

TONEDALE MILLS – MACHINERY IN BUILDINGS 30 - 42

These notes are intended to supplement the Site Assessment report of November 2003 (B/022/2003). Buildings 30 – 42 comprise the boiler house, power house, workshops and fire-control station which were added to the centre of the Tonedale Mills complex in the late-19th century. They were inspected briefly and photographed in the mid-1990s, but no detailed investigation or research has been carried out. In recent years the buildings have not been accessible because of asbestos contamination. Some of the machinery has apparently been removed. The following observations may therefore be revised following an up-to-date investigation of the buildings. Historical details have been obtained from a 1916 valuation of machinery and an unpublished account of the history of the site from 1835 to 1935 by F.H. Fox.

Boiler House (buildings 32 – 35; see Fig. 2 of Site Assessment).

The extant buildings were built in c1890 and in the mid-1990s were essentially fully preserved with three disused Lancashire boilers and one modern boiler. The date of the Lancashire boilers is not known, although four were recorded in the building in 1916. Two are still mounted on their brick beds incorporating the flues. The damper mechanisms to control the draft in the flues also probably survive, along with the water feed system, steam pipes, valves and other fittings associated with a working boiler house. One of the boilers seems to have been converted for automatic coal firing, the other for oil firing. To the rear (west) of the boiler house is the adjoining economiser house (34), in which the boiler feed water was pre-heated by the hot gases in the flue. An economiser was sited in this position in 1916, but was probably replaced in c1931. Adjoining to the south is the fan house (35) and the free-standing octagonal brick chimney. The latter is a rare example of a completely intact stack which, judging from its appearance, probably also dates from c1890.

In a national context this is an exceptionally well-preserved boiler house, with all its machinery and fittings still *in situ*. The steam plant at a mill was normally removed when the steam engines were scrapped. It should be noted, however, that a similar, though smaller, boiler house with economiser and chimney has been retained in

working condition at Coldharbour Mill, another former Fox site at Uffculme in Devon. In the 1990s several intact Lancashire boilers with buildings and fittings also survived at Tone Works.

The power house (31)

This is probably contemporary with the c1890 boiler house, although the first recorded use of electric lighting at Tonedale was not until 1895. The 1916 valuation gives a detailed list of the machinery in the building, which comprised two 205 volt dynamos, two 250 volt generators, two high pressure steam engines (one of 1895) and a switch board. In the 1990s two complete engine-generator sets, at least one of which appeared to be a high-pressure steam engine, and a variety of other equipment survived in very good condition. A slate switch board with gauges and switches also survived which may date from the 1916 valuation. An internal inspection is needed to confirm the type of machinery and check if it dates from the early twentieth century. Well-preserved electricity-generating machinery and related equipment dating from c1916 should be considered significant; any dating from before 1900, in its original building, is probably of great interest. It should be noted, however, that an intact 1920s power house, complete with steam generator sets and Lancashire boilers, survived in the 1990s at Tone Works.

Early electricity-generating machinery was also installed in other parts of the Tonedale site, an indication of the great success of Fox Brothers business in the early 20th century. In c1904 the original waterwheel was replaced by a turbine to generate electricity for lighting (building 19). The turbine has since been removed from the wheel chamber but its feeder tube remains *in situ* along with the switchboard with a gauge and switches. In 1914 two generator sets powered by gas engines were installed in the western part of the site (building 51A), probably to power the nearby two-storeyed mills (62-4 and 65) and the large carding, spinning and weaving shed (54-59). These buildings were already powered by electricity before this date, however, presumably from the earlier power house.

A comparison with other intact early electric power installations is needed to assess the significance of the Tonedale power house. Comparison with other known textile sites and early power stations, where early electricity equipment has normally been

replaced, suggests that Tonedale and Tone Works should both be considered an exceptional survival.

Fire control station (30)

This is identified as the Fire Engine House in the 1916 valuation, and is another architecturally distinctive and remarkably well-preserved feature. Only the paneled room at the east end of the building has been inspected. In the 1990s this was disused but retained an early electric indicator board, to show the location of a fire anywhere at Tonedale, Tone Works or the nearby grease works, together with a variety of related equipment including hoses, helmets and a floor-mounted water pump. This may be the Worthington's Duplex Steam Pump described in the 1916 valuation.

Engineer's, blacksmith's and carpenter's workshops (38 – 44)

The 1916 valuation describes a wide range of machinery in these buildings which was powered by several small steam engines, two of which were located in the segregated areas identified as buildings 43 and 44. The buildings themselves comprise numerous phases added before the construction of the boiler house in c1890. They were still in use as workshops in the 1990s, containing drills, lathes and other types of machinery which appeared to be of early or mid-20th century date. The engineer's workshop (38) retained several intact line shafts suspended from the walls and roof trusses, complete with supporting brackets, bearings, belt drums and drive belts. Several of the larger disused machines retained drive belts connected to the line shafting. Although much of the machinery has been sold, the line shafting itself is an increasingly rare survival.

A dilapidated iron water wheel remains attached to the west side of the carpenter's workshop (42). In 1916 this was described as a 10 horse power water wheel with gearing and fixings, which was located inside a building which does not survive. In the 1990s the buckets had decayed but both the shrouds and the arms were well-preserved, complete with a ring gear for an external pinion drive. The site of the wheel should be inspected to check how much survives and to ascertain if the workshops used a combined water and steam-power system.

