abbey, and by way of the Crowhurst valley and the Bulverhythe flats into the English Channel at St. Leonards.

This was a very useful and hard working stream, for it had the series of five gunpowder works clustered about its banks; the Farthing Mills were the first of

these, and stood by a mill-pond of some five or six acres in extent; about half-a-mile down the stream was situated the "House" or powder mills proper, with a pond of about twelve acres; the "House" was the largest establishment of the series, and included the proprietor's residence and several of the more important works for the various processes in the manufacture of gunpowder, while many other isolated powder buildings were dotted about in the extensive woods adjoining; farther down the stream was another large pond and mills known locally by the quaint name of "Pepper-in-eye." Lower Pepper-in-eye was the fourth of the series, which was completed by the mills at Crowhurst, some two miles farther down the stream. In earlier times another mill was served by a small tributary stream from the direction of the Abbey; this site can still be traced by the mound of earth which formed the dam of the mill-pond.

The whole site is one of beauty, and it would be difficult for the visitor to the "Farthing" or "House" ponds (which remain, and are justly regarded as "beauty spots") to imagine that once upon a time the tide of industry touched the land and disturbed those shimmering waters, and that hardy sons of the county brought their ingenuity and strength to the making of munitions of war here; yet so it is, and has been since John Hammond first obtained his grant, which concession forms the first record we have of the industry.

In the original charters and muniments of Battle Abbey we find the following entry:—

"Francis, Viscount Montague, Lease for twenty-one years to John Hammond, of Battle, of the four parcels of brookland and upland, called Peperengeye Lands, in Battle, with permission to erect a Powder Mill, etc., dated November 11th, 1676."

It is evident that neither side had any reason to repent of the arrangement, and that the project prospered, for there is the chronicle of the renewal on May 17th, 1710, where it is set forth:—

"Henry, Viscount Montague, Lease for twenty-one years of the same to William Hammond, of Battle, Powder maker." There is also among the Battle Muniments a lease to Thomas Langley, in

August, 1690, of land including "the Powder-mill Croft.....the Powder-mill Land."

Interest in this second quotation lies in the fact that it is the first mention of a powder maker as a trade then being followed in the district.

Among the earliest grants referred to in the charters to the Abbey, mention is made of a mill-pond; in this Simon de Sumeri grants use of land on his estate in Cattisfeld "so that the water may freely flow on the same from the mill-pool at Peperenge."

This is in all probability the pond referred to above as "Lower Pepper-in-eye, the fourth of the series of works," as it adjoins the boundary between the parishes of Battle and Catsfield.

Then there are entries of some five and twenty years earlier than those relating to the coming of the powder mills, which show that one Robert Jarvis, followed by his son William Jarvis, worked hereabouts as iron-founders and millers, as in 1652 "The Park Iron Mills with all implements, water, etc.," were leased to Robert Jarvis, and later to his son William, a miller.

But as we have seen, John Hammond, of Battle, came with his plans, and in November, 1676, obtained permission to erect his powder mills; thereafter there are notable gaps in the annals; we know that the works progressed; we know also that the industry had its vicissitudes and calamities, for there were mishaps and explosions prior to that which moved the poet to mirthfulness.

That which eludes our research, and which it would assuredly be interesting to know, is the stages by which the industry grew from its infancy to its strength, and with what resourcefulness and courage John Hammond and his successors applied themselves to their honourable enterprise.

We have to span the years, however, until we find that a branch of the establishment had been established at Sedlescombe, thus in the Battle Abbey charters is the entry:—

"April 11th, 1750. George Matthews, of Battel, late officer in the Excise, etc.; bond to Sir Thomas Webster (who had purchased

the Battle Abbey Estate), George Worge, of Battle, Gent., and William Gilmore, Gunpowder maker, in the penal sum of Five hundred pounds, as security for his Trust in the conducting of the Powder Works of the said partner in the Parish of Sedlescombe."

This branch was about three miles from the Battle works on the little river Brede, and nearly three miles above Brede Bridge, to which point barges until recently brought merchandise up from Rye.

