

LEONARD STANLEY TANNERY

A Preliminary Report

Stephen Mills

Background

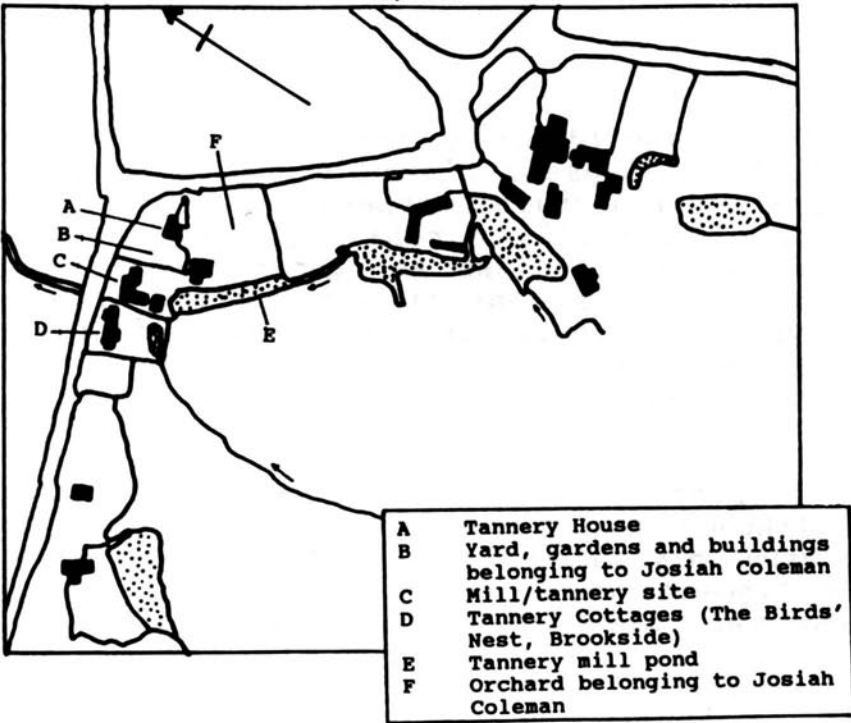
The tannery site had been well-known to the author for some years, and had always presented a picture of disuse and dereliction. Nevertheless, it was apparent that the dilapidated buildings comprised one of the last water-powered tanneries certainly within the county, and probably in the West of England. Attempts were made to survey the site but unfortunately access was denied on a number of occasions. In 1990, a rough survey of the water courses and buildings was made, however this had to be carried out from public roads and adjacent fields; a report was prepared for the GSIA Journal. During the intervening period, the site was sold to a building developer and planning permission was granted for residential development. Unfortunately this only became apparent when the majority of the ancillary buildings had been swiftly demolished and most of the tanning pits destroyed. At this time, all that remained was the main water-powered block, and this too began to rapidly disappear over the course of a few days! When only the floor remained, the author managed to gain access to the site in order to photograph what remained and was both amazed and horrified to find that the lower section of the building contained a number of pieces of machinery of great rarity and importance. At this point, other interested parties were informed and the demolition halted until some form of rescue package could be put into effect.

