

# Journal of the Somerset Industrial Archaeological Society



Number One

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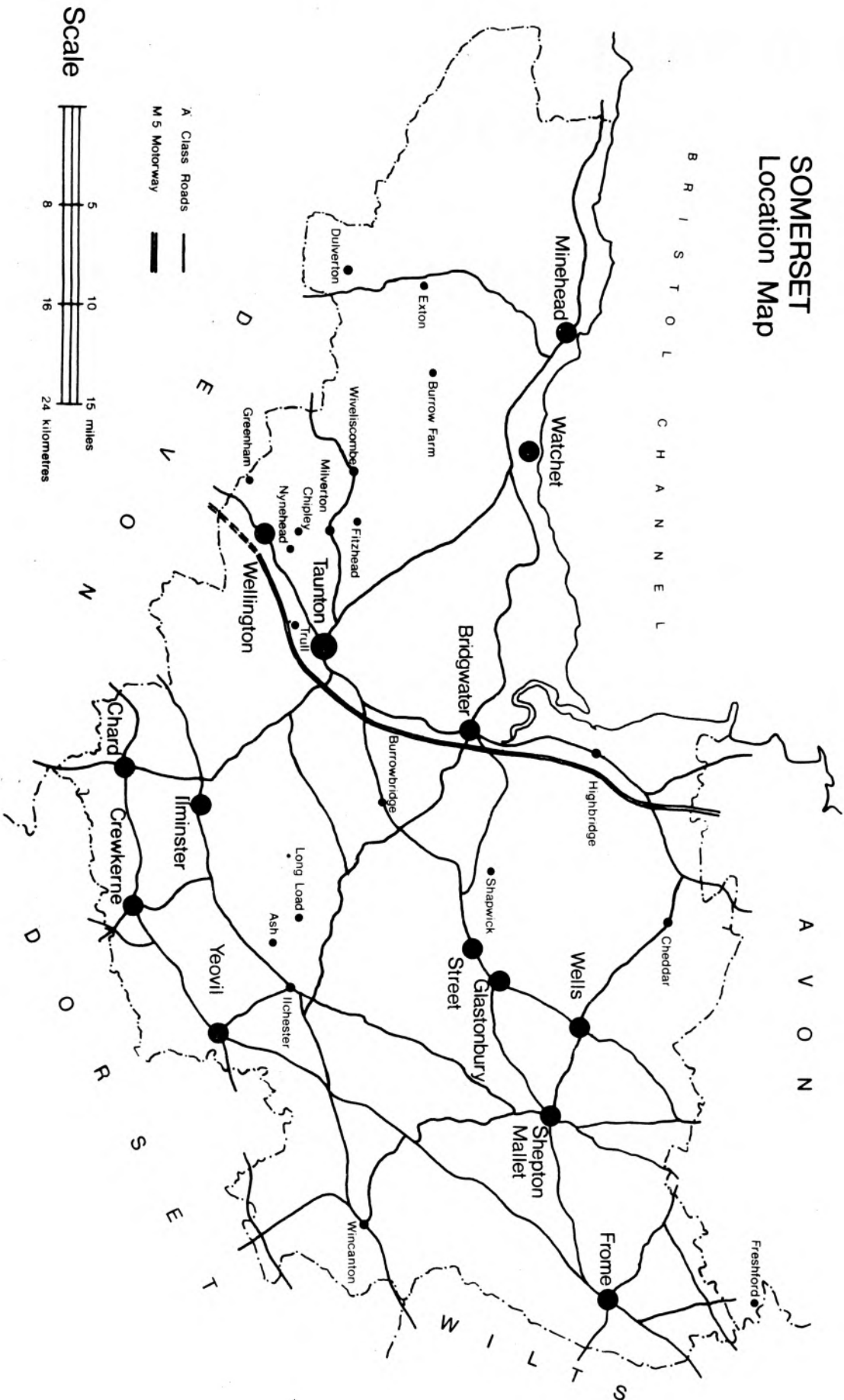
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# **SOMERSET INDUSTRIAL ARCHAEOLOGICAL SOCIETY**

## **JOURNAL NUMBER ONE**

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# SOMERSET Location Map



## EDITORIAL :

### THE SOMERSET INDUSTRIAL ARCHAEOLOGICAL SOCIETY

**B.J. Murless**

SIAS has now completed three full years of formal existence. It is therefore appropriate at this juncture to say a little about the Society and its aims, particularly for those whose first introduction to industrial archaeology may be through the medium of this Journal.

Although Somerset is fortunate in possessing a number of groups interested in archaeology and history, until the creation of SIAS few people had concerned themselves directly with the study of industrial monuments and the social and economic history associated with them. For those with a serious interest in IA matters no channel of communications existed at a local level and hence no group could be called upon for advice and assistance. Such literature as had appeared about Somerset's canals, mines and railways tended to deal with them from an historical rather than from an archaeological viewpoint.

Perhaps there were those who thought of Somerset more in terms of a "green and pleasant land" as opposed to "dark Satanic mills". Whilst SIAS would be the first to champion the undoubted beauty of the County, a casual glance at Ordnance Survey maps covering the Somerset Levels and Mendip Hills areas will show the devastating effects of peat extraction and quarrying on the Somerset landscape.

It is also pointless to draw distinctions between industry and agriculture, since Somerset's industrial development has derived, directly or indirectly, from the land. SIAS acknowledges this fact in the pages of the Journal by including articles on withy boilers and limekilns. In addition, the Society is pleased to receive a notable contribution from Brian Hook, past chairman of the South Somerset Agricultural Preservation Club.

A further "raison d'être", should one be needed, for SIAS has been the pace of destruction since 1945. Urban re-development on a large scale has brought the demolition in our towns of breweries and textile mills, to name but two categories of industrial archaeology. The rural environment has also undergone extensive changes. Water-mills, where they survive, have all too often been stripped of their internal gearing. Major engineering projects have taken their toll of industrial structures: in one short section of the M5 Motorway to the north-east of Bridgwater, for example, the road scythed its way through a brickworks, a cement works and a saltworks.

With the need to record sites before destruction comes also the need to conserve. Certain areas within Somerset present a special case for the preservation of industrial monuments. SIAS is at present supporting schemes for the preservation of the remains of the Brendon Hills mining area, the lead mining and processing areas on Mendip, and Bridgwater Docks. SIAS seeks also to keep intact less impressive but equally worthy sites and structures in co-operation with Somerset County Council (through the County Archaeologist), the County Museum and other interested groups and individuals. In a county which entertains so many visitors each year it is imperative that such important industrial sites should not only be preserved but also made informative, safe and attractive to young and old alike.

SIAS feels justly proud of the fact that it has an active membership, and its programme of events during the past three years has reflected this. As well as learning about the IA of Somerset by means of such traditional society activities as field trips and visiting speakers, members have taken practical

steps to learn something of the county's industrial past: survey parties have recorded buildings and have studied industrial remains at all seasons and in all weathers.

