MILLSTONES AT WILLSBRIDGE MILL

Owen Ward

Prominently displayed in front of Willsbridge Mill are eight millstones only one of which belongs at Willsbridge. But they do form part of the only collection of millstones in this part of Britain. The next nearest, of sixteen stones, must be that owned by a miller-farmer in south-west Wales.

Swineford Colour Mills

The stones at Willsbridge come from only two sources, even though there are as many as eight of them, besides a few scraps of a couple more. Seven of them reached Willsbridge in 1983 , as recorded in the Bath and West Evening Chronicle for 25 November 1983:
"Six (sic) big millstones from the former Kingswood Council offices at Warmley arrived at Willsbridge Mill, which is being restored by Avon Wildlife Trust as a study centre ... The stones, each about a ton, were loaded and off-loaded by a crane ...How they came to be at Warmley House, formerly the home of the Haskins family, and later the headquarters of the old Warmley Rural Council, officials are not quite sure."

There is no doubt that they were removed from what is now the picnic site at Swineford. This was laid out by Kingswood Council on land which was acquired from Brecknell, Dolman and Rogers. Before that it belonged to a property company who, until the Second World War, had operated a colour mill on the site. Before that, the history of this particular site must be classified as 'obscure'. There was a logwoodmill at Swineford before this, and Ellacombe (p 227) had an account of it. But from Donn's map of 1769, and Ferrners's account of 1760, it can only have been the site on the Avon which adjoined that later occupied by a copper rolling mill.

Deeds in possession of Kingswood District Council do tell us the story from 1876 onwards. In that year the two tenants of the site were Samuel Lyne Wellington and Thomas Edwin Macks. Although they had the property conveyed to them by the trustees for the heirs of their former landlord they seem to have repaid little, if any, of the mortgage with which they entered it. By 1897 the property had been repossessed by the trustee, one Charles White Taylor Bush. Unfortunately, and slightly unusually, the occupation of Messrs. Wellington and Macks is not stated, but this may well appear from directories or other sources.

But since the property was known in 1897 as the Swineford Colour Works, they were presumably engaged in some form of colouring trade. Bush sold the property at this point to Mary Ann Parsons Thompson, who bought it only as an investment, or acquired it in payment, perhaps, of a bad debt. In 1905 she sold it to the then occupiers, the West of England Ochre and Oxide Company. They had been buying peripheral bits of land for development and access since 1901 but it is not obvious at what date they actually moved on to the site. Their advertisements in the Colourman's Journal begin in 1908 and run up to 1919, if not beyond. At all events, they were almost certainly the last to operate a colourworks there, as in 1941 they became the Bitton Land Co. Ltd., and sold the site to Brecknell, Dolman and Rogers who in turn disposed of it to Kingswood. The stones at Willsbridge now therefore originate most probably from the ochre works, not the logwood works; the ochre works presumably closed in 1939 when war broke out.

Brecknell, Dolman and Rogers were on site (or at least owned it) from the 1940s to 1972 or 1973. During the war the premises were used for assembly work, but around 1945 the foundry was moved out there from Pennywell Road, making non-ferrous castings for BDR's machines. It must have been when that firm collapsed that Kingswood bought the land for the picnic site.

Willsbridge Corn Mill

Of all the stones at Willsbridge Mill, only one has been there any length of time, and presumably belongs there, although it is curious that it is unique since it is one of a pair of corn grinding stones. Its present condition, however, suggests that its fellow, whether it was French or Welsh, may well have disintegrated; pieces of both were found on the site.

The mill is much better known as Pearsall's Iron Works than as a corn mill but its history has been recently researched and summarised in an Avon Wildlife Trust Guide. [Willshridge Valley - The Historical Background, J. P. DeRohan, n.d. but c.1985] It dates from about 1820, when ironmonger John Winwood had a corn mill built on the spot to replace Pearsall's old iron works. For more than a century it is presumed to have ground wheat, until the turbine was installed in about 1942, when animal feed was also processed.