Other machinery at the Tonedale site

A wide range of functioning and disused woollen machinery remained at Tonedale in the 1990s. Most was later removed with the demolition of the weaving sheds at the north end of the site. Some looms and other machines were transferred to the present Fox Brothers factory in Wellington. A timber hand loom was saved from the loomshop prior to demolition and was re-erected for storage in building 46. Some mid-20th century machinery survived in buildings 66 and 69 but was not considered of historic interest. Although much of the machinery has been removed, there is extensive evidence throughout the site of the complex development of water, steam and electric power transmission systems, including the massive bearing boxes of the main transmission shafts and fittings associated with former line shafting.

MJW

14-2-05

TONEDALE MILLS – DETAILS OF MACHINERY IN POWER HOUSE AND BOILER HOUSE

Details provided by Mr Bob Spurway, retired engineer of Fox Brothers Ltd., 25-2-2005.

Power House:

1. Large diesel engine and generator, by W.H. Allen of Bedford. 4 cylinder, 2 stroke engine, 500 horse power, 375 rpm, dated 1946. DC generator rated at 250 volts, 375 Kw. Located at east end of power house, by entrance.
2. Steam turbine with attached generator, also by W.H. Allen, dated 1934. Engine produced 700hp at 7,000 rpm. The generator was driven via a gearbox at 1000rpm. Steam for the turbine was provided at 100psi; exhaust steam at 30psi was used for processes elsewhere on the site. Located in west half of power house.
3. Main switchboard, located along west end wall of power house. Most gauges and switchgear thought to date from 1930s, although parts could be earlier.

Boiler House:

The boilers with coal and oil feed mechanisms are still in situ, but are probably not original. Three Lancashire boilers dated 1907, 1908 and 1949. Also a modern multipac boiler, transferred from Fox's mill at Chipping Norton.

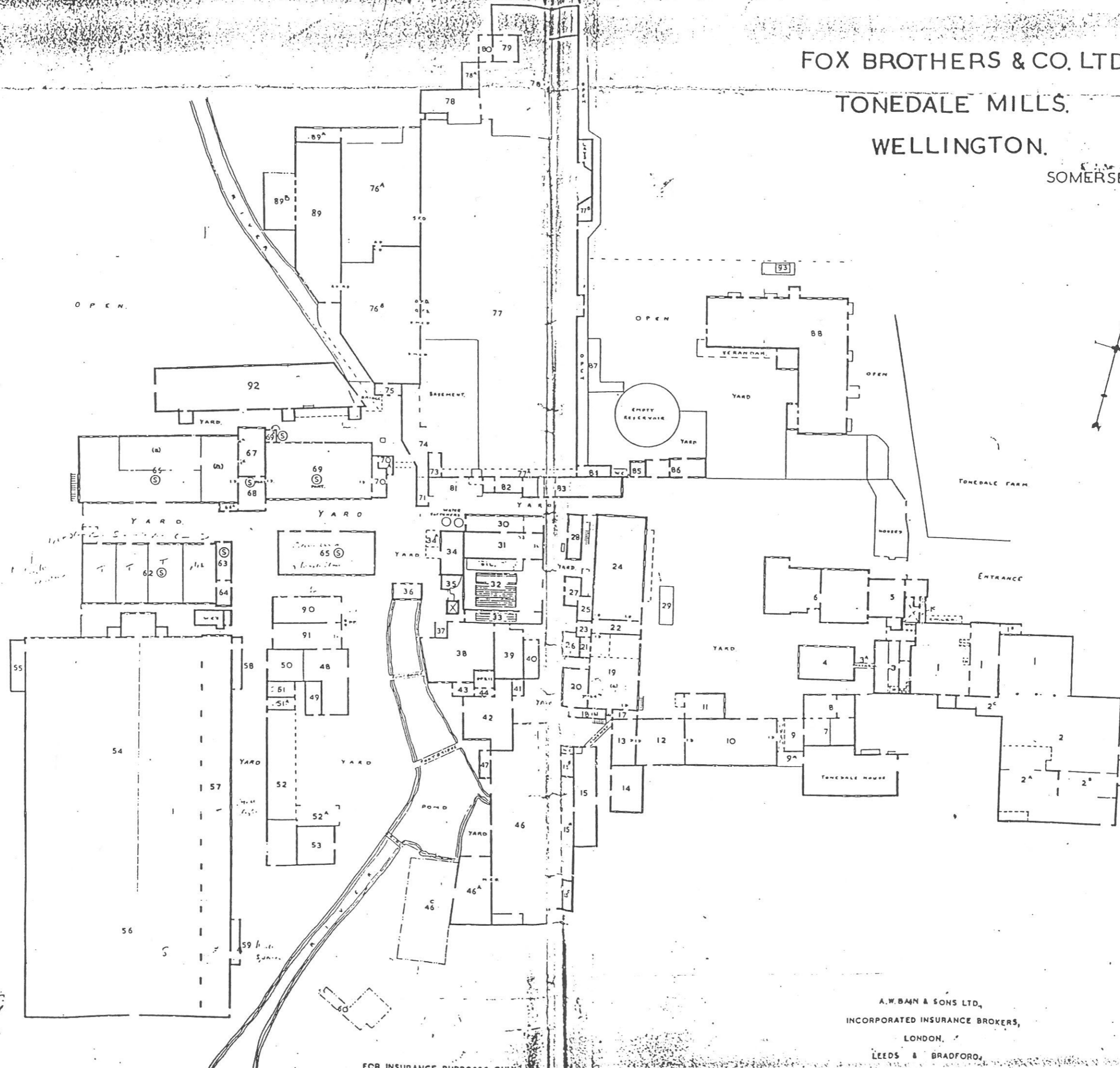
STONE WORKS

Power house / boiler house:

Mather and Platt DC generators driven by Bellis Morcom 500 hp compound steam engines; said to date from 1950.

NB: Mr Spurway thinks these have been removed.

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