

## **MALVERN MILL AT BLOCKLEY THE FORTUNES OF A NORTH COTSWOLD WATERMILL**

Jeremy Bourne

Malvern Mill is a small former watermill about four hundred years old. It has been used in different centuries for a variety of processes and commodities, following the most promising commercial trends of the period. It was never converted to steam or electrical power, being water-driven throughout its history. But it had to discard much machinery and re-tool each time that it took up a fresh trade. Today, some forensic skill and imagination is needed to track down the signs of early mechanical uses. Its present name dates only from about 1930, following its conversion to a private house. Before that time, in common with all the Blockley mills, it was known only by the name of the master miller currently in charge. This article considers first the historical background; and then secondly, the archaeological evidence. Blockley is often called the village of watermills, and in fact there were once fourteen within the civil parish, nine on the Blockley Brook, three on its small tributary the Cole Brook, and one at the confluence of the Blockley Brook and the Knee Brook shortly before it enters Warwickshire. Domesday Book in 1086 already lists twelve of these, but the likelihood is that they were very basic "stream wheels", undershot and hanging into the main current.

The present mills are all seventeenth century or eighteenth century, with a number of nineteenth century additions. Sadly, all but two are now private residences, with only the smallest vestiges of machine housing and equipment. Of the other two, one is now a semi-derelict waterboard office, and the last was demolished completely to make way for a gentleman's mansion in 1858.

### **History of Malvern Mill**

Malvern Mill is a typical example of the smaller seventeenth century mills, the second in line working downstream. As with most of the other mills, its greatest days were during the period of the Blockley silk trade, from roughly 1685 to 1870. The earliest fixed date for any of the Blockley mills, which is Bishop Giffard's survey in 1299, describes a fulling mill, for treatment of finished woollen products, and a corn mill. But Malvern Mill, which is thought to have existed from 1617 or thereabouts was certainly a flour and grist mill until its conversion to silk throwing. This happened between 1700 and 1766, when the owner, Robert Strong, is listed as a Master Silk Throwster. This is the first Title Deed, but as with all the mills, the original construction must have taken place long before any surviving Title was drawn.

By 1800, Malvern Mill had been taken on by William Russell - perhaps earlier, because Strong died in 1780. Russell married Lucy Franklin, daughter of a master miller and silk throwster at one of the larger mills downstream. She was a remarkable woman: courageous, efficient, a shrewd business-man, "born to the trade", and well able to take on the other Master Throwsters and beat them at their own game. The Blockley Guide and Census of 1827, written by the Reverend W. T. Eyre, Curate, is a mine of information on the trades and labour strengths of Blockley. Amongst the 2087 named workers - of whom about 500 were probably engaged in silk throwing - there are nine Master Silk Throwsters. Two of them, including the great Lucy Russell, were women. Under Lucy, Russell's Mill, as Malvern Mill was then known, achieved its greatest commercial success, so much so that she was able to take the tenancy of other mills, including one at Chipping Campden. She instituted the construction of a pure water drinking fountain opposite her mill, to try to combat the many deaths from cholera and typhoid, and this is still in use today and named in her honour. The proceeds from her commercial success enabled her to sublet to a tenant master throwster in 1834, and to endow two valuable charitable trusts, one for the elderly and one for schoolchildren, both of which are still distributed today as part of the Blockley Relief in Need Charities. She died in 1858.

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After the Franco-Prussian War of 1870-71, the removal of residual trade prohibitions with France and Italy caused the silk trade at Blockley to collapse. Each mill was re-equipped for a new commercial venture. Two became piano factories, one took up ramie spinning for sailcloth and light ropes, one became a foundry, one a collar-and-shirt factory, another a generating station, and most returned to flour or grist. Malvern Mill took on flour, flax thrashing, wood-chopping and cider, with a number of back-up wheels and outhouses being erected to accommodate all of this. Late Victorian letters describe the mill as smelling constantly of rotten apples. But the First World War put an end to any chance of these village mills continuing to be commercially viable, and within a decade all had been converted to private houses.

### **Surviving Remains**

Now for the archaeological evidence, with a little analysis of the mechanical procedures. In its early seventeenth century form, as a flour and grist mill, there may well have been a stream wheel under the South, or downhill gable. If this was the case, then the millpond must have been dug at a later date, for it was large for a mill of such modest size, and was laid out so as to provide enough height for a very large breastshot wheel in an indoor wheelhouse under the North, uphill gable. This could have been only as late as the eighteenth century, as part of the conversion to silk throwing.