At some stage Barron's of Gloucester, a well-known firm of millwrights [Tucker 2] appear to have been called in to refurbish the mill. It is their equipment which is largely in evidence there today, in particular a set of conveyor trunking which bears their name. The mill may well have been kept busy for grist milling until the 1968 flood. One set of stones, said to have been made of black, emery-like composition, was found lying in the mill. Such stones were supplied in the nineteenth century for animal grist milling. They have now been buried in the concrete floor. It is thought that [E. Fry, AWT's Archives] there were three pairs of stones in all; the 35hp turbine was capable of driving that number, as well as some of the ancillary machinery operated from the first floor lay-shaft.

The lay shaft on the first floor was retained as one feature of the recent enterprising restoration work at the mill, though it was truncated later to accommodate a temporary exhibit. It ran across the entire width of the building, bearing an assortment

of pulleys, including one wooden remnant, but all of them belong where they are. The purpose of each can only be guessed at; so far without a great deal of confidence. No details of earlier layouts are available at present.

The stones are somewhat easier to identify, at least in general terms.

Grist stones - some background notes

Two kinds of grist stone are represented at Willsbridge. The reddish "Welsh" stone is probably the older and is one example amongst hundreds that can still be found on mill sites in the west of England. They almost certainly came from quarries in the quartz conglomerate beds of the Wye valley, the biggest of which have been located near Penallt, near Monmouth [Tucker 1]. A pair of them could have been used to grind meal for animal food but on the other hand it was not unusual for a miller to run a Welsh stone together with a French burr stone so as to produce an acceptable wheat meal for human consumption.

The French burr stone was much harder, more difficult to dress because it was so hard, and much more expensive than a Welsh stone. The quality of meal was, however, easier to regulate, and once the stone was dressed it kept its cutting edges for much longer. French burrs were available in this country from the fourteenth century, and rebuilt ones still are. They are, and have been, used for a wide variety of jobs other than flour milling.

The corn grinding stones

[1] The French burrstone (now in separate pieces)

Like most millstones, the surviving burrstone betrays little of its history. The material of which it is constructed is almost bound to be French. It consists of an array of nine wedge-shaped segments, like a box of wrapped processed cheeses, and like many of the latter the portions are assorted. Although the colour of a French burr is not perforce a good guide to its quality, in general the whiter or even bluer the stone the more consistent it is, but the browner it is the less fit it is for milling. At least one of the wedges is inclined towards the brown of the 'fox-burr'. This quality was despised as only fit for building, if that. The present condition of the brown segment tends to confirm the diagnosis by pigment; much of the surface is very badly weathered indeed.

The pattern of the stone does suggest that it was built in this country from irregularly shaped blocks exported by the French, either to London or Gloucester. One similar stone made from radial wedges is known to have emanated from Gardner's works at Gloucester, and is now at Cranham, Glos. [Gordon Tucker, letter of 1 June 1983]. Another can be seen in an engraving of their works in the catalogues of J. Hughes of Great Dover Street, London.

Burrstones built in France, on the other hand, seem usually to have been built to a different pattern, with four central 'eye' stones surrounded by a 'skirt' of up to a dozen arch-shaped segments around the central core. A more positive clue to the origins of the stone is the inscription on the wooden conveyor trunking already mentioned, and which probably came with the stone. Alas, although successors of the firm of Barron survive in Gloucester [Simon-Barron, Bristol Road, Gloucester] neither they nor the Gloucester Record Office has any records, or recollections, of their millwork.

Other means of identifying the stone do not at present exist. The iron bands which formerly held the segments together had no markings, and their provenance cannot be determined. The entire backing of the stone has been broken away, revealing the extremely uneven backs of the burrs and leaving only a very thin grinding face in some places. Any evidence that could have been derived from the nature of the fill, or from the broad maker' s band, the balance boxes or other weighting devices let into the backing, or any eyecasting has therefore gone. All these are probably lost in the debris on the site or gone for scrap or to a private magpie collection.