Industrial Archaeology offers something for everybody. There is work for the engineer, the architect and the craftsman; the historian, the geologist and the poet; the photographer, the artist and the designer.

Finally, it would be discourteous not to use the opportunity of this first number of the Journal to express the gratitude of SIAS to those whose help has been essential to our success.

We would firstly like to thank Frank Hawtin whose enthusiasm and constant encouragement has nurtured the Society through its infancy. Also to Doris Argile for her invaluable help, particularly during the 1973 SIAS Exhibition, and to Val Stevens for allowing us the use of Weir Lodge, Taunton, as the base for our activities.

For members consulting archive material, Messrs. I. Collis and D. Shorrocks at the Somerset Record Office have been tireless in their efforts. Also valued has been the help of Mr. D. Jones, a former member of the staff whose introductory talk to SIAS members earlier this year stimulated many to consult documents with interest and enthusiasm. In addition, we are especially grateful to the Local History Librarian at Taunton Castle, Mr. D. Bromwich, who has ably assisted on matters relating to existing published material.

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It is hoped that the publication of this Journal will encourage others to contribute to future numbers.

The Editor reserves the right to amend material prior to publication.

The mention of a site in the Journal under no circumstances implies a right of public access to it and permission should always be obtained from the owner prior to investigation.

# WATER-POWER ON FARMS IN WEST SOMERSET

## D. Warren

The 19th century saw a revolution on the farm as surely, if not as spectacularly, as in the town. Machines were doing the work in the fields where previously it had been done by hand. This mechanisation applied also to work in the barn: threshing, chaff-cutting and root-pulping were among a variety of tasks to be so affected. At first, these machines were hand powered, but farmers - and it was practical farmers who developed so many of the early agricultural machines - were quick to see how their efficiency could be improved if greater power were available. The horse, still the only motive power on the farm, was coupled to the horse gin and, through gearing, could work the barn machinery. Later in the century, the portable steam-engine became widely used on the larger farms and estates.

In the West Country even the farmer working on a modest scale had a source of power available to him that countless generations had been used to seeing: the water-wheel. Farmers saw that the power which worked the stones of their local mill could, with little adaptation, work their own particular machines and that the wheels, gears and shafting could be built by their own millwrights and smiths.

### Water-feed

The primary consideration before installing a wheel was the provision of sufficient water with a suitable head at the farm. The corn mills had been sited conveniently to their water-supply. Now the opposite held: the site where power was required was usually fixed already, so a source of water convenient to that site had to be found and then taken there.

Many of the smaller corn mills, worked in conjunction with the farms, could be adapted easily to power farm machinery as at PORTMAN FARM<sup>1</sup>. From c. 1820 onwards, a great deal of corn was imported and large roller mills ground the flour at the port of entry. This led to the gradual decline in the trade of the small mill and many closed. At HORNER FARM a new barn was built and the existing dam, leat, hatches and associated features of an old fulling mill were utilized. In 1866, CURDON FARM had a new barn added and it housed a wheel and machinery. Water was supplied by a long leat from the Doniford Brook. This leat, by evidence of the position of its hatches, fulfilled another purpose in that it was, and still is, sluiced and used to flood the water-meadows. By this action early spring grass was provided. This practice was so general that it is interesting to speculate whether some leats were originally dug as irrigation channels and only later adapted to supply water to the wheels.

GUPWORTHY FARM, on the Brendon Hills, had on its land an adit from one of the many iron mines. The steady stream which issued from this adit was channelled to the farm; the wheel is no longer working but the water is still used. Where a farm was situated adjacent to a stream, as at BRIDGE FARM, sluices were built across the stream to create a head and the water diverted, through screens, directly to the wheel.

However, many farms were situated on high ground and never at any time had sufficient water to power a wheel since the streams supplying them were so meagre. ESCOTT, NEW BARN, STONE and NORTHCOMBE FARMS, to name four, had to recourse to constructing ponds, or a series of ponds, with large enough capacities to work their wheels when required. In this respect, farms were fortunate as their wheels, unlike those of corn mills, did not have to work