The evidence for this stream wheel lies in the present coalhole in the lowest cellar, which is clearly a filled-in transverse cut. (Fig. 1 plan of South end) It appears to have been used as a channel to lay soil drains, in modern times, with a very uneven, slightly domed, concrete surface being laid over the top. At the upstream end of this supposed channel are a flight of steps and a soil manhole, and at the downstream end a cellar door with a little flight of external steps taking one up to natural ground level above. The main stream has been diverted under a magnificent stone culvert, lined with drystone walling and covered in with massive stone slabs, strong enough to bear the weight of a large wagon and horse team; though not strong enough to support the hydraulic struts of a JCB being used to hoist joists and purlins - for in 1994 during our reconstruction of a previously demolished upper gable room, the JCB went through the slab into the brook.

Scattered through the garden were a considerable number of millstones - mostly bedstones but with two runners. It is impossible to tell how many of these date back to the seventeenth century mill and how many were brought in in the late nineteenth century. My grandfather "imported" several, courtesy of a local horse-carrier, in order to make up garden paths of millstones. But interest lies in the fact that there are present all three types of stone used in this locality: the obvious millstone grit wheels, probably all nineteenth century, several French burrs, two still having their iron tyres and axle bearings in place, and a couple of very ancient "Cullen" stones (Cologne stones), extremely worn and fragmented. The burrs provided the hardest stone, and were imported from France as ballast. They are in jigsaw pieces, and had to be assembled and then tyred by a blacksmith before installation. The Cullen stones were said to have been abandoned very early on, because they lost so much grit in the flour-milling process that they needed constant resharpening, and those who subsequently ate the bread risked losing their teeth.

There is also a random collection of millwrighting tools, mostly chisels for recutting stones and weights for weighing up flour sacks. Although some are so ancient and pitted with rust that they could go back three hundred years, most are probably Victorian.

The important commercial era for Malvern Mill had begun before 1766. The Title Deed shows a huge millpond, but of course no internal detail in the building itself.(Fig.2.) It is clear, however, that the new large wheelhouse and wheel was in operation by this time. Such a large drive was needed if the maximum number of silk frames was to be accommodated, and it appears that at least twenty

could have been fitted into the upstairs levels. Each frame required at least one operative, perhaps two, or very often one and her child, working side by side.

The present drawing room was the wheelhouse. The subfloor below the present floor is two and a half feet to three feet deep, so it is possible to crawl between the ancient and modern floors. The area is fifteen feet wide and divided into halves. The outer half was clearly a threshing floor. The surface of carefully levelled and beaten clay has worn well and might have been used for flax rather than corn. The inner half contains the wheel pit. This was thus seven feet wide, and lined with finely cut ashlar blocks. During the conversion to a house in 1928-30, when the wheel had been thrown out, it was used as a rubbish tip for masonry and plaster torn from the fabric above, so that its true depth can only be measured with an iron probe. But to judge by the holes in the walls which must have contained the bearings for the wheel axle, it would have been about six feet deep. We are therefore considering a waterwheel of ten to twelve feet diameter and six to seven feet wide. With the head of water flowing from the large pond, which ran right against the wall of the room, such a wheel would have provided a great deal of power for what was, after all, only a small mill.

Adjoining the wheelpit, and below the present entrance hall, is the central bay of the cellars. This would then have accommodated the pit wheel, wallower and spurs, and need not have altered materially in the change from corn to silk. Except of course that the spurs would have been used to power a vertical belt drive rising through three floors to the horizontal drive shafts on each frame level, from which subsidiary belt drives powered the actual throwing frames. The hall at one time had no entrance door and was in fact the rear of the building. Within it were the millstones, and the cast iron pier supporting the 8 inch joist upon which the stones rested is still in situ in the cellar below. Fig. 3 shows a section through the building drawn at the time of its partial restoration in 1993, and superimposed in broken lines are the upper levels, including the present bedrooms and the additional floors above them which were taken down in 1928. The section shows conjecturally the line-up of silk frames, the vertical belt drives, and the waterwheel in position below.