This stone was 48 in. in diameter (the majority of stones in England are this size) and the 'eye' was originally round, with settings for the rynd which indicates that it was an upper or runner stone. Its present condition suggests that it was finally rejected as unsuitable for further work, and perhaps laid in a floor, path or flight of steps. This could account for its separation from its fellow. Two iron bands, each 1/4 in. thick and l in. wide used to bind the stone.

Willsbridge Corn Stones - the scraps

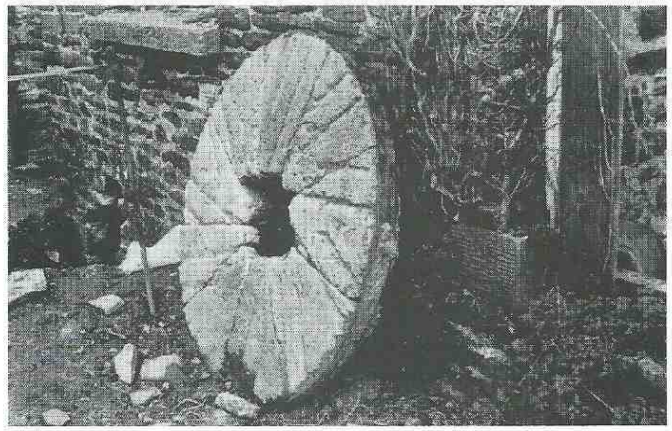
There are three pieces of Welsh stone on the site. Two well-preserved portions could have come from the same stone, the larger, thinner piece from another. Such stones were not supplied in bits but when the time came to dispose of them it would have been easier to break them up first. As has been noted, one of these could have been worked as a pair with the French burrstone.

However, a single flinty white burr, dressed on one face, was found on the site, which suggests that there used to be another French stone in the mill to match the survivor.

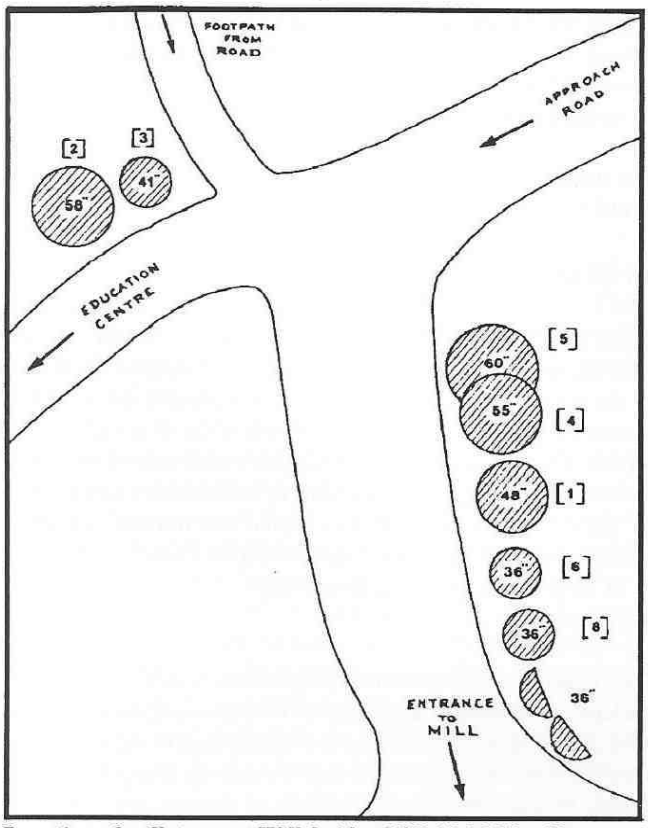
Colour grinding stones - some background notes

There is no simple way to describe the preparation of colours for paint, for dyeing, or as colourant to a thousand everyday products; almost every known mechanical and chemical process is involved somewhere in this group of industries. The millstones used alone range from hand querns for individual artists who prepare their own colours and glazes to some of the most massive and some of the most complicated pieces of equipment manufactured by millwrights. But comparison with local works of a similar kind and with others more or less contemporary with Swineford indicates what we might expect to find there.