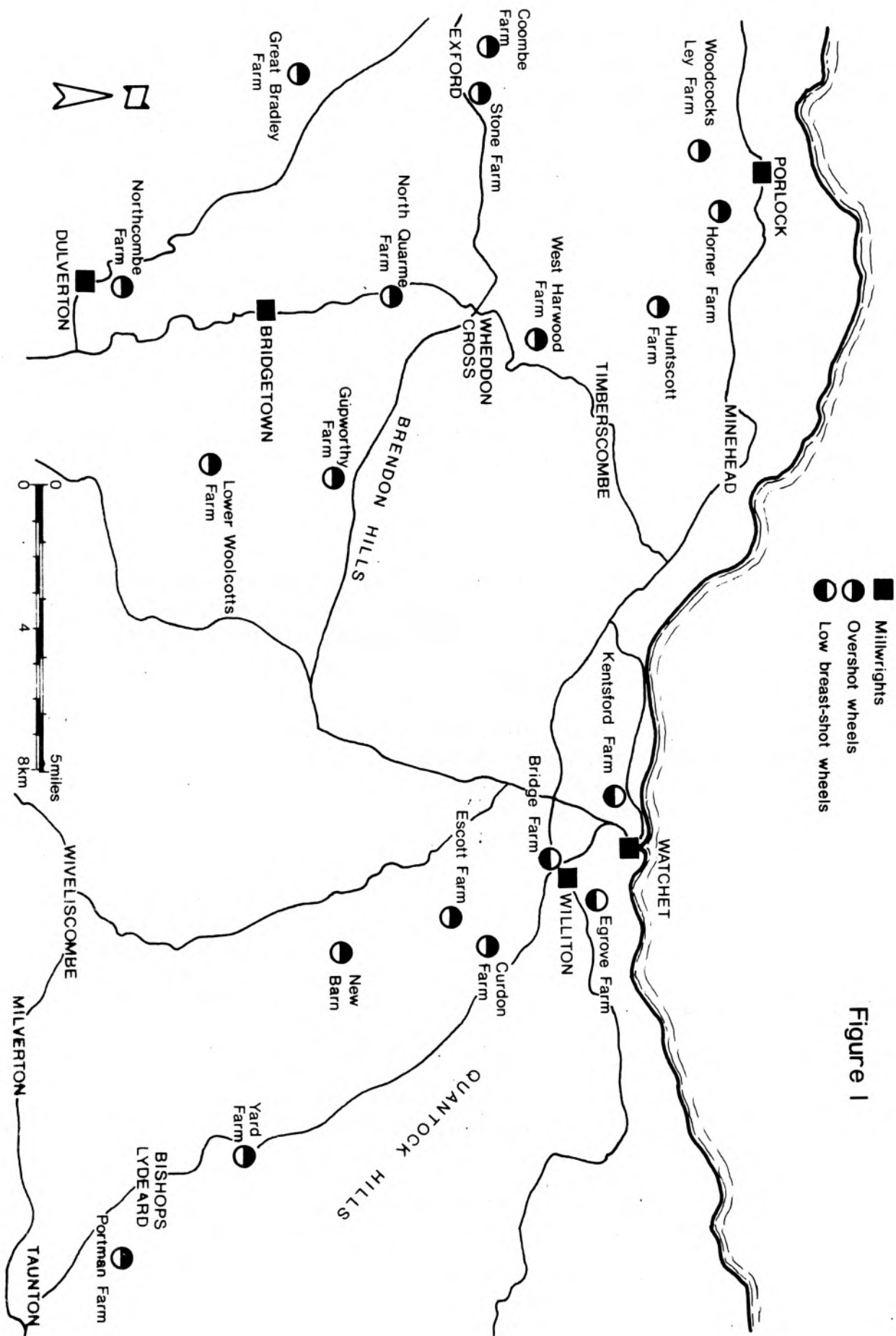


Figure 1

day in, day out throughout the year but only when a specific job had to be done and this for a limited period only.

Nowhere is this determination by farms to obtain an adequate water supply shown more clearly than at GREAT BRADLEY. This farm stands at just over the 900 ft. contour, 450 ft. above the River Barle. A small stream, collecting from a marshy area adjacent to Winsford Common, flowed down a nearby combe but was insufficient to power a wheel. Just below its source a massive earth dam was constructed across the shallow head of the combe making a large pond, which, from aerial photographs, can be estimated to have been some  $5\frac{1}{2}$  acres in extent. The dam itself measures 220 yards in length, 75 ft. wide at base and 20 ft. high at its deepest part. It contains approximately 75,000 cubic yards of material. According to local information, the only mechanical aid in its construction was a horse scoop. Today the dam is breached at its sluice and only a marshy area remains. From this "pond" a leat wound its way for over half a mile along the hillside to the farm.

Although some farms had an adequate supply nearby, they were so badly situated that it was difficult to channel the water to where it was required. Long aqueducts or flumes, of wood or iron, were constructed to bring the water across a road without obstructing the passage of farm wagons (WEST HARWOOD, COOMBE and STONE FARMS). This method was also used where it was impractical to build up a high earth or stone channel to the wheel (NORTH QUARME FARM). At PORTMAN FARM the water was piped underground, to cross the farm road, from the old mill leat, a distance of 55 yards with a fall of 5 ft. It then entered a 15 in. square, 3 ft. high, vertical masonry and iron chamber immediately behind the wheel, where it surged up to spill into the trough.

### Water-wheels

The volume, velocity and head of the water-feed dictate the type of wheel to be installed, whilst its dimensions are governed by the power required. In hilly country, where the head is good but a regular water-supply is limited, the overshot wheel is predominant. In the valley plains, where the head is poor, but the volume is great, low breast wheels can be employed. (There is controversy over the terms "low breast" as opposed to "undershot". According to Masonyi<sup>2</sup> they are undershot only if the head of water is below the plane of the upper limit of the submerged paddle or vane.) Add to these dictates the preferences of millwrights and the materials available to them and it is therefore hardly surprising that no two wheels or systems are the same.

### Overshot Wheels

At HORNER FARM, the wheel is 18 ft. in diameter and 6 ft. wide with 1 ft. deep side-plates or shroud. Constructed largely of iron, but with 8 oak arms, it is a "suspension type" wheel,<sup>3</sup> having two diagonal bracing rods to each pair of arms. NORTHCOMBE FARM wheel is also 18 ft. in diameter and is 2 ft. 10 in. wide. It has 8 iron arms but the sole and buckets are of wood with 9 in. deep iron side-plates.

The wheel at LOWER WOOLCOTTS has wooden arms, sole and buckets, with iron side-plates. It measures 16 ft. 4 in. in diameter and is 2 ft. 6 in. wide. YARDE FARM wheel is entirely of iron: 10 ft. in diameter, 4 ft. 1 in. wide with 6 arms,  $7\frac{1}{2}$  in. deep side-plates and 36 buckets. The wheel is mounted on a  $5\frac{1}{2}$  in. square, forged iron shaft which is 4 in. in diameter at the bearings. Two lighter wheels constructed entirely of iron are at ESCOTT FARM (14 ft. 6 in. in diameter and 3 ft. 1 in. wide) and at NORTH QUARME FARM (12 ft. in diameter and 3 ft. wide).