Of the silk frames themselves there is no trace whatever, nor indeed is there anything in any of the other Blockley mills. But all such machinery was deliberately stripped out and scrapped from 1870 onwards in order to tool up for other kinds of work. Small items have turned up in other Blockley houses, such as minor cogwheels, clutch plates for slipping frames out of drive when threads broke, a massive three foot spanner, and glass rods for the thickness control of winding twisted organzine,.

Now a word of explanation as to the actual techniques used in Blockley. It was James I who first ordered the production of silk - and the breeding of silk worms - on a commercial scale. But the plan was doomed to failure not merely because of the Civil War, but also because silk worms will only breed on white mulberry trees, which will not flourish in our climate, and because the actual methods and machinery for throwing spun silk thread were controlled by the Italians, who guarded the secret of their techniques on pain of death. But by 1718 John and Thomas Lombe of Derby had patented their specialist throwing frame after a daring episode of industrial espionage in Italy, and English factories were ready to move.

Sir James Rushout, MP for Evesham, acquired the Great House and estate of Northwick Park at Blockley in 1683. He came of old Flemish Huguenot silk weaver stock; his father had been Lord Mayor of London, his brother was Treasurer to the Admiralty under Charles II and James II, with Samuel Pepys as Secretary, and all the family had major business interests in the Spitalfields silk business, in the East India Company and in the Levant Company. So it was inevitable that he should have been interested in silk processes. The twelve flourishing watermills of Blockley gave him the opportunity to put his ideas into practice.

The import of unspun cocoons proved impossible, because they have to be kept soft and wet, so that the resinous gum secreted by the caterpillars does not harden off into a carapace. This meant that no cocoons could be usable after a three-month sea-voyage in a sailing merchantman round the Cape from Hankow or Shanghai. So the thread arrived in this country already spun into skeins, which were twisted and packed into sacks in a special way, ready for the next stage, the throwing or "Throwsting". It is this stage only that was carried out in Blockley and many other Midlands villages. Blockley was a supply town for the Coventry ribbon and fashion accessory trade, so it was from Coventry that the spun skeins arrived each Friday by ox-cart, to be distributed to the throwing mills. The throwsting process consisted of winding threads from the skeins on to spindles suitable for the weaving looms back in Coventry. The skeins were mounted around an expanding drum-shaped frame called a swift. The threads were led down through a series of rotating armatures, which not only spun them on to the spindles but also combined several threads together in a reverse twist, creating a multiple thread which, like spun rope, would not double back on to itself and would also be sufficiently strong to bear the tension when mounted on to a weaving loom. Three qualities of thread were produced in Blockley, singles, tram and organzine. Singles was used only for very plain and - comparatively speaking for silk - rough material. Organzine was the most desirable and valuable, and produced the highest grade of silk cloth. Fig. 4 shows two illustrations from the *Penny Magazine* of 1843. One is a simple wooden frame bearing a single line of swifts, the other an iron frame with two lines, one above the other. The operative is shown wearing clean apron and starched cuffs to avoid snagging the work, and a pair of spectacles; for the splicing or "rubbing-off" of broken threads required excellent eyesight and very deft, clean fingers. This, then, was the work carried out at Malvern Mill in its heyday.