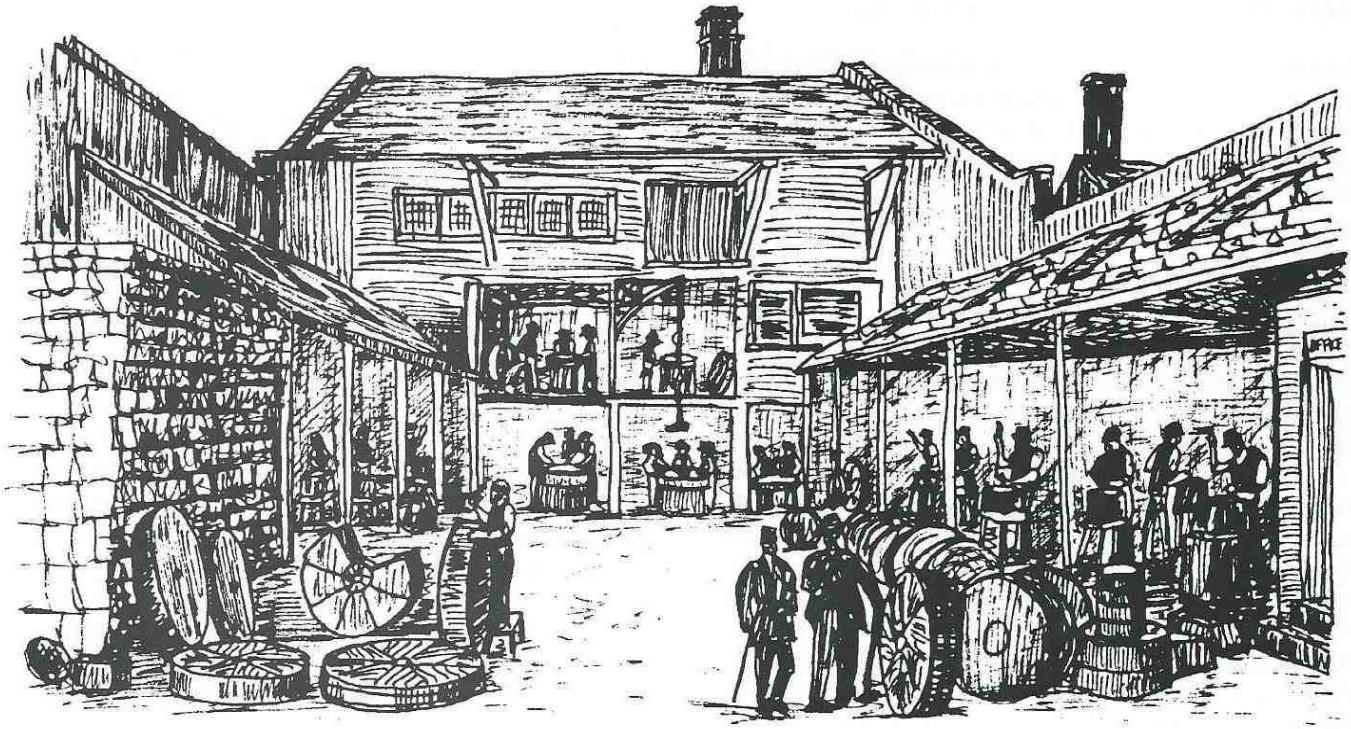
No local colour mills for processing minerals, such as ochre, survive in any archaeologically intelligible condition, apart from a pair of granite edge runners with an iron tyre now built



Stone no.1: French Burr



Location of millstones at Willsbridge Mill (*delt* Mike Chapman)



The workshop of J. Hughes & Sons, millstone makers, showing a segmental stone in construction (*delt* Clare Stephens from an original catalogue illustration).

into a wall behind the premises of Littleton colour mill. This was so, for example, at 'De Kat' colour mill, at Zaanse Schans, in Holland.