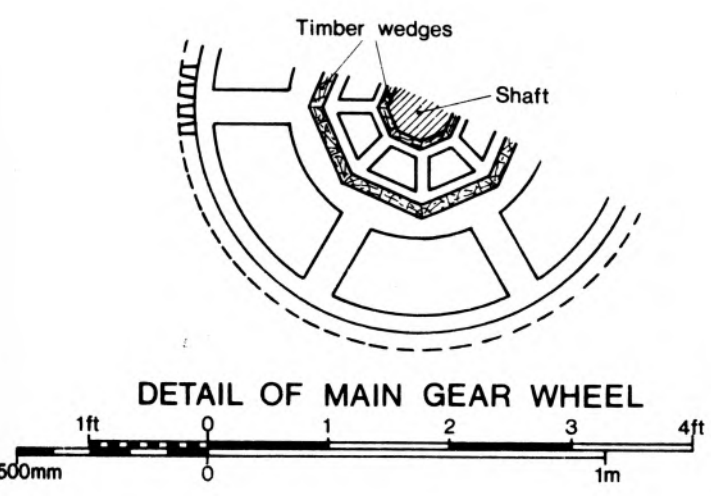
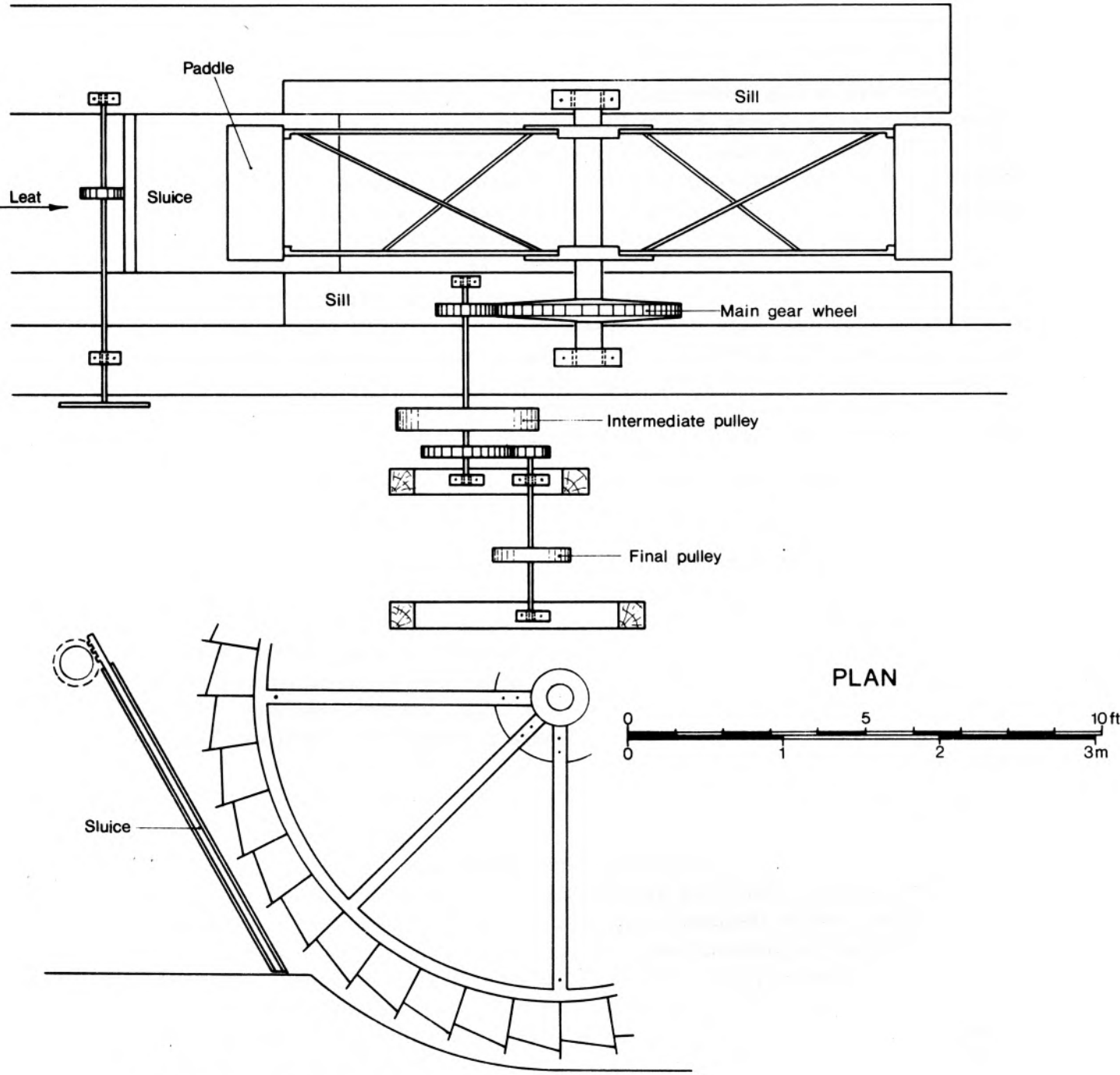


Figure 2  
GEARING AT  
EGROVE FARM,  
WILLITON

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## Low Breast Wheels

These are all constructed entirely of iron. EGROVE FARM wheel is 15 ft. 3 in. in diameter with 8 arms and 40 paddles or vanes, each 3 ft. wide and 1 ft. 2 in. deep. It has a sole but no side-plates. KENTSFORD FARM has a wheel 13 ft. 6 in. in diameter with 6 arms and 42 paddles, each 3 ft. wide and 1 ft. deep. The sole is ventilated with no side-plates. BRIDGE FARM wheel is 16 ft. 2 in. in diameter, has 6 arms and 42 paddles, each 3 ft. 4 in. wide and 1 ft. deep. It also has a sole but no side-plates.

All the wheels which have been examined by the author, both of the over-shot and low breast type, have been compass armed. The working speed of a wheel of either category is between 5 and 15 r.p.m.

## Gearing

Two types of gearing are used. Firstly, a straightforward series of reduction gears operate from the main wheel shaft and thence to shafting on which are belt wheels, each suited by their diameter, width and weight to drive a specific machine.

At NORTH QUARME FARM the reduction ratios are 1:2.4 and then 1:2. CURDON FARM has only one reduction at a ratio of 1:2.5 but a large flywheel, 4 ft. in diameter and 9 in. wide, belt drives a further wheel, 2 ft. in diameter and 7 in. wide, on the main barn shafting. This has the effect of giving an intermediate increase in ratio. On this main shafting two belt wheels, each 2 ft. x 5 in., and three others, with dimensions of 3 ft. x 6 in., 1 ft. 4 in. x 4 in. and 1 ft. x 5 in., powered the machines. At EGROVE FARM the ratios are 1:3.3 and then 1:3.6 with intermediate and final drive provided by pulleys of 3 ft. and 1 ft. 8 in. in diameter (Figure 2).

Secondly, the drive is by rim gears. That is, a toothed gear, facing either inward or outward, which is bolted on to the side of the water-wheel itself. In most cases the diameters of these gears, which are constructed in segments, is that of the outer edge of the wheel's side-plate. The rim gear then engages to a small gear wheel, on the same shaft of which is a pulley. This pulley directly drives the main barn shafting by a belt.