### **Conversion to a Private House**

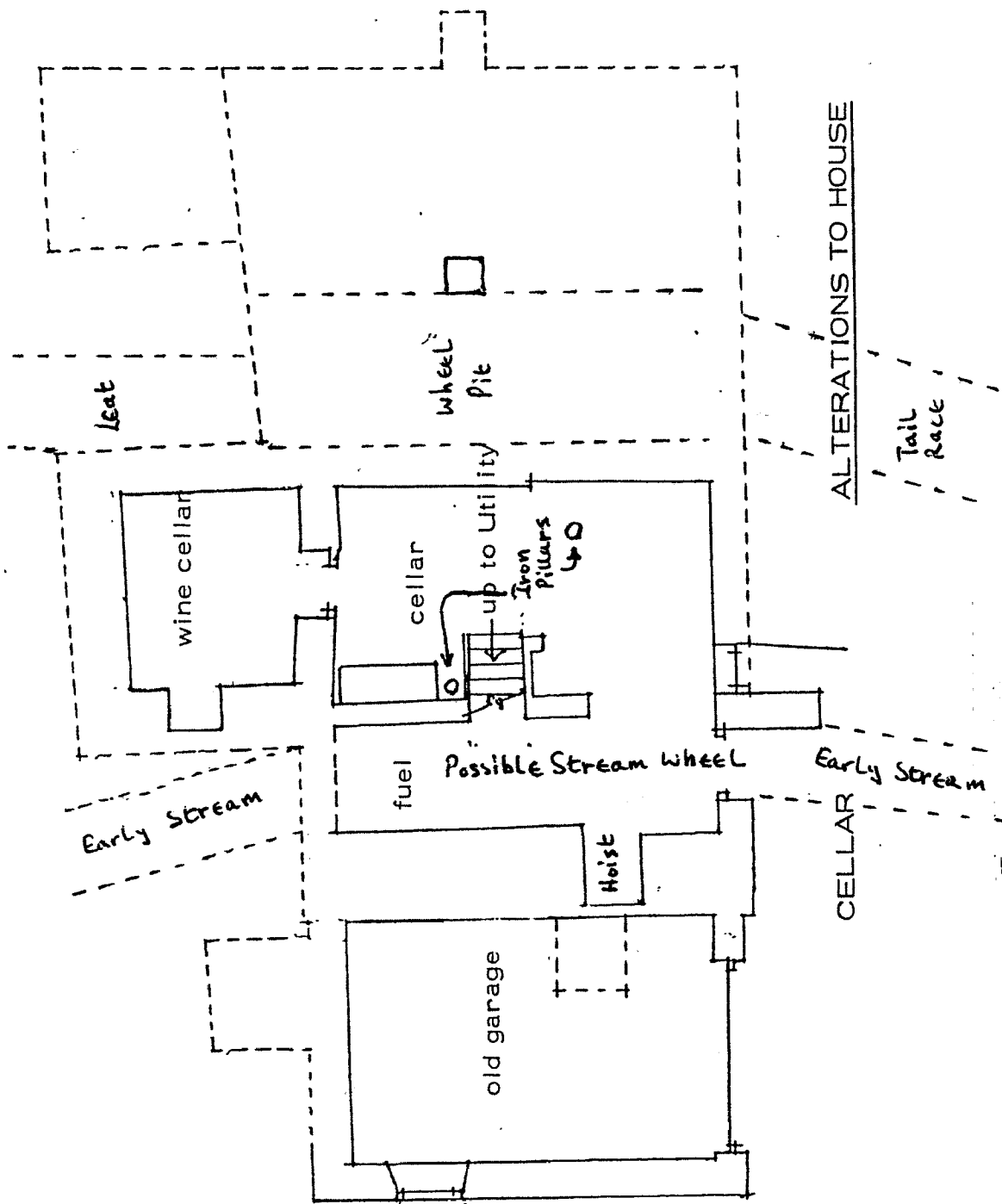
When the semi-derelict mill was bought in 1928 by a London architect to convert to a private house, the plans were ruthless. It is thought that those items of machinery which could not be sold for scrap - the great bulk - were thrown into the pond, which was then filled and levelled off for three-quarters of its length, in order to provide a lawn. Culverts to control the overflow when not milling were similarly filled in, and paths laid over, or in one case a rockery. But the stonelined culvert walls are still there beneath the garden, and one portal, formed, by a single huge stone lintel, can still be seen on the main brook.

In the building itself, as well as using the wheelpit as a rubbish-tip, many windows were filled in, the entrance was turned round to make the house as it were back to front, the milling chamber became the entrance hall, the main North gable, containing the principal throwing floors, was reduced by a storey, and the South gable was also removed. The integral wagon shed, where the old sack hoist had been, was turned into a garage. Upstairs, several stud walls were introduced in order to create small extra rooms. Modern conservation planning laws would have forbidden a great deal of this work.

Nevertheless, even as a rather pretty retirement cottage, the old mill still retains many of its associations, and for those who can take the trouble to search and deduce, much of its industrial history can still be pieced together.