Extracts from the 1990 survey

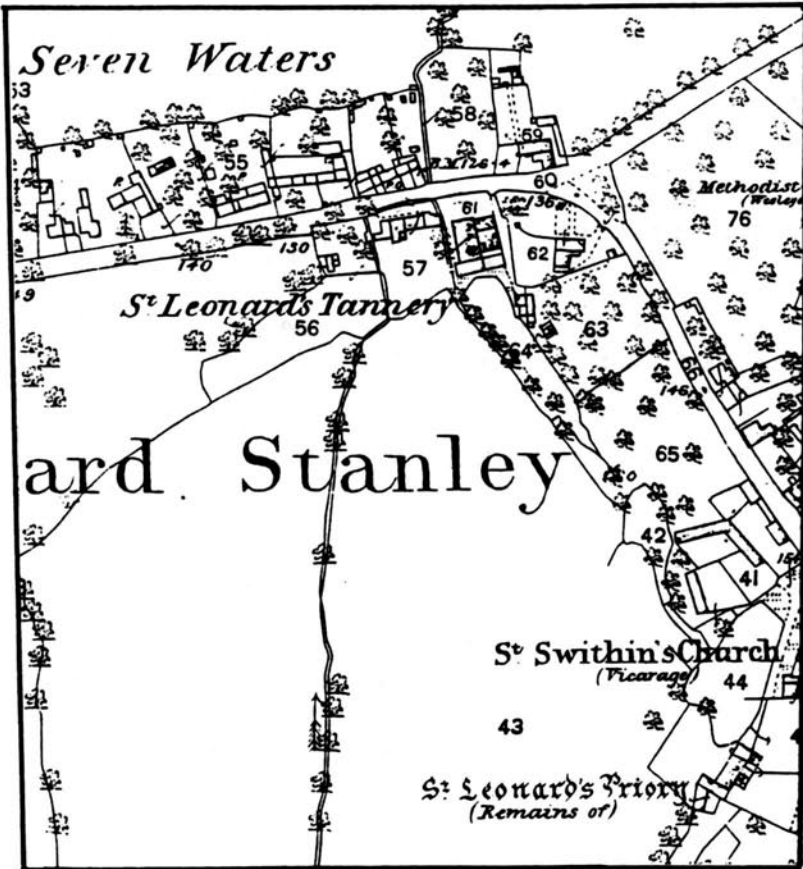
(i) The tannery is one of only a handful of its type that survives in anything like its original form, and this is largely limited to the surviving buildings on the site. Small local tanneries, like so many other small-scale enterprises, were gradually put out of business as a result of competition from large, highly industrialized tanning companies, often relying on sophisticated machinery and with good access to transport systems. Both of these were often lacking in the "village" tannery, although in earlier times, much of their limited output was destined for local markets and farms.

(ii) Tannery House, in the north east corner of the site, was clearly once an imposing residence, having been built in 1770 by a surgeon, James Clutterbuck.⁽¹⁾ Sadly, it is now in a rather dilapidated and neglected state, having stood empty for some years. The house is largely of local brick, with dressed stone quoins.

Taken from Inclosure Map of 1830
Q\RI 89



From O.S. Map - Sheet 49/5



(iii) Various other buildings litter the site, some with roofs and walls partly collapsed. Although most are of industrial origin, a pair of stone-built workers cottages also survives. One unusual building still in relatively good condition is a small stone-built stable close to Tannery House. Its origins are unknown, however its construction differs from the other buildings in that it is built of large blocks of dressed stone, some of considerable size; it seems most likely that it was moved here from elsewhere.

Not a great deal of Leonard Stanley Tannery's working history is known, although for almost all of its life there were connections with only three local families; the Bryants, Tileys and Kitchens, who operated it from circa 1848 up to its final closure around the time of the Second World War.

It is recorded that a tannery was established at the site by c.1848, although it appears that the mill site that pre-dated it was unused during the 1830s. It was set up by Benjamin Bryant, and known as St Leonards Tannery. In that year, Benjamin Bryant, "tanner", was nominated as Parochial constable for the parish.(2)

Modest in size, the tannery appears to have been operated as a family business by successive family members (Appendix 1). The business appears to have concentrated mainly on the production of heavy leather, much for harness use. Some tanneries tended to specialize in different types of leather; heavy leather tanneries usually produced leather for boot soles and uppers, strong straps, harness, etc. Their main source of supply came in the form of hides of fully grown animals such as bulls, cows, oxen and horses. The skins of smaller animals such as sheep, goats and pigs tended to be used for shoe uppers, gloves and saddle seats, ie. wherever a soft leather was required.(3)

The VCH notes that a saddler and harness maker was working in the village between 1897 and 1910, and it seems reasonable to assume that he would have been supplied by the tannery; harness leather was often blackened on one side with a mixture of lamp black, soap and size. In addition, both boot and shoe makers were recorded as being active in the village from at least 1867 up to 1933 (4) and it seems likely that there would have been trading connections with these. For instance, Henry Stafford (of The Street, Leonard Stanley) was recorded as a boot and shoe maker from 1922 to 1933 (5) as were Alfred Gleed and Giles Fowler (in 1867) and Matthew Kilminster (in 1889). Although the tannery specialized in heavy leathers, such as would have been used for boot soles, etc, there are some indications that lighter leathers may have also been produced for such local trades.

Later in the tannery's life, it was operated by the Kitchen Brothers, who not only advertised as tanners but also leather merchants. Although supplies of leather would have also gone

further afield, much of it was probably supplied to other villages in the vicinity, such as Frocester and Eastington, both of which had their own blacksmith supplying and maintaining farm harness and machinery. It is also possible that leather may have been supplied to local mills in the form of drive belting - the tannery was within a few miles of the three Eastington cloth mills, Beards Mill at Leonard Stanley, and Stanley Downton Corn Mill, as well as Stanley Mill and the various mills, factories and workshops in and around Stonehouse.

There had been another small tannery operating in Frampton on Severn (at what is now Tan House Farm) from at least the 1790s, and it is on record that a horse mill, used to grind bark for the tanning process, was moved to Leonard Stanley Tannery, late in the 19th century.(6) It seems reasonable to assume that this was one of the two bark grinding mills discovered at the site in 1991 (see section detailing machinery).

History and Background of the Site

The site is probably quite an old one, and despite the minimal flow of water currently reaching it, is likely to have been the location of an earlier corn or fulling mill; the latter is known to have existed at Severn Waters. The name was taken from a series of seven ponds, supplied by the Bitton Brook plus a tributary, that originally extended from Leonard Stanley Priory towards the lane to Frocester.(7) The Rev. Swynnerton describes it thus:

"It is named Seven Waters from seven pools or dams which originally existed there and were fed by two little streams, the one (now diverted) brought along from Frocester, and the other flowing principally from springs on the hillside above the site of the Priory. Of the seven waters, three only now remain - the fulling mills which they served having ceased to exist." (8)

Exactly when these mills went out of use is not known although there is no indication of industrial activity on the tannery site c. 1830.

The lower pond apparently drove a mill (9) and may coincide with the tannery's location. It seems likely that Benjamin Bryant sensibly made use of the redundant site for his tannery. Over the years, the ponds have gradually silted up until only two now survive, one of which is the long, narrow (and relatively shallow) pond for the tannery - this was drained by the former owner in 1989. The same stream supplied a pond a short way upstream, which powered the mill situated at Priory Farm, adjacent to St Swithuns Church and the Priory remains.

Water was fed from the tannery pond into an iron pipe, the fall being sufficient to be utilized for an overshot wheel. The pipe directed the water onto the crown of the wheel via an iron penstock; a vertical extension to this (a so-called "starting box") was used to store an extra volume of water, that when released, greatly assisted in starting the rotation of the water wheel. Once under way, a much smaller volume of water was needed to keep the wheel in motion.(10)

The tailrace emptied through a channel adjacent to the surviving tannery cottages, the overflow from the pond disappearing into a brick-built culvert to the side of the pond. Both eventually found their way to a branch of the Frome near to Stanley Downton Corn Mill.

The site has almost certainly been in use since at least the 17th century and shows signs of several distinct periods of use. Clearly a water-powered mill existed prior to the tannery; this may have been a corn or fulling mill or possibly both. Possibly one replaced the other. This earlier stone-built structure was for at least part of its working life, powered by an internal water wheel. There is clear evidence for this in the form of the tail race arch, etc. The type of wheel is unknown although it was probably largely of wood and of the breastshot variety. Although the later external wheel was of the overshot type, the necessary fall of water may have been obtained by raising the level of the original mill pond through an increase in the height of the embankment/walls; there is some evidence in the form of later works to suggest this.

The lower foundations and courses of the earlier mill were evidently retained in the tannery's construction. Considerable remains of rubble stone walls indicate that it was larger than the main block of the tannery although it is possible that some of the footings exposed during the demolition could have been those of an adjoining mill house. Doubtless further investigation of the site will reveal more of its earlier uses.