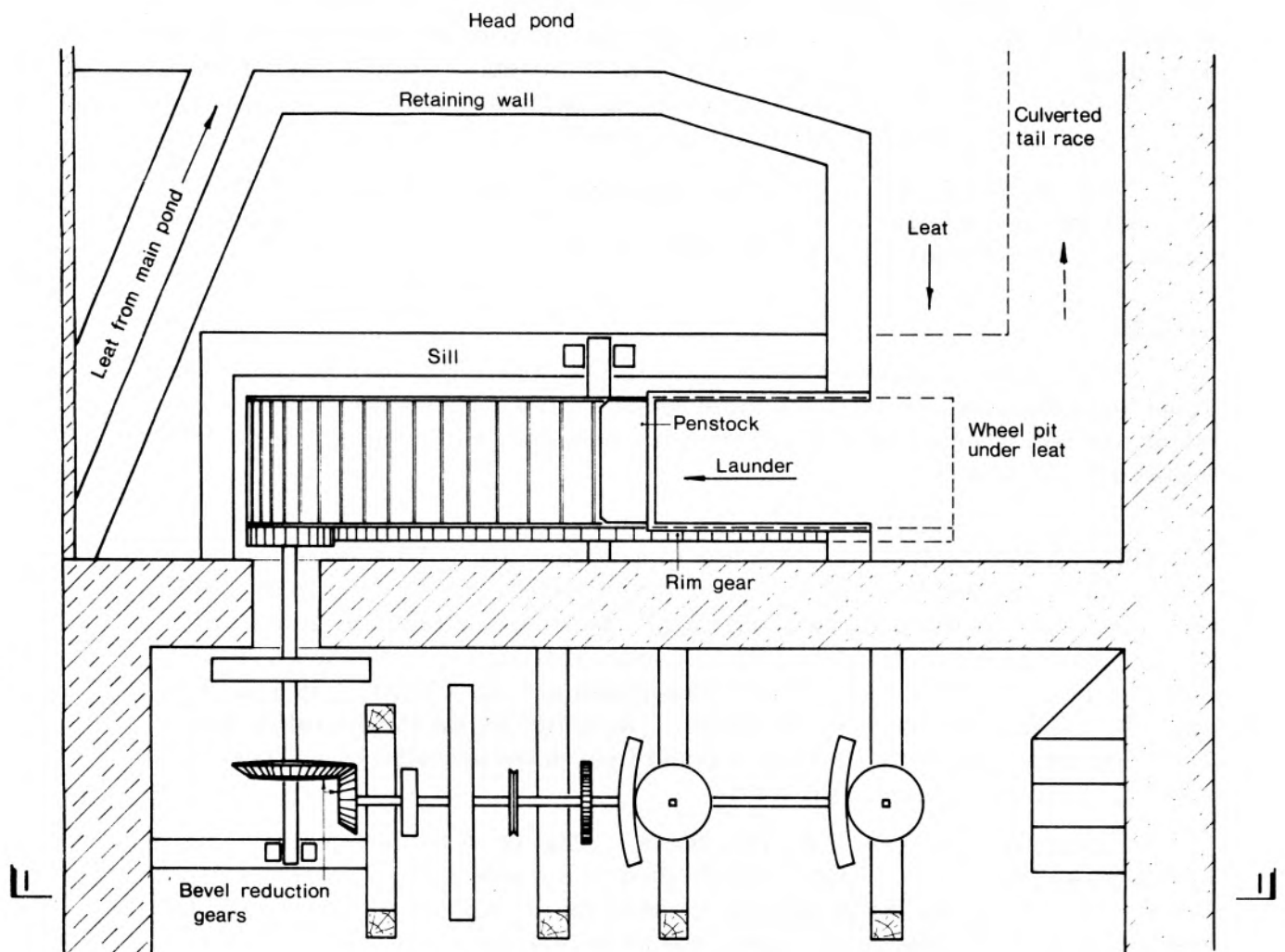
The gearing ratio at ESCOTT FARM is 1:10.3 whilst at GUPWORTHY FARM the ratio is 1:14. HORNER FARM has the main shafting driven directly from the wheel with a ratio of 1:14. In one case, at NEW BARN, Higher Vexford (Figure 3), a combination of both types of gearing is used giving a rim gear ratio of 1:8.5 and then by bevel reduction gears with a ratio of 1:1.3. A very large pulley, 5 ft. 4 in. in diameter and 6½ in. wide, originally drove an in-barn thresher and then a further series of reduction gears with a ratio of 1:1.6 drove the stone nuts of its mill.

This system of rim gear suffered from one serious defect. Should the wheel run out of true, either because of a worn bearing or more likely because of the warping or twisting of its arms, then the gear would not engage properly. This resulted in excessive wear and uneven running.

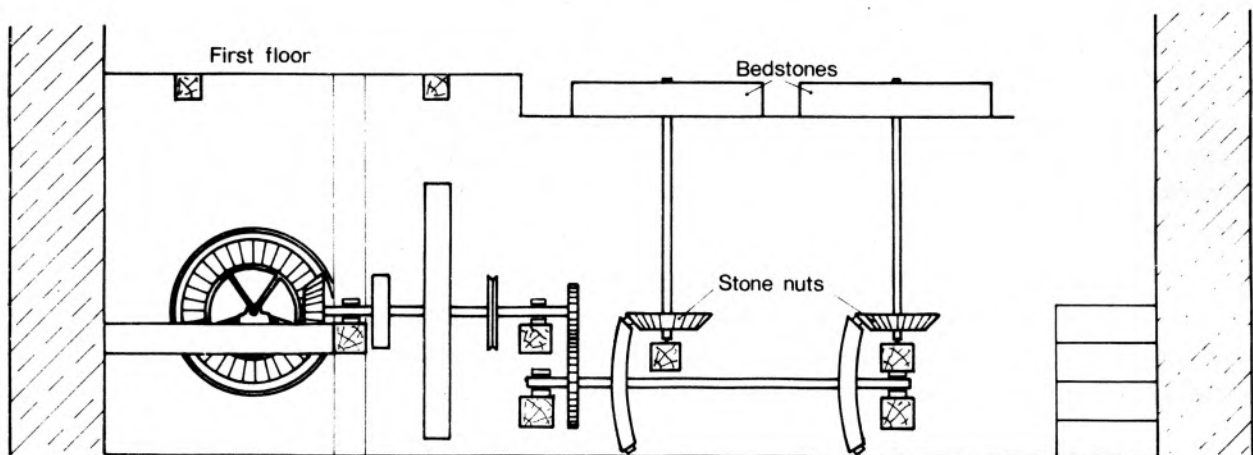
One remedy to the above situation was the introduction of the "suspension type" of wheel. Working on the principle of the bicycle wheel, diagonal iron rods were fitted between the arms of the wheel which could be adjusted to bring the wheel back to its true position. A good example of this type of wheel is at HORNER FARM.

## Water Pumping

Small, overshot, water-wheels were used to power water pumps and they



PLAN



ELEVATION I



DWV/1975

were sited at the spring or water-supply to be pumped. Housed in small masonry chambers, they received their feed via an iron pipe, 4 - 6 in. in diameter, either from a small pond or directly from a stream. Surviving wheels vary in diameter from 3 ft. to 8 ft. 6 in. and there are examples at WOODCOCKS LEY and HUNTSCOTT FARMS to name two.

### Millwrights

Those so far identified are Huish of Porlock, Phillips of Bridgetown, Page of Dulverton and Chidgey of Watchet. The last named made all the low breast wheels so far found. Wheels were also made by the many small agricultural and engineering firms which were established in the 19th century in rural areas: Gliddons of Williton, Ford Brothers of Wellington and Huxtable of Honiton. The "mini-wheels", used for pumping, were made by Huxtable. The millwrights had to have their ironwork cast for them; Huish, for example, imported his from South Wales through Porlock Weir.

### Conclusion

It is extremely difficult to assess either the economic role or more simply the incidence of water-power on West Somerset farms during the 19th century. Demolition, conversion or even neglect of sites results in the obliteration of evidence. Often the former existence of a wheel is revealed through oral tradition or indirectly through a farm sale notice.

Of the 47 farm wheels so far investigated in West Somerset 27 have gone and only their water-feed, wheel pits and/or bearings remain so their dimensions can only be approximated. Of those remaining 3 are low breast, 1 mid breast, 16 overshot and 11 have rim gearing. One low breast wheel is still in use and also one overshot rim-gear wheel which works a 19th century in-barn thresher at NORTHCOMBE FARM.

### Current Research

The generating of electricity by water-power is the subject of a separate but parallel investigation by the author who would welcome information regarding the whereabouts of turbines and also further farm wheels.

### Notes

- 1 The locations and distribution of the farms mentioned in the text are shown in Figure 1.
- 2 E. Masonyi, 'Water Power Development' (English Edition, 1960).
- 3 For a description of the principle of a "suspension type" wheel see the section on 'Gearing'.