### **Sources**

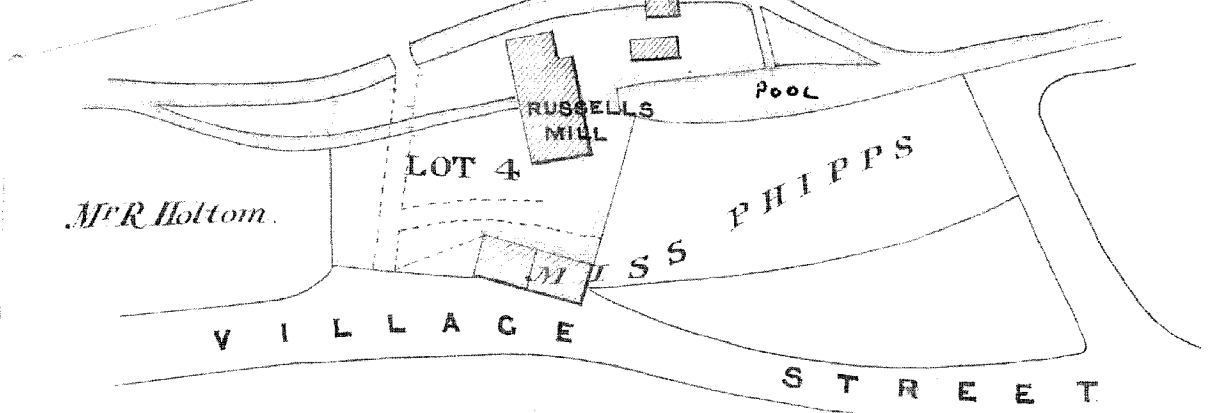
Blockley and the Silk Trade, Norah Marshall FLA.  
Blockley - Village of Water Mills, P. M. Usher.  
Blockley Through Twelve Centuries, H. E. M. Icely.  
Samuel Smiles Chapter 4, John Lombe.  
Patent Office Patent 422 1718, Thomas Lombe.



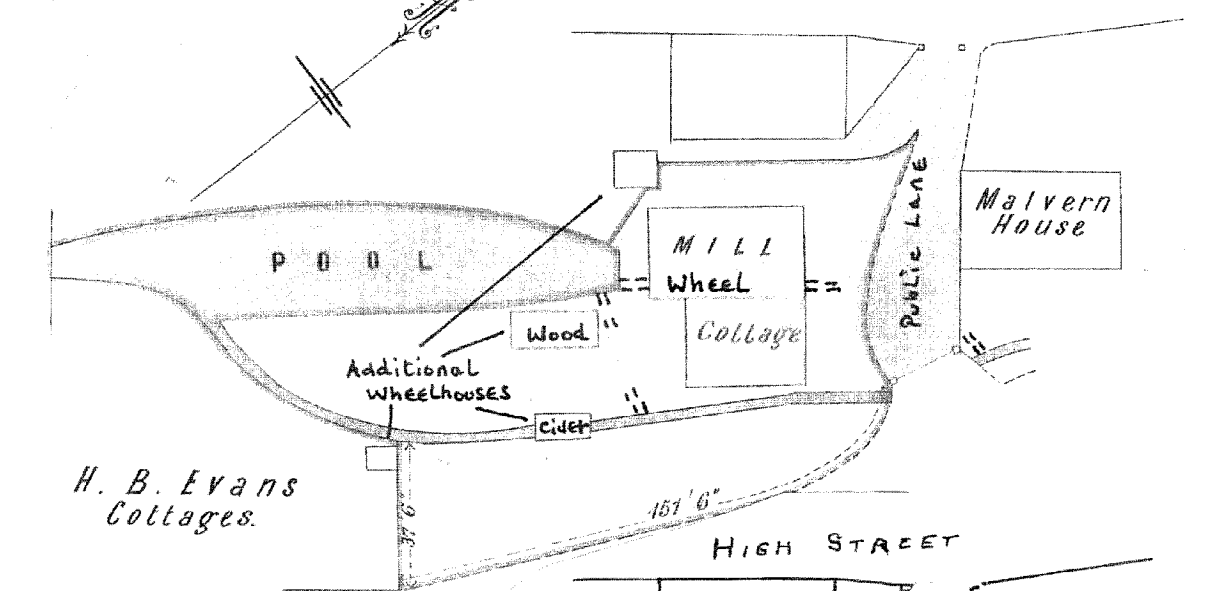
Amended June 6th 1993

Figure 1. Alterations to House (Plan)

