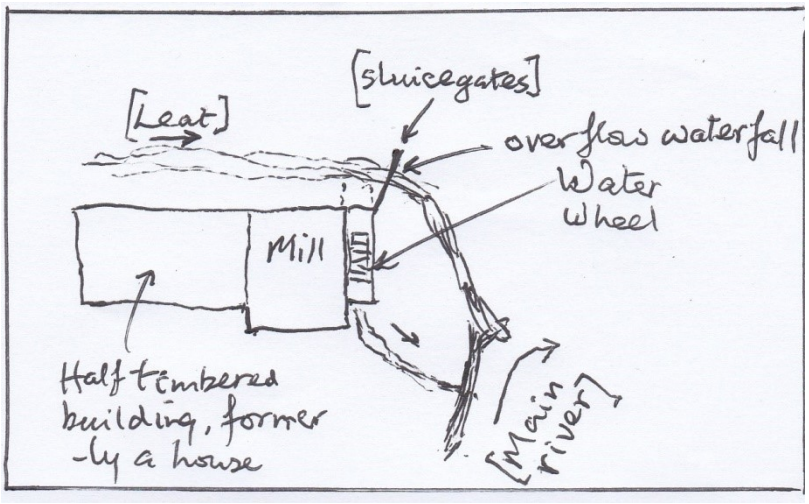
Note on **Wood Mill, Yoxall,** Staffs (nr Burton on Trent)

Grid Ref: SK 1386 2100 On (leat from) R. Swarbourn, tributary of R. Trent

1. I visited this delightful small red brick mill on 21st March 1968, at which time Jack Arch, a retired farmer, was owner. He lived with his sister in the brick house just to the north of the mill that had presumably replaced the half timbered building adjoining the mill as the miller's dwelling. I filled in an SPAB watermill survey questionnaire form (which, however, I never sent in). This being rather too scratty to read easily, I set out the information in it below –

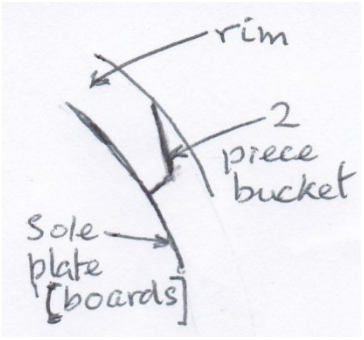
- Right : Sketch plan of site, reproduced from the SPAB form



- I was told by Mr Arch that the mill had last worked about 20 years previously: it had been used quite a lot after World War 2, but the miller was ill and the customers had gone when he recovered. I recorded it as "workable" [but when I tried to get the wheel turning a couple of years later, I found at the waterwheel was actually in a poor state!]
- As to the water supply, the tailrace left the main stream quite some way back from the mill and went round to the back of the mill. To bring the water up to the height where it would go the five feet or so into the wheelhouse, heavy timber gates (two side by side), were lowered onto the headrace where it says "overflow waterfall" in my sketch plan. (I have no recollection of a separate overflow. It may be that it just became an overflow if the water rose to over the top of the gates). A crowbar was used to lift the gates, each gate having a pawl working on a slotted plate to hold it up. There was no mill pond, but the headrace was quite a deep channel,

so when full it would store a considerable quantity of water. Trash grid where water goes in to wheel house.

- Waterwheel. One wheel, in a wheelhouse which was integral with the mill building. Overshot, 14ft dm x 3ft 9in wide, wooden shaft, 2 iron hubs, 2 sets of six radial wooden arms, wooden sole boards, 2-piece wooden buckets, fitted in slots in the rim castings. See sketch of profile of a bucket redrawn from questionnaire form -



- Wheelshaft - octagonal, except at the waterwheel end, where it was round. 1ft 8in across, length estimated as 9 ft.

- Pentrough was wooden, reinforced in places with iron or steel sheets, the iron gate being raised by a chain or chains on a drum, the shaft of which had a lever with an iron rod on the end. [My recollection is that the shaft extended into the mill so that the lever was inside the mill, the rod being hinged to it, so that one started the wheel by pulling the rod down, inside the mill].

- Gear Wheels: *Pit wheel* – 2 iron castings, 118 solid teeth, 8 radial T section arms, 8ft 6in dm. W*allower* – Single iron casting, 6 radial inverted-T-section arms, 37 solid teeth (very worn, some a bit broken), 2ft 8in dm. *Gt spur wheel* – Single iron casting, 84 solid teeth, 7 inverted-T-section arms, 5ft 6in dm. *Stone nuts (3) plus another similar pinion* – all single iron casting with 4 radial arms and wooden teeth (cogs). All held to the spindle by a rib on the spindle engaging a notch in the nut. Nut on RH, seen facing waterwheel, 1ft 5in dm, 22 teeth; middle, 1ft 6in dm, 23 tth. LH nut not in position but there were two pinions lying loose in mill of which one was evidently the LH stone nut and the other apparently had meshed with the gt spur whl for a possible former vertical shaft (see below). The one which appeared to me to have been the LH stone nut was 1ft 6in dm, with 22 broken wooden teeth; the other 1ft 7in dm with 23 broken wooden tth.

- Upright shaft: round, iron, estimated to be only 4ft long, varying dm but about 5in; no bridging box adjustment at bottom, upper bearing where it goes through floor. Upstairs (1st floor) there was a light-duty wooden extension of the shaft for driving auxiliary machinery. [I seem to remember that Mr Arch once showed me a measured drawing of the mill done by (?) technical college students that wrongly showed this and the iron shaft below as a one-piece shaft]. It was 8'2" long and four and a half inches square and fitted into a cast-iron socket on the top of the upper bearing pin (gudgeon) of the iron upright shaft; it carried a crown wheel which was a single iron casting with four radial T section arms with 49 or 50 wooden teeth (cogs) pointing upwards and with the shanks neatly wedged against each other and had (apparently) a dm of 2'3½" overall (1'10½" across pitch circle) which meshed with an 11" dm iron bevel pinion (one casting, 4 radial arms, solid teeth) on a horizontal shaft. A belt from a wooden pulley on this shaft drove the sack hoist.