It was in the last quarter of the nineteenth century that there was a general decline in the use of natural, vegetable dyestuffs and a growing use of mineral colours which were readily to hand (at Winford or Yate, for example) and cheaper and were quicker to process. It is therefore likely that the next generation of colour makers were using both edge runners and face grinders to process minerals dug in the locality and that it is such equipment as this which has now found its way to Willsbiidge.

The Colour Grinding stones at Willsbridge

The stones transported to Willsbridge from the Swineford site (indirectly) appear to have numbered seven (not six). They lie at present as numbered on the sketch plan. Their identity seems to be as follows.

[2] A large edge Runner with a chamfered edge, made from a coarse granite of the Bodmin Moor type [this, and some other geological identifications, kindly offered by Diana Smith, formerly of Bath Geological Museum] with grey, white and black inclusions, it is about 58 in. in diameter and a foot thick, with a central 9 1/4 in. square eye. It is almost certainly unused and history suggests that it may date from the 1870s, or later.

There are many examples and illustrations of pairs of such stones. One pair was left behind when the Victoria Paint Works at Hook's Mills in Sevier Street, Bristol, closed down. Mark Priest, chainmakers, took over the property. A single sample stands in Castle Green, Bristol, also from a paint works in town.

[3] The smaller stone of a similar granite also seems to be unused. It is 41 1/4 in. diameter and l7 l/2 in. thick, with a central boss to hold a 2 3/4 in. diameter spindle. This stone, like the larger one alongside it, is very heavy, hard and costly. The circular hole for the spindle (rather than a square one) indicates a free-running, or static, edge runner, rather than a driven stone.

This could also have been used to crush raw materials, such as a soft mineral, for colouring. It may have run as a single stone, trundled round in a trough rather like a threshing stone sometimes was. Or it may have been one of a pair, used in the manner of runners in a brickworks grinding pan, with the stones held in a harness whilst the pan, or at least the base of it, rotated beneath it. This is more likely, because such wide stones would be difficult to turn in a circle, the outside edge having so much further to travel than the inside edge. The material being ground is likely to have been soft and sludgy and would have escaped from beneath narrower stones. So far no picture or sample of such a stone can be identified with any assurance.

The five old colour stones [4 to 8]

These comprise two large face grinders and a pair of smaller granite face grinders, plus an extra old face grinder. All are said to have come from Swineford.

[4][5] The old face grinders.
These are burr stones made up of segments of a flinty chert. They are difficult to identify because of the red ochre everywhere - they could be brown and white flint; they could even be French Burr of a mediocre quality. They are backed with all kinds of rubbish cemented together; visible where parts have broken off are brickbats and lumps of flint-like rock and sundry other stone. The edges are firstly banded round the corners, and secondly covered with an iron tyre, like the broad maker's band on a French Burrstone. The one remaining band has nearly all rusted away.

The better stone of the two, which however no longer has any tyre, is 55 in. x 8 1/4 in.; the other, more decrepit, is 60 in. x 12 in. - the same size as the new granite stone.

[6][7] The old monolithic face grinders.
These are of a fine granite which could also be of a Bodmin Moor type, and have scoring marks where something really hard has been trapped between the stones and carried round for a while. There are also a few vestigial furrows dressed in typical of colour grinding stones.

One [6] has a heavy iron bar set in the eye as a fixed rynd. The other [7] has a heavy iron sleeve within the eye, either cast with or welded to a square plate which was evidently bolted to the back of the stone. This stone has split in half.

Peg or other holes and inset bolts encumber the outer edges of the stones indicating some form of decorative, or practical, re-use.

The runner stone [6] referred to above, with the fixed rynd, is 36 in. x 11 in. thick; the bedstone is also 36 in. x 9 3/4 in. thick so that they constitute a usable pair.