1871 Close of the Silk Works



1903 General Milling



1931 Conversion to Residence

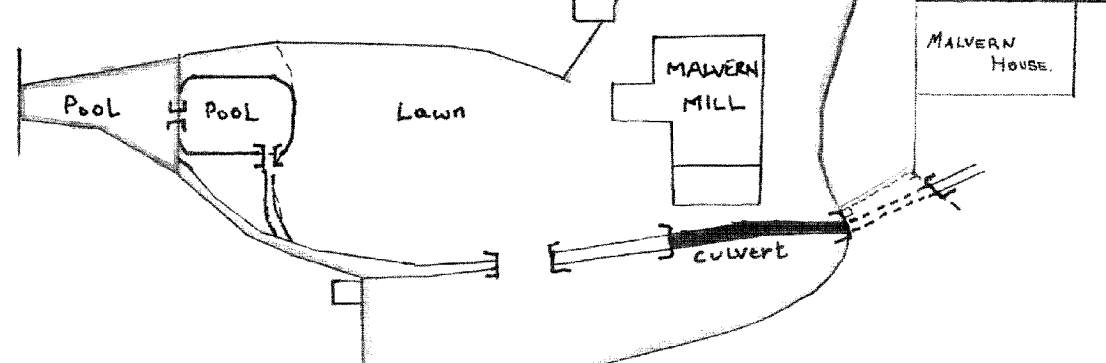


Figure 2. Title Deeds (Plans)