- Millstones. *Right hand pair of stones* [seen facing towards the waterwheel] – 4ft 0in dm, appeared to be French burrs; round tun, 4'6" dm externally; usual type of horse, enormous rap on feedshoe; usual type of 4-arm openwork damsel; hopper square cone, normal size, with vertical-sided bit at top, as usual, and with adjustable gate; striking arm on the damsel for bell alarm, but bell gone; crook string in situ. Bridge tree wooden, with screw and spanner tentering positioned unusually between the bridge post and the bridging box (of the footstep bearing). Disengagement by wrought iron forked lever beneath the stone nut.

  Middle pair - Middle pair of stones – 4ft 4 in dm, almost certainly peak; round tun; hopper similar to RH one, likewise the horse, but it had nicely turned legs and a turned rail for crook string to pass over; feedshoe of average size and shape; damsel, wooden with four iron or steel ribs. Bridge tree wooden, screw and spanner tentering, round stone spindle, with bridging box; ring and screw disengagement.

Left-hand pair of stones – gone, what appears to be its stone nut loose in mill [as mentioned above]; marks of this stone on the floor, but not clear enough to measure dm. Bridge tree gone but the size of the hole for it

in the bridge post suggests it was wooden; a spare wrought iron forked lever in the mill was presumably for the disengagement of the nut.

There was also a 4ft 0in dm peak stone, made into a table, with a sundial in the centre, by Mr Arch's back door (the (new) mill house).

- The sack hoist. Usual slack belt type, on the top floor (attic), with a "nice arrangement of wooden levers" to tighten the belt. Top pulley and drum wooden. No catch visible. Remains of bins in this attic.

- There may have been once a slender vertical shaft driven from another pinion off the gt spur wheel between the mid and RH stones – there was a fixed horizontal timber which could have supported it and a hole in the floor above: and one of the pinions loose in the mill may have been used for this.

2. On a visit to the mill on 14th Sept 1968 I noted also that the burr stones had on them "RG HANDLEY MOOR ST BIRMINGHAM" [presumably on a ring round the eye of the runner]; that there was a sack stencil in the mill with the words "J.WAIT WOOD MILL 1/6" [The charge for grinding the sack full??]; that both the surviving pairs of stones had had a bell alarm, there being a "peg for bell" on the peak stones. These notes are mixed up on a sheet of paper with information on various mills given me by Charles Howell (1926-1993) whom I met at Wood Mill on that day. If I remember right I had asked his advice on the possibility of making the waterwheel turn again.
3. On a further visit on 27th March 2007, I for some reason remeasured some of the gears and made notes on them; - pit wheel about 50in radius, 114 solid teeth (double checked!), Wallower about 17½in rds overall, 37 teeth (which more or less confirms my previous figures). I also noted: "on the two surviving hoppers, little twist pegs to operate shuts in hoppers" [this refers to the "adjustable gates" mentioned above, and was not usual in Staffordshire] and "one has little wooden wedge on a string. What for?"
4. My father and I managed to get the waterwheel turning in the late 60's or early 70's. A handyman working for Jack Arch replaced about half of the buckets and Dad and I cut up some (extraordinarily hard) round steel

bars that were lying round to rebalance the wheel, it being out of equilibrium because the other half of the buckets were old and dry. We did some other work on it, but it really needed a much more thorough overhaul to be satisfactory.

5. By 1978 a businessman Mr Kearns had bought the property from Jack Arch and had just about doubled the mill house in size. I believe he had some work done on the sluicegates where the leat to the mill left the main stream. Later the property was acquired by Liz Guy, Mr Kearns having moved to a smaller house close by. Midland Mills Group had a day clearing rubbish out of the mill (possibly about 2004) and in about 2007 a local man, a pub landlord apparently, started overhauling the waterwheel. He didn't really want the Mills Group to be involved. I don't know the present position.
6. The mill appears in the statutory list of historic buildings as "The Old Mill, Yoxall", and the building on the list called "Woodmill, Yoxall" is somewhere different, possibly the mill house.
7. The mill is mentioned in the extracts from the Staffordshire Advertiser by Betty Fox that the Mills Archive holds.
8. Staffordshire Record Office have items on this mill.

John Bedington, 2020.

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See also my photos:

B/W photos: Taken 21st March 1968 – ST58a, Front view of mill and outbuildings; ST58b, sluice gates across headrace, and channel to waterwheel; ST58c, part of some of the waterwheel buckets; ST58d, the middle stone nut, the wallower and gt spur wheel; ST58e, the stones and fittings. Taken Easter 1969 - ST58f, outer gudgeon of the waterwheel (with bearing brass and support removed). Taken probably in 1978 – ST85g, Part of the former house adjoining mill (on LHS), and the later mill house; ST58h, former house (mostly half-timbered on this side) and mill (mostly within the far wing)); ST58i,

outbuilding (LHS), former house (mid), mill (RHS); ST58j, millstones; ST58k, sack hoist, with its drive from crown wheel.

Colour slides: Taken 21st March 1968 - STu1, front of mill (tail side). Taken autumn 1969 - STu2, Jack Arch (the then owner) by the waterwheel (also a print of that slide (looks brown)). Taken in 1975 – ST u 3, tail side of mill.