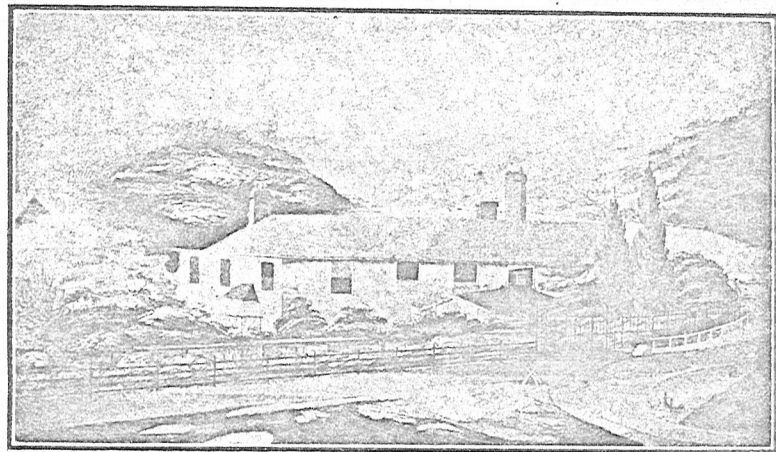


Photo of Painting by Mary, daughter of WILLIAM GILMOUR HARVEY of Powder-mill House, about 1815, after Mr. Harvey had made additions to the House. Part of Engine House and Chimney shew on left of picture. Old runner stone lying in front

This water-colour was presented to Lady Webster by Lady Westland a few months previous to the fatal accident to Lady Webster, and now hangs in the Drawing Room at Powder-mill House, the residence of Sir A. Webster. The house is under the Pond Bay (1919), the Pond being in view at back of House.

How much earlier than 1750 the works at Sedlescombe were in existence we are unaware; but the above entry implies that they were already established, and is an arrangement for their direction; and although this is the first mention we have of Gilmore as gunpowder maker, it is probable the Gilmores had conducted the Battle works for some time previously, as in the *Victoria History of Sussex*, it is stated:—

"It was at Battle that the leading Sussex Gunpowder Factory was established."

and that about 1750—

"The reputation of the Battle Factory was very high. Defoe mentioned that the town was remarkable for making 'the finest gunpowder, and the best perhaps in Europe.'"

The next stage in the story is a faint touch of romance, for six years later, in 1756, Lester Harvey, who was with Mr. Gilmore, probably assisting him in the management, was married to Jane, daughter of William Gilmore, and on the death of the latter succeeded to the Gunpowder Works both at Battle and Sedlescombe, and in due time passed on the management and responsibility to his son, William Gilmour Harvey.

The works continued to flourish under the Harvey family, and the Peninsular War greatly contributed to the growth of the works, to which at this period there were extensive additions and renewals.

Lady Westland remarks:—

"At this time the gunpowder was taken to Rye to be shipped, and the vans returned loaded ostensibly with fodder, etc.; but in accordance with the spirit of the time on the South Coast, smuggled brandy and wine were frequently brought back to Battle in addition."

While the Gunpowder Works were in the height of their prosperity a terrible tragedy overtook the family of the proprietor; two sons and a daughter were drowned in the pond at the "House" before the eyes of their parents, who were powerless to help.

It was not long after the sad drama of the mill-pond before a further change was made in the control of the works; in 1817 the firm became known as Messrs. Curtis and Harvey, and removed to Hounslow. The Battle establishment passed into the hands of Mr. Gill, who conducted them for a few years, after which Mr. Charles Laurence, who had carried on the manufacture of gunpowder at the Pepper-in-eye and Crowhurst Works, took control, amalgamating the whole of the works, including the Sedlescombe branch, which he and his son Charles continued until as late as 1874, when the powder works (the firm having been incorporated

with Messrs. Pigou and Wilkes) were removed to Dartford, and the manufacture of gunpowder at Battle came to an end.

Gunpowder is composed of salt petre, sulphur and charcoal, mixed and reduced to a fine powder, and subjected to several processes before completion.

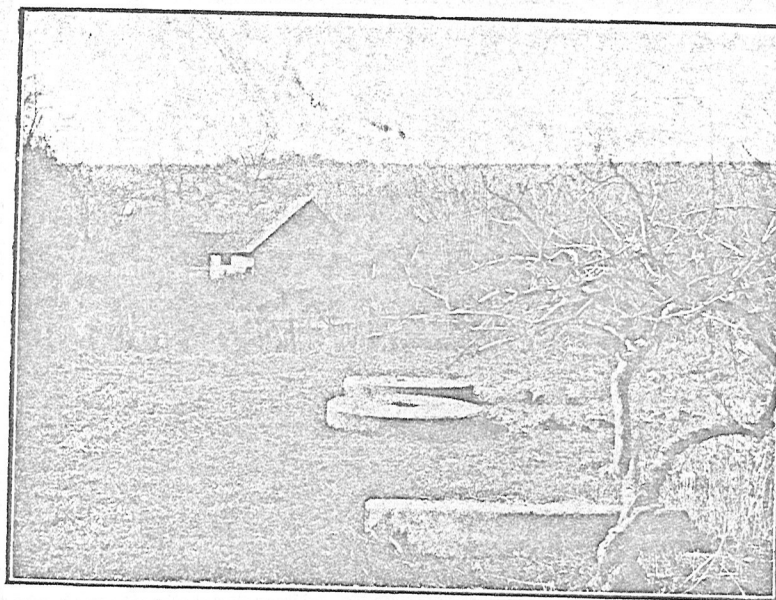


VIEW OF WATCH-HOUSES at the House Mills, with Mr. James Morgan, aged 96 years, the last surviving employee at these Powder Mills. Note old saltpetre refining cistern. The cottages on top line of picture were originally cylinder houses where the charcoal for the Gunpowder was made. The building beyond large Cistern was the "Charge" room, and beyond that is seen a portion of Powder Mill House. Some of the Grinding Mills were under the dam opposite these Watch-houses.