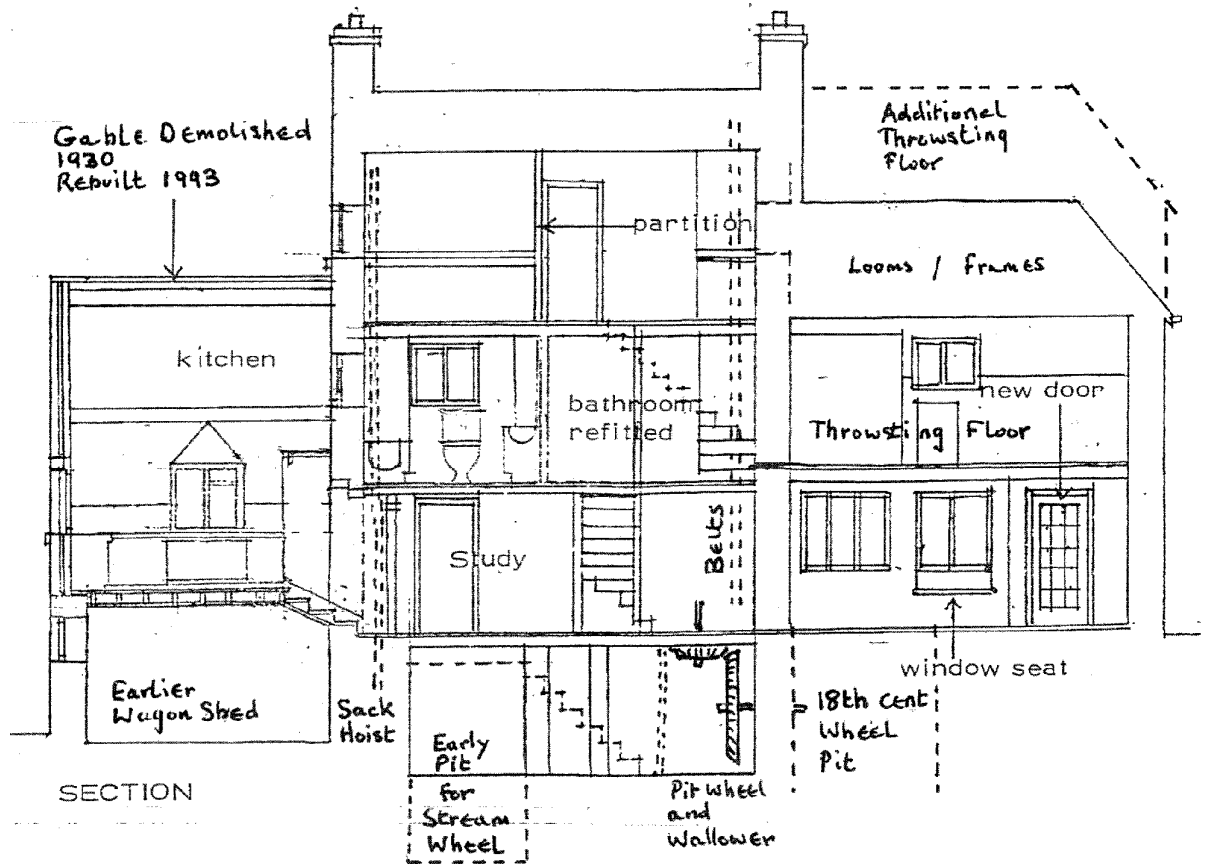
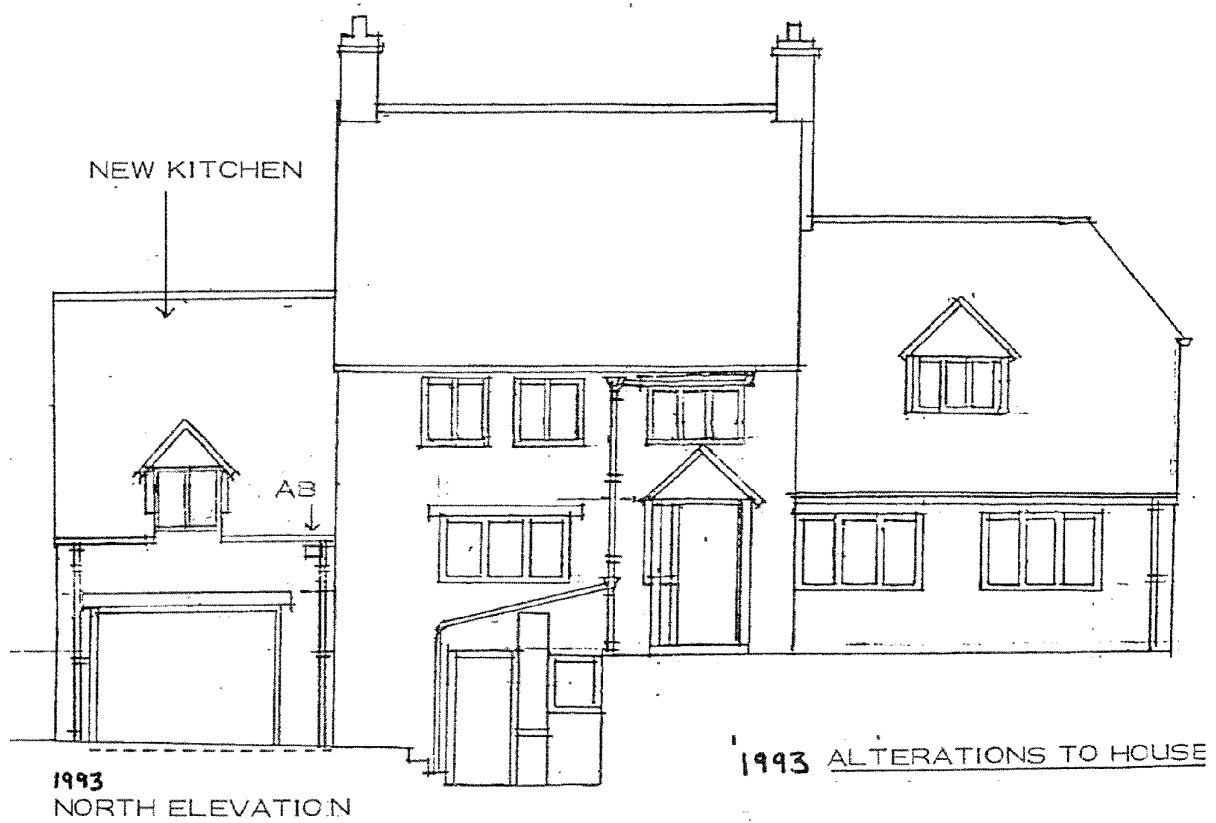


Figure 3. Alterations to House (Elevations)