[8] The fifth old stone.
This could have made a pair with the stone numbered [7] on the plan. It can be seen to have a round eye, 7 3/4 in. in diameter and be made of a conglomerate. It is about 36 in. by 10 in. and has been cut very deeply to take a substantial three-arrned rynd. It is not obvious that it has been used; the face is extremely uneven, and there is no trace of a rynd ever having been fitted. It has one pair of bolts set into one edge which must represent a re-usage.

One stone remains at Warmley House - in the middle of the lake.

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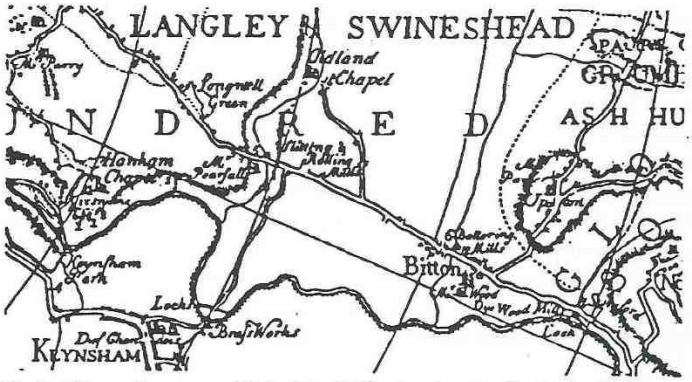
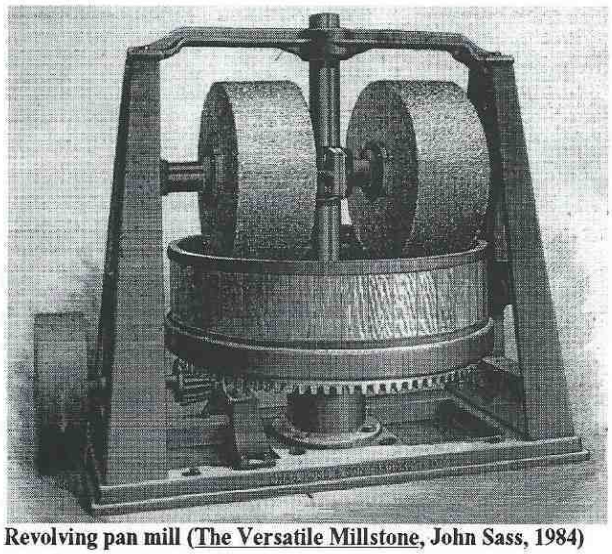
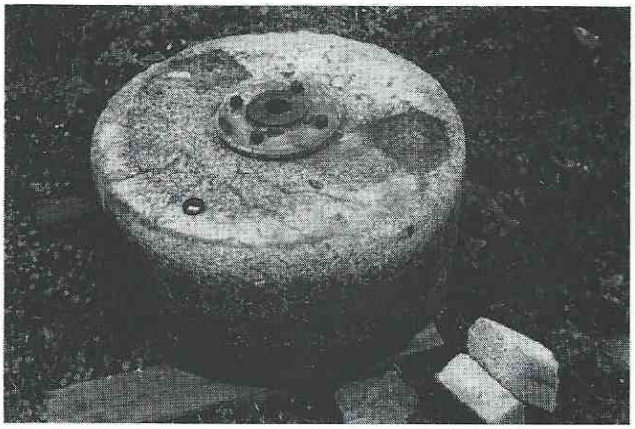


Part of Donne's map, published in 1769, showing the Battering Mills at Bitton, now the picnic site, and (Mr Pearsall's) Slitting and Rolling Mills, now Willsbridge Mill.



Revolving pan mill (The Versatile Millstone, John Sass, 1984)



Stone no.3: small edge runner, possibly from a revolving pan mill

Oil & Colour Trades Journal Diary advertisement up to 1911

Oil & Colour Trades Journal Diary advertisement 1913 to 1920