Ogilvy (1874) states that at the Royal Mills at Waltham the proportions were (in lbs.) salt petre, 75; sulphur, 10 charcoal, 15 = 100; doubtless the proportions at Battle closely coincided with these.

The saltpetre and sulphur were imported; the charcoal for ordinary gunpowder was from alder-wood, which was brought to the works and burnt in pits in the ordinary manner; for the finer or sporting powder

dog-wood (*cornus mascula*) was used; this was converted into charcoal in cylinders similar to the retorts used in the manufacture of gas. When the underwood was being cut in the district the dog-wood was carefully reserved, peeled, and tied in bundles closely resembling the osiers used for basket-making, then carted to the works and piled in large stacks adjacent to the cylinder houses.



VIEW OF RUNNER STONES, on site of Pepper in-eye Mills, with old GLAZING HOUSE POWDER BUILDINGS beyond.

The sulphur in the earlier days was crushed under stones previous to mixing with the other ingredients; later this was found to be unnecessary, and consequently discontinued; the stones used for this purpose can now be seen built into the external walls of the coal stores at Powdermill House. They are five and a half feet in diameter and one foot two inches in thickness.

The saltpetre which was delivered in its crude state was purified, or refined in a large building called the

Refining House; very large cast iron furnace pans were used for the purpose, in which the saltpetre was placed with water and boiled for several hours; after cooling the water was drawn off, the saltpetre remaining in the pans in beautiful white crystals; it was then placed in smaller pans, and, when heated to liquid state, poured into moulds in readiness for the grinding.

The grinding or amalgamating was the first process in the manufacture after the preparation of the ingredients. The buildings in which this was done were always referred to as "The Mills," and were constructed of stout framing with light roofs and panelled sides, with the object of offering but slight resistance in the event of an explosion; the circular stones by which the grinding was done were of black marble, about six and a half feet in diameter and sixteen inches in thickness, each weighing approximately six tons. Each mill had two pairs of these stones, which were called "Runners"; they revolved vertically in pans on beds of nine to ten feet in diameter, one pair on each bed, the power being transmitted from the water-wheels by overhead gearing.

The stones being large in comparison with the beds on which they revolved with parallel faces, the motion was a constant screwing round on the bed, by which means the grinding and mixing was accomplished; the amount put under each pair of stones was eighty pounds which was termed the "charge," and the time required to grind each charge was ten hours; during that period it was broken up by the millmen at regular intervals and kept slightly damp by the automatic sprinkling of water.

At the "House" mills there were two pairs of larger runners, each weighing nine tons; the "charge" put under each pair of these was one hundred pounds, and the time required for grinding was eight hours only, and here, when there was a shortage of water, auxiliary power was supplied by a Beam engine installed about the year 1814.

In the whole series of works were seven grinding

mills, with fifteen pairs of runners, with a grinding capacity of 2500 lbs. in twenty-four hours.

At the Farthing Mills the two pairs of stone runners lay on the site in view, until a few years ago, when the mill-pond was cleared of mud, a great portion of the vast accumulation was tipped over the dam where these stones now lie buried several feet deep under this consolidated mud. The large runners from the "House Mills" were removed to Dartford when the work ceased at Battle. The two pairs of "runners" at Pepper-in-eye still lie on the site, and at Sedlescombe the old stone runners still lie on the bank by the stream at the old site.

The powder was taken from the grinding mills to the presses, the buildings for this purpose being isolated from the vicinity of other buildings; the dust powder was damped and placed on copper sheets three and a half feet square, and spread evenly to a thickness of about two inches, the plates thus loaded were placed one above another until about half a ton was in position; the pressure, by means of a screw press, was then applied by manual labour, a long wooden arm being used to increase the pressure; the powder was thus reduced to a thickness between the plates of about three-quarters of an inch, and then resembled slate.

When steam power was introduced at the Pepper-in-eye branch of the works a modern hydraulic press was erected, worked by an engine; with this a pressure of four hundred tons was available, and the full charge of powder at each pressing was increased to twenty-four cwt. On the erection of this the hand presses were abandoned.