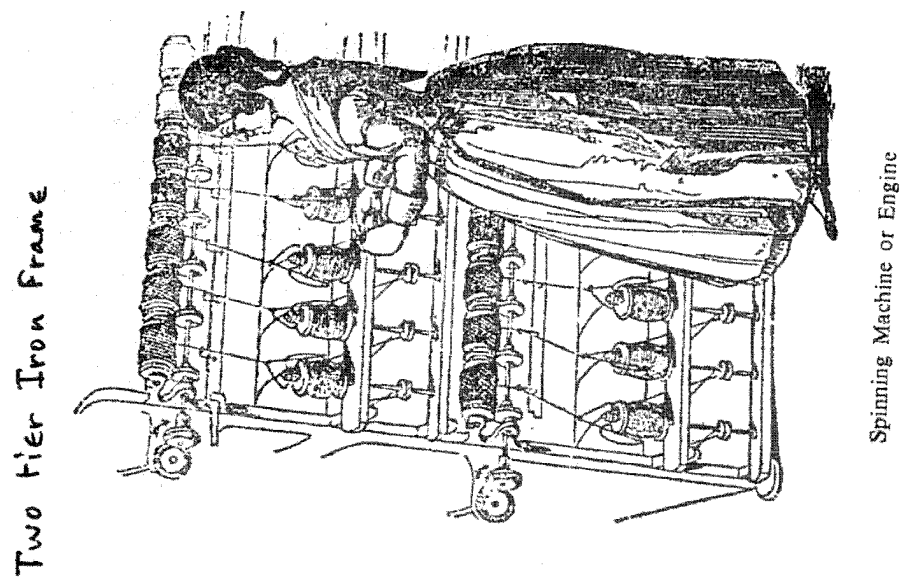
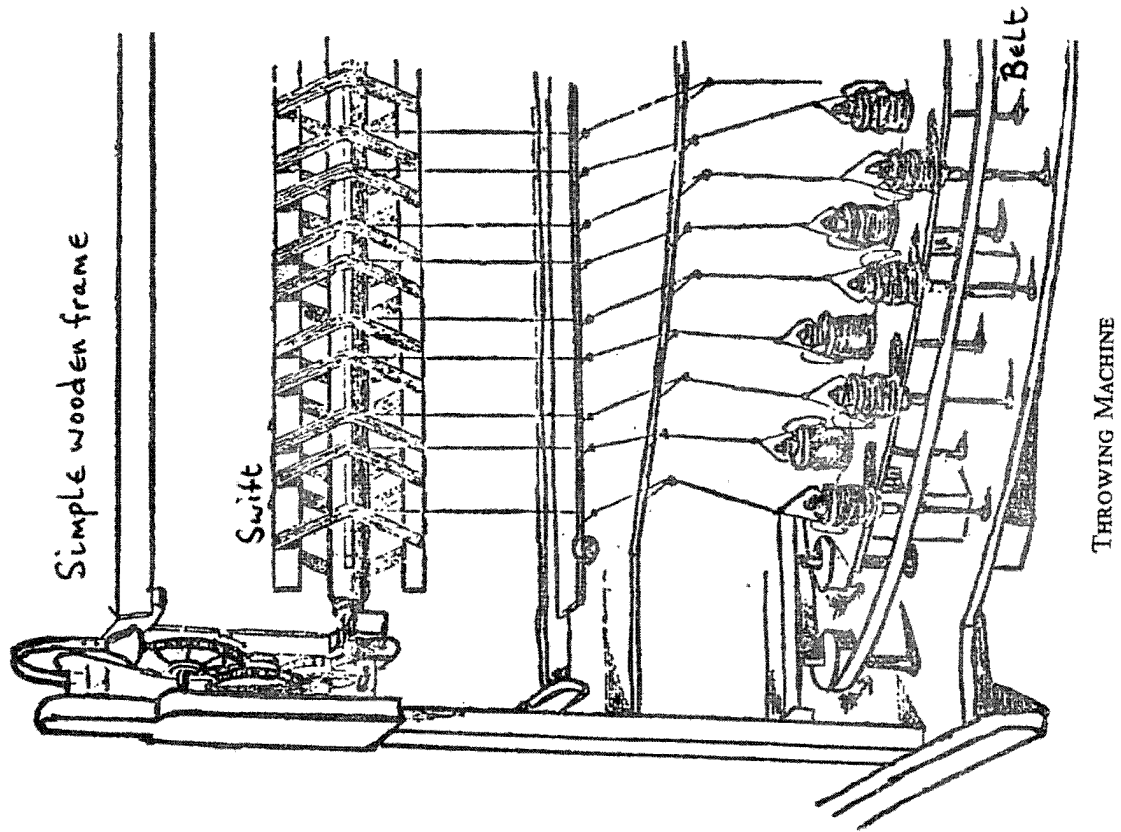


Figure 4. Throwsting Frames 1843