### Acknowledgements

The author would like to thank the many landowners and farmers who have kindly granted access to their property and also the many individuals who have so gladly given information.

### Glossary

Compass armed: wheels whose arms radiate from the shaft on which it is mounted.

Flume: where the leat is carried in a wood or iron channel above the ground by supporting beams or pillars.

Hatch: a wood or iron vertically sliding gate in a sluice.

Leat: an artificial water channel supplying the water to the wheel.

Overshot: a type of wheel in which water falls over the top and is turned mainly by the weight of water in the buckets as well as by its initial volume and velocity.

Screen: vertical metal bars across a leat preventing debris reaching the wheel.

Paddles or Vanes: flat wooden or metal plates on the circumference of an undershot wheel against which the water strikes.

Reduction ratio: the increase or decrease in revolutions by means of gears of differing sizes.

Shroud or Side-plates: the outer circular framework of a wheel which also encloses the sides of the buckets.

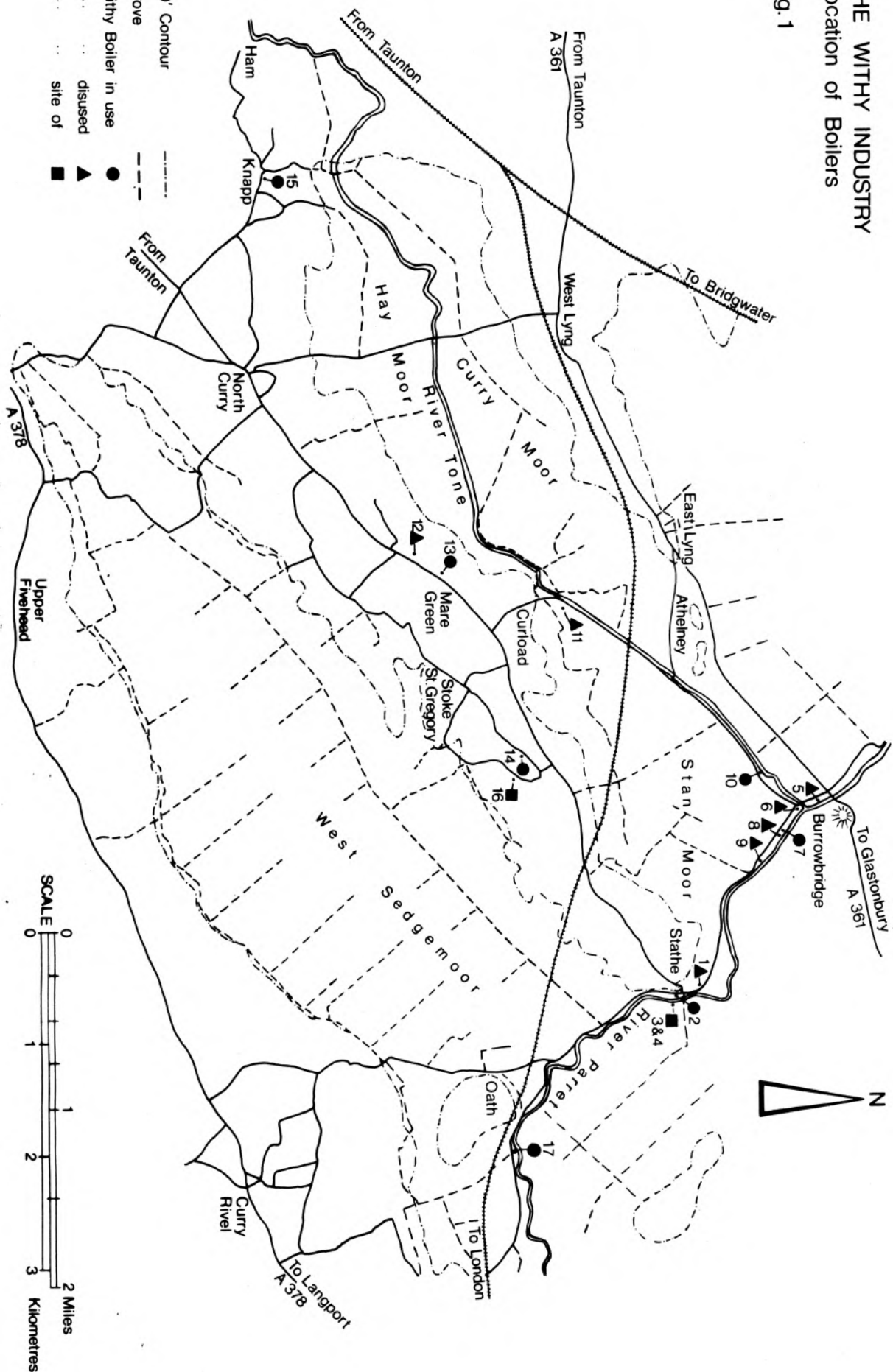
Sluice: a control gate for the water-supply to a wheel.

Sole: the bottom board of buckets or paddles on a wheel.

Undershot: a wheel which is turned by the velocity and volume of water striking the paddles at the bottom of the wheel.

# THE WITTHY INDUSTRY Location of Boilers

Fig. 1



# A WITHY BOILER AT BURROW BRIDGE

A.P. Ward

## Introduction

A number of articles about the withy industry have appeared<sup>1</sup> but an industrial archaeological contribution has not so far been made. This article aims to redress the balance a little by describing one factor of that industry, the withy boiler. In the course of compiling the information in this article the author received a great deal of co-operation from the withy growers and it is hoped that at some future date a fuller economic assessment can be made of the industry in Somerset during the present decade.

## The Withy Industry

As a result of drainage work on the Somerset Levels and the subsequent drier conditions, withy growing was first introduced in the early 19th century. Production of the willow plant for basket making reached a peak just after the turn of this century. In 1932, 1600 acres were under cultivation on the moors around North Curry and Stoke St. Gregory and to a lesser extent around Muchelney and Kingsbury Episcopi. A large proportion of the local population were engaged in the industry at this time.

Although the industry has greatly declined, basket making is still carried out in the district and withies are sent all over the country. A certain amount of outworking is done locally and a new venture by one firm has been the production of charcoal from willow for use by artists.