The corning or granulation of the powder was the next process; here the cakes of powder, as they came from the press, first passed between zinc-cogged rollers, and were reduced to pieces the size of marbles, then through plain brass rollers for the various sizes required; next undergoing the sifting, through meshes of varying sizes, from the coarsest for blasting purposes, etc., to the finest grain sporting powder.

There were five or six buildings for corning at the various branches of the works, but when a large two-storied corning house was built at Pepper-in-eye, fitted with modern plant and worked by steam power, the greater portion of the corning was executed there; this building is still standing in a fair state of preservation.

The glazing succeeded the corning of the powder; the glazing houses were large buildings with a wooden shaft running through the entire length of the place, on which were fixed wooden cases resembling barrels, the wooden shaft running through the centre of each; a certain amount of powder was placed in each "barrel" or cylinder, with the addition of a small quantity of plumbago, the powder at this stage being of a dull brownish colour; the barrels were, by the aid of water power, made to revolve slowly, by which motion the powder was continually in motion by sliding down the sides of the barrels, which in time produced the characteristic black and shining appearance of the grains of powder. It was then taken to another building to pass through the "dusters" to extract all the fine dust powder.

At this stage the powder was taken to the "drying house" or "stove." The stove at the "House" or Central Works was a large brick building, the furnace and chimney stack being several feet from the building, the heating being by hot air flues and later by hot water system; racks were ranged in the centre and around the walls, with a gangway between the racks; the powder was put in trays, each holding about twenty pounds and placed on the racks to dry; when the weather permitted, as much of the drying as possible was done on large sheets of lead in the sunshine; these were fixed on wooden framework near the drying house. At the drying house at Sedlescombe (which is still standing) the furnace and chimney are under the same roof as the drying chamber, brick walls separating the furnace from the drying room.

The grading of the powder in its various qualities

and sizes for sporting, blasting and munitions, etc., and the final testing was then executed. (Two of the instruments which were used at these mills for the final testing of the gunpowder are now in the Hastings Museum.) The powder was then transferred to the packing shops, where it was packed in twenty-eight and fifty-six pound kegs; the sporting powder in one pound canisters. These kegs and canisters were also made at Battle. The packing was done chiefly by women, a considerable number being occupied in this work, the powder being finally stored in the magazines in readiness for delivery.

It is but natural to presume that these extensive works, covering so long a period, did not escape occasional accidents. Horsfield, 1835, referring to this in his notes on Battle Parish and the Gunpowder Works, concludes, "recently, however, they (accidents) have not been so numerous as they were wont to be." This, probably, is correct, although within the memory of the writer three explosions have occurred, two being of a minor character, the other resulting in the death of two of the powder workers. But the most disastrous of which we have records are in the long past, viz.: An extract from the burial registers of Battle Church—

"1764. Dec. 5th. James Gillmore and Thomas Gillmore, both buried in one grave, who were accidentally killed by the blowing up of the Sifting House at Sedlescombe Gunpowder Mills; in which house there was computed to be a Ton of Gunpowder; at which time and place there was two other men killed, which were buried at Sedlescombe."

Another, which occurred when the grandfather of the writer was at the Battle works; by the courtesy of old Mr. Morgan, we quote from an old newspaper an account of this explosion, headed:—

"Powder Mills at Battle blown up,"

and is to the following effect:—

"About noon on April 27th, 1798, one of the Battle Powder Mills with a Drying house and Store-room nearly adjoining were blown up with two tremendous explosions and totally destroyed. Three men employed at the Mill were blown into the air and killed. Seven separate buildings were completely destroyed, though only two

reports were distinguishable; the quantity of powder exploded exceeded fifteen tons in weight, and the damage is estimated at upwards of £5000. 0. 0. A house situate about one hundred yards distant has to be re-built, while a heavy sandstone from the Mill was carried over the roof of the dwelling, and pieces of timber to a large wood half a mile from the Mill."

What remains to-day of the works and industry of which the story has now been told? The mills are silent, and the methods of making munitions have undergone wonderful changes, and Battle has long since ceased to have a part therein. Yet it is possible to roam over the sites and mentally reconstruct the old works. There are a few interesting relics of the busy past, including the old grinding stones lying on the sites of the mills at Sedlescombe and Pepper-in-eye, and at the latter place the old glazing house, the corning house, with engine house adjoining, and the magazine still remain adapted for agricultural uses; and at the "House" the millwrights shop and charge-room are still standing, also the cylinder houses adapted for cottage and stores; beyond the above-mentioned, the visible signs that the Powder Works were ever in existence here are few.

Two centuries of activities have been spanned, and the history outlined as far as available chronicles permit. It is a little romance of industry lit up with alternating successes and losses, and the glamour there must for ever be over the simple story of a village enterprise which became an industry of national importance. One day we hope that further records will come to light, when it may be possible to fill in the blanks of the earlier stage of an enterprise that flourished in its day, and is now but a name.