Equipment on the site at the time of demolition.

Edge-runner stone

Several pieces of a large, heavy sandstone edge-runner stone survived, and what was probably the remains of the corresponding "trough" were removed from the site early in the demolition. The edge-runner formed part of an early horse-operated bark grinding mill (similar to the one shown in the illustration) that had previously been housed in the ground floor of the building. At the start of the demolition, the circular horse path of c 18 ft diameter, paved in shaped flag stones, still survived although a later bark mill had replaced the edge-runner system at an earlier (unknown) date. The remains of the stone indicated that it was of around 6 ft diameter and around 12 inches thick at the centre, tapering to 4.5 inches at its circumference; the latter had regular grooves

cut in at 2 inch intervals. The adjacent internal wall showed signs of curvature corresponding with the diameter of the horse path.

The Bark Mills

(i) The Horse Mill

This appears to have replaced the edge-runner mill and is probably the one that was brought from the tannery at Frampton on Severn (11) during the latter part of the 19th century although this may have been as early as c. 1850.(12) The mill essentially consists of a heavy iron chamber (nearly an inch thick) of 30 inches diameter and 26 inches height, with raised projections on its interior surface. A domed rotor with raised ridges rotated inside the chamber, pieces of bark being fed in from the top and crushed between the two sets of projections. Crushed bark fell into a receptacle underneath the mill. There is no maker's name on the mill which may indicate that it was made by a small local foundry (13) although there are no indications that it originated in Gloucestershire.

A flange on the upright drive shaft would seem to be the remains of the arm that was originally pulled by the horse, although it seems likely that water power was used in this location. A flanged iron belt wheel was attached to the top of the drive shaft and appears to have been belt-driven from a crude, home-made wooden pulley bolted to the top of the crown wheel. The belt could only have been around 2 inches deep. There are no indications to confirm that this ingenious system worked satisfactorily or not in practice.

(ii) The Water-Powered Bark Mill

This was of similar design to the former except that it was housed in a purpose-built cast iron cradle. This too was driven from overhead, in this case, by means of gearing taken off the main water wheel drive. The great spur wheel (of 6' 6" diameter), which was driven off the pit wheel, was of cast iron with wooden cogs and transmitted the power to a similar but slightly smaller gear; the pit wheel had 8 spokes and the latter, 6 spokes. These two gears may have come from the same foundry and like some of the other gearing, may date from c 1800.(14) No maker's name was present on the mill. Grinding oak bark was apparently one of the most unpleasant jobs in the tannery, as "the fine powder produced managed to permeate into every corner".

The Bark Shredder

The drive shaft to the latter bark mill also provided the power for a bark shredder, designed to reduce pieces of bark to more manageable sizes. This consisted of two contra-rotating sets of toothed gears (each, 0.5 inches wide) that were driven through



HUXHAM'S & BROWN,
Ironfounders and Millwrights,
EXETER.

MACHINERY, STEAM ENGINES,
 AGRICULTURAL MACHINES,
 Millstones and French Burrs.

SHIP WORK, PATENT WINDLASS PURCHASES.

COOKING STOVES, GRATES,
 WEIGHING MACHINES.

Malt Mills. Emigrants' Flour Mills.

Castings in general. Flour mills and Machinery.

HUXHAM'S & BROWN,

Commercial Road,

Near the Quay, EXETER.

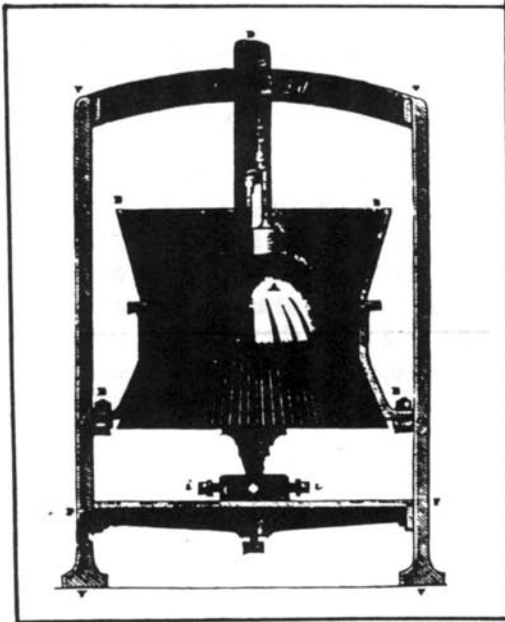
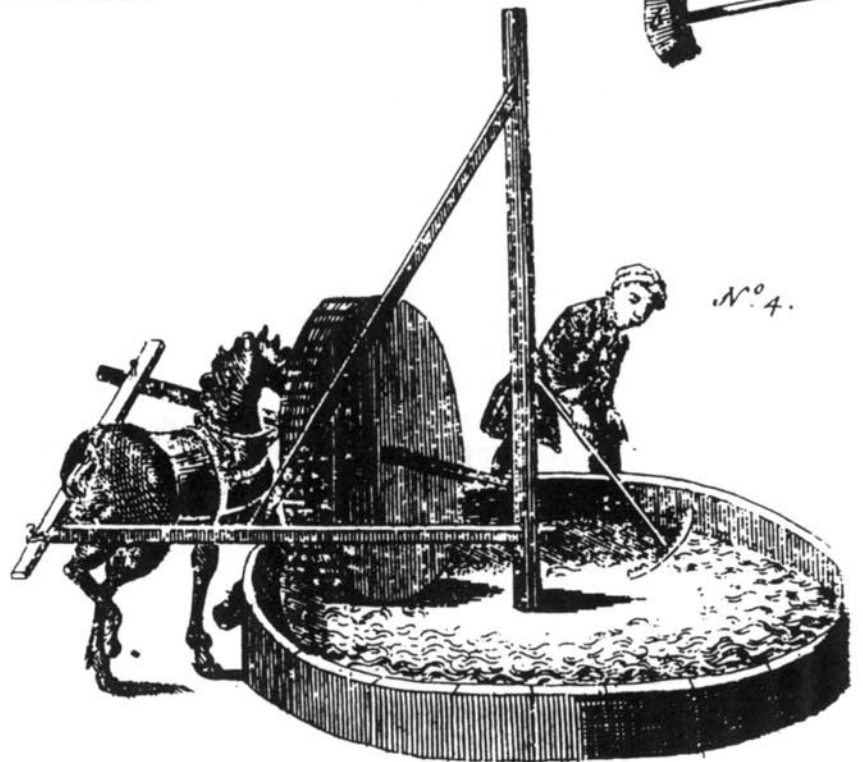
The entry for Huxhans & Brown, from Billings Directory of 1857.

Fig. 1. TANNING-ENGINE and MILL.

N^o. 3.



N^o. 4.



A bark grinding mill after Farcot's design. Its layout is similar to those at the Tannery.

An 18th century bark mill, using an edge-runner stone. Remains of a similar stone were found at the Tannery.

a pair of iron bevel gears of 20 inch diameter. The name of "Huxhams & Brown - Exeter" was cast into the top of the shredder, and a date of manufacture c 1850 has been suggested.

Huxhams & Brown operated from their works in Commercial Road, Exeter, from around 1845 to 1930. Frederick Huxham was recorded as an ironfounder, engineer and stove manufacturer in 1838 and 1841. By 1846, the firm had become Huxhams & Brown (ironfounders and smiths). By 1883, they were advertising as "Tanner's engineers", a description which continued up to 1910.

Hursting, Water Wheel Drive, and Main Gearing

The hursting and much of the gearing give every indication that they were originally constructed for a corn mill operating two pairs of mill stones, although it may be that the assembly was never actually used in this way as several parts were not fully finished. The hursting is largely of oak and has been "boded" in order to fit the present building; odd pieces of timber have been inserted, bricks and stones support various uprights, and the entire assembly is held together by an assortment of wooden dowels and iron bolts and brackets. Several pieces of timber appear to be of different ages.

The 8 spoke iron pit wheel is of 8 ft diameter (with wooden cogs) and was cast in two halves. This was driven by a 4 inch diameter iron shaft from the water wheel. The 6-spoke iron wallower is of 32 inch diameter and its shaft changes from hexagonal to square as it rises.

The great spur wheel is of 6 feet 6 inch diameter and also had wooden cogs. This had been modified to carry a crude home-built wooden pulley bolted to its upper face. This presumably took a drive belt to the pulley of the (horse) bark mill. A further large gear (5ft diameter, with wooden cogs) took the drive to the other bark mill. The same shaft also carried an iron bevel gear which powered the bark shredder.

Overall, the framework and gearing all appear to be "standard" water corn mill equipment, and was doubtless imported from elsewhere and modified to fit the tannery. When the installation took place is not known however a date of 1800-1825 for the hursting and c. 1800 for the gearing has been suggested.(15)

The Water Wheel

The external water wheel is of the overshot variety and is of 13ft diameter and 3 ft width. It was apparently brought from a mill in the west country and installed second-hand (16) although it apparently did not operate as the owner intended. It appears that the wheel's diameter was too great for the

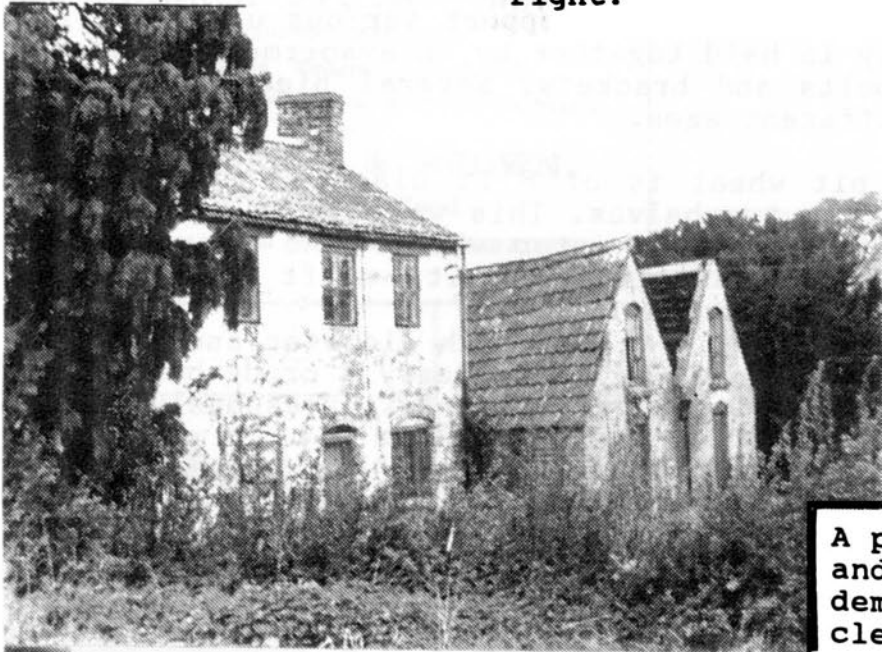
The main tannery buildings



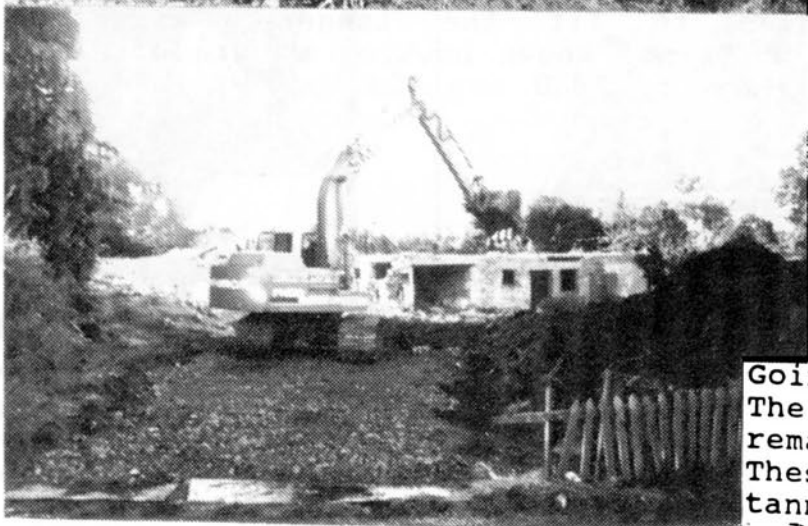
Note the overshoot waterwheel and the drying sheds behind.



Part way through the demolition. The machinery was in the lower floor of the stone-built building. The wheel is on the extreme right.



A pair of workers cottages and derelict tanning sheds, demolished early in the site clearance.



Going, going....
The large heap is the excavated remains of the tanning pits. These contained deep layers of tanning residues.

available fall of water and consequently suffered problems of back-watering. It is likely that the height of the mill pond was raised at the time of installation as concrete and other constructional material used in the pond's wall show similarities.

Concluding Remarks

At the time of demolition, various other items of interest dotted the site, ranging from oak-lined tanning pits (destroyed at the start of the site clearance), to pumps and various small leather-working machines. Fortunately, some of these have been removed to Stroud Museum, although most were damaged. At the time of writing, it is hoped that further archaeological investigations of this important and interesting site will be carried out although it is to be regretted that access, and consequently, a thorough survey, prior to demolition was denied. As a result, a site of national importance has been all-but obliterated. Sadly, the earlier efforts of a number of individuals to protect the site came to nothing, and it is a matter of great regret that Gloucestershire has now lost its last remaining water-powered "village" tannery.

References

- 1 Victoria County History (VCH) Gloucestershire vol x.
- 2 GRO: Leonard Stanley Vestry Book p 201 VE 2/1 Parish Meeting of 17 Feb 1848 - B. Bryant nominated as Parochial Constable of the Parish.
- 3 Jenkins. G., 1972. The Craft Industries (Ed L.T.C. Rolt).
- 4 Trade Directories for Gloucestershire (various) 1867-1933.
- 5 Stroud & Mid Gloucestershire Directories (various). 1922-1933.
- 6 VCH Gloucestershire vol x.
- 7 Ibid.
- 8 Swynnerton, FSA, Rev. C., 1922, Trans Bristol & Gloucestershire Archaeology Society, p221-222.
- 9 Inclosure Awards for Leonard Stanley, 1830.
- 10 VCH Gloucestershire vol x.
- 11 Industrial Archaeology of Watermills and Water Power, Heinemann, p20.
- 12 Report prepared by A. Stoye for Stroud District Council, October, 1991.
- 13 Information supplied by the National Museum of Wales, St Fagans, November 1991.
- 14 A. Stoye's report.
- 15 Ibid.
- 16 Information from Mr I. Kitchen.

Appendix

Operator of Leonard Stanley Tannery

Directory	Year	Operator
D & G	1867	Benjamin Bryant - farmer and currier, also James Bryant, farmer.
Kellys	1889	William Taley Kitchen, tanner.
Kellys	1897	Jasper Jones Bryant, tanner.
Kellys	1908	J.J. Bryant, tanner.
S & MG	1913	Alfred T. Kitchen, tanner.
Stanleys	1914	Alfred Tiley Kitchen, tanner.
S & MG	1922	Alfred T. Kitchen and Benjamin Kitchen, tanners.
Kellys	1923	Alfred Tiley Kitchen, tanner.
Stanleys	1927	A.T. Kitchen, tanner.
Stanleys	1931	Kitchen Bros, tanners & leather merchants.
S & MG	1933	A.T. Kitchen, tanner and Benjamin Kitchen.
Copes	1936	Kitchen Bros, tanners & leather merchants.
Stanleys	1936	Ditto
Kellys	1939	Alfred Tiley Kitchen, Benjamin Bryant Kitchen, and Kitchen Bros, tanners,

(No further entries found after this date)

Note: D & G: Directory and Gazetteer of Gloucestershire and Bristol.
 S & MG: Stroud & Mid Gloucestershire Directory.