## The Role of the Boiler

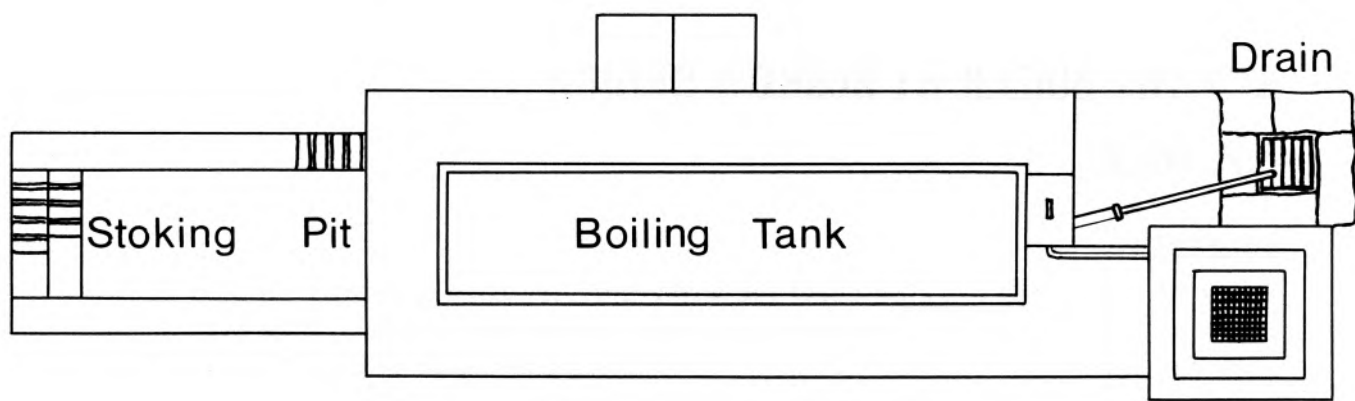
The introduction of the withy boiler in conjunction with the French designed bark stripping machine superseded the old, laborious method of stripping done by "brakes", metal prongs through which the sticks were pulled by hand. It should be noted, though, that the brake is still used for thicker sticks.

Withies cut green during the autumn and winter are bundled and immersed in boiling water and kept on the boil for 6 - 8 hours. The tannin in the bark stains the wood a buff colour, a longer time resulting in a deeper shade. If allowed to go off the boil the withies are ruined and the bark cannot be stripped satisfactorily. Dry withies can be placed in cold water and brought to the boil with no harm resulting. Approximately 5 cwt. of coal are required for each load and oil-firing has been installed in at least one works at Mare Green Farm.

## Distribution

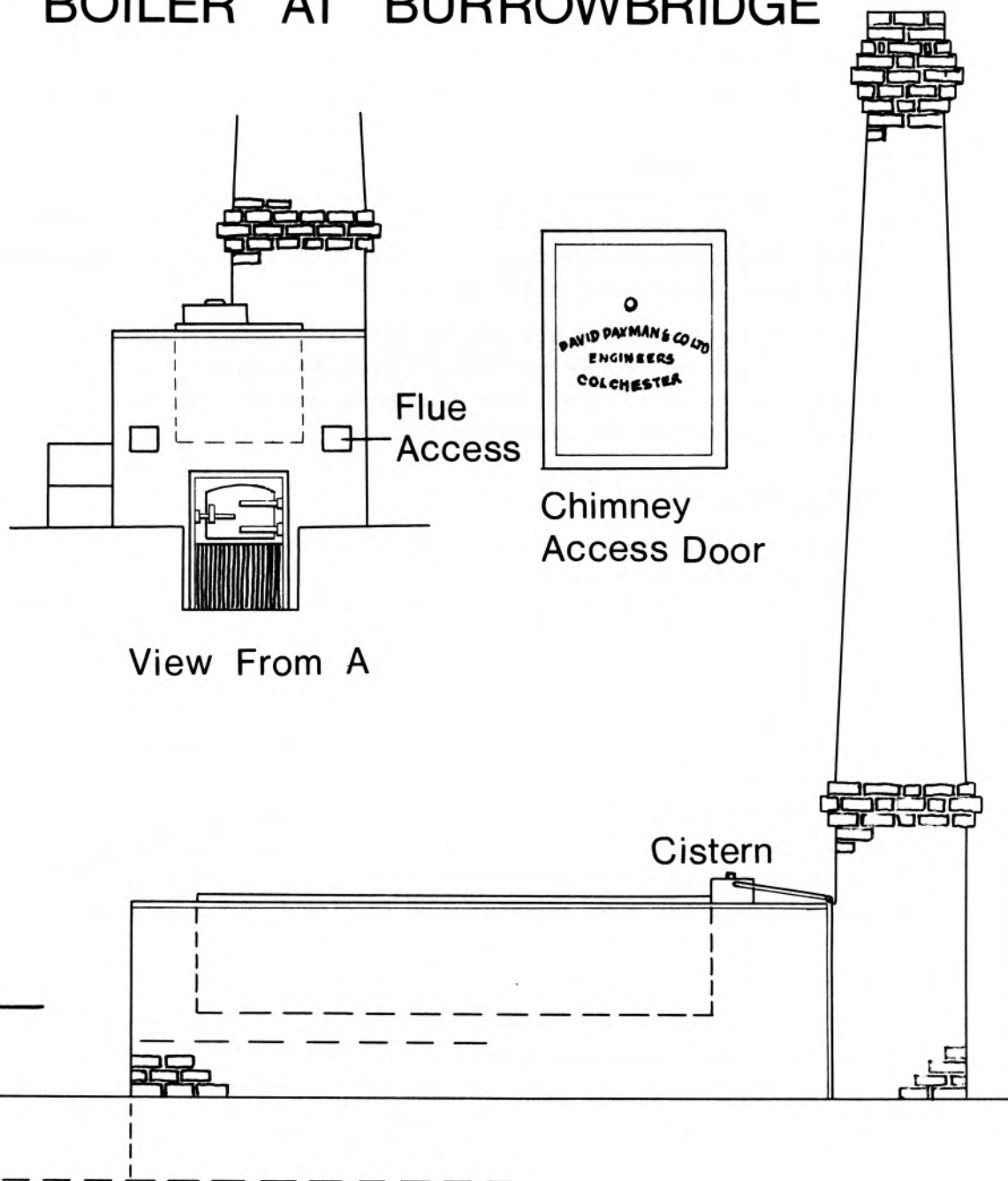
The map (Figure 1) shows the location of 17 boilers. Of these, 7 are in use and 10 disused. The one at Lees Farm, discovered from an advertisement with a photograph in Kelly's Directory for 1919, has disappeared completely. It is highly probable that more boilers either exist or existed and this total must therefore be a provisional one only. (Further details are given in the Gazetteer).

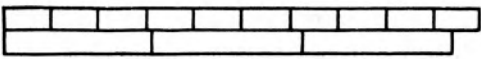
A number of withy boilers have been made from discarded Cornish boilers. These were obtained from the old steam-powered pumping stations on the Somerset Levels, the top of the boiler being cut out to form the tank.<sup>2</sup>



# WITHY BOILER AT BURROWBRIDGE

Fig. 2



SCALE  Feet  
Metres

1974

## The Burrow Bridge Boiler

The boiler illustrated (Figure 2) is at Burrow Bridge (ST 360299). It has not been in use for over 20 years. Consisting of a rectangular iron tank surrounded with brickwork, it has a firebox at one end from which the flue is led around the tank to the chimney. When in use, metal sheets were placed over the tank to keep in heat.

### GAZETTEER WITHY BOILERS

| No. on MAP | LOCATION                           | N. G. R.  | IN USE | TYPE | RECORD |
|------------|------------------------------------|-----------|--------|------|--------|
| 1          | Stathe                             | ST 374292 | No     | C    | P      |
| 2          | Stathe                             | ST 375291 | Yes    | B    | P      |
| 3 & 4      | Stathe, Willow Farm<br>(2 boilers) | ST 376290 | No     | B    | P      |
| 5          | Burrow Bridge                      | ST 357303 | No     | C    | -      |
| 6          | Burrow Bridge                      | ST 358301 | No     | C    | -      |
| 7          | Burrow Bridge                      | ST 360300 | Yes    | B    | -      |
| 8          | Burrow Bridge                      | ST 360299 | No     | B    | P & S  |
| 9          | Burrow Bridge                      | ST 364297 | No     | B    | -      |
| 10         | Burrow Bridge                      | ST 356297 | Yes    | B    | -      |
| 11         | Curload                            | ST 341281 | No     | B    | P      |
| 12         | Mare Green                         | ST 335267 | No     | C    | P      |
| 13         | Mare Green Farm                    | ST 337269 | Yes    | B    | P      |
| 14         | Dark Lane                          | ST 353276 | Yes    | B    | -      |
| 15         | Knapp                              | ST 302254 | Yes    | B    | P      |
| 16         | Lees Farm                          | ST 356276 | No     | -    | -      |
| 17         | Oath                               | ST 387276 | Yes    | B    | P      |

### Abbreviations:

B - box boiler

C - Cornish boiler

P - photographed

S - surveyed

### Notes

1 For a full bibliography see below.

2 For a description of the pumping engines see Proc. of the Somerset Arch. and N.H. Society, 112, 1968, pp. 16 - 17.

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# SHAPWICK WINDMILL

## C.A. Buchanan

A survey of Somerset Windmills appeared in Volume 6 of the Journal of the Bristol Industrial Archaeological Society.<sup>1</sup> This was the first systematic and detailed account of the subject and its appearance prompted me to write this article. My aim is partly to add to the published information relating to windmills in Somerset and partly to illustrate the inconsequential manner in which information concerning items of industrial archaeological interest can come to light.

I was first advised of the existence of a windmill site at Shapwick soon after taking up residence in the adjacent parish of Ashcott. The remains (ST 425374) are hardly dramatic, and short of positive archaeological treatment, are quite adequately and accurately recorded in the article of Mr. Watts to which I have already referred.<sup>2</sup> The foundations are of stone and, it is presumed, formed the base of a tower mill comparable to that at Walton, further east on the Polden Hills.

Shortly after this "discovery" I was working on the papers of the High Ham and Ashcott Turnpike Trust in the Somerset Record Office and was diverted on to the plans for a rival scheme, which was to grow into the Wedmore Trust Road from Pedwell to Shipham. Where this projected road crossed the Bridgwater Turnpike, which followed the Polden ridgeway, the map clearly indicated a windmill.<sup>3</sup> This windmill was sited to the North West of the junction (St 422373), whereas the remains of the tower mill are to the North East - and much further away. The tower mill did not figure in the Map of 1826 which might suggest that it was yet to be constructed - although the object of the draughtsman was clearly to depict the proposed road rather than structures totally unassociated with it. The 1826 Map, however, clearly depicted a post mill - and there is no other evidence to suggest that this primitive form of windmill was still in use in Somerset in the nineteenth century. Of course, the evidence of the Map could have been totally misleading. The picture of the windmill may have been no more than a demonstration of artistic licence in which both the form and the site of the mill had been disfigured.

Pursuing my studies into the history of turnpike trusts I came across a reference to an Act, date unspecified, but apparently about 1830, which stated that windmills were not to be erected within 200 yards of a turnpike road.<sup>4</sup> My immediate thought was that this could explain the questions raised by the Map of 1826. The old post mill, which from its position clearly contravened this piece of legislation, had been demolished and a new tower mill had been erected subsequently outside the stipulated 200 yards.

It is one of the lessons of historical research that such straightforward solutions are rarely correct. Several years later, in the pursuit of information unrelated to either windmills or turnpike trusts, I came across dramatic - even bizarre - evidence to account for at least the removal of the post mill. In order to try and communicate some of the fascination with which I first read the following account, I quote in full from the Taunton Courier:<sup>5</sup>

### " DESTRUCTION OF A WINDMILL AND LOSS OF LIFE

Shapwick, on Polden Hill, felt the fatal effects of the gale on Tuesday the 29th ult. About half-past ten in the forenoon, a farmer of this parish, named Mogg, was returning from the moor with some cattle, and on getting on the turnpike road leading from

Bridgwater to Glastonbury, he observed the vanes of the windmill going round at a most rapid rate (the wind then blowing most tremendously), and almost instantly it stopped. He having gone on to nearly opposite the mill, saw that it was again in motion at a very quick rate, and heard a dreadful crash; and at the same time the whole fabric fell to the ground a complete wreck. He instantly jumped off his horse, and entered the mill yard, where he soon discovered the miller, William Jones, and his brother, lying amongst the ruins. The latter was for a time insensible, but providentially not materially injured. The former, we regret to say, had received a fracture of the left leg, and so much bodily injury that he expired in a few hours, leaving a disconsolate widow and many children to lament their loss. He was about 56 years of age, and occupied a small farm, the wife and a son generally attending to the mill, from which they got a considerable support for the family. The mill was what is commonly termed "a stump mill", built wholly of timber, at all times and under any circumstances an extremely dangerous sort of building, as was exemplified by a circumstance mentioned by one of the Jury, that a mill of the same kind, in an adjoining parish, he had known blown down twice, and we have heard of several others having met a similar fate. This was a most lamentable case certainly; but a great nuisance had been removed, standing as it did within 100 yards of the turnpike road before mentioned, and a less distance from the Bristol and Wedmore turnpike. .... "

In this one passage the explanation of much is made clear. Apart from the unfortunate demise of the mill and the miller we are given a brief view of rural society. In this case milling supplemented the income derived from the family's main occupation which was farming. The illegality of the site of the windmill is confirmed although there is a discrepancy between the 200 yards mentioned in the Act and the 100 yards in the newspaper account. The integrity of the 1826 Map is also confirmed, but we are still lacking information about the tower mill. The fact that we now know more about the ancient structure than about its successor is a little ironic. However, it is a state of affairs with which the Industrial Archaeologist is all too familiar.

#### Notes

- 1 BIAS Journal, Vol. 6, 1973, p. 21. "Windmills of Somerset" by Martin Watts.
- 2 Ibid. p. 28.
- 3 Somerset Record Office, DP 84.
- 4 Mark Searle, 'Turnpike and Toll Bars' (Hutchinson, undated).
- 5 Taunton Courier, 7th December, 1836, p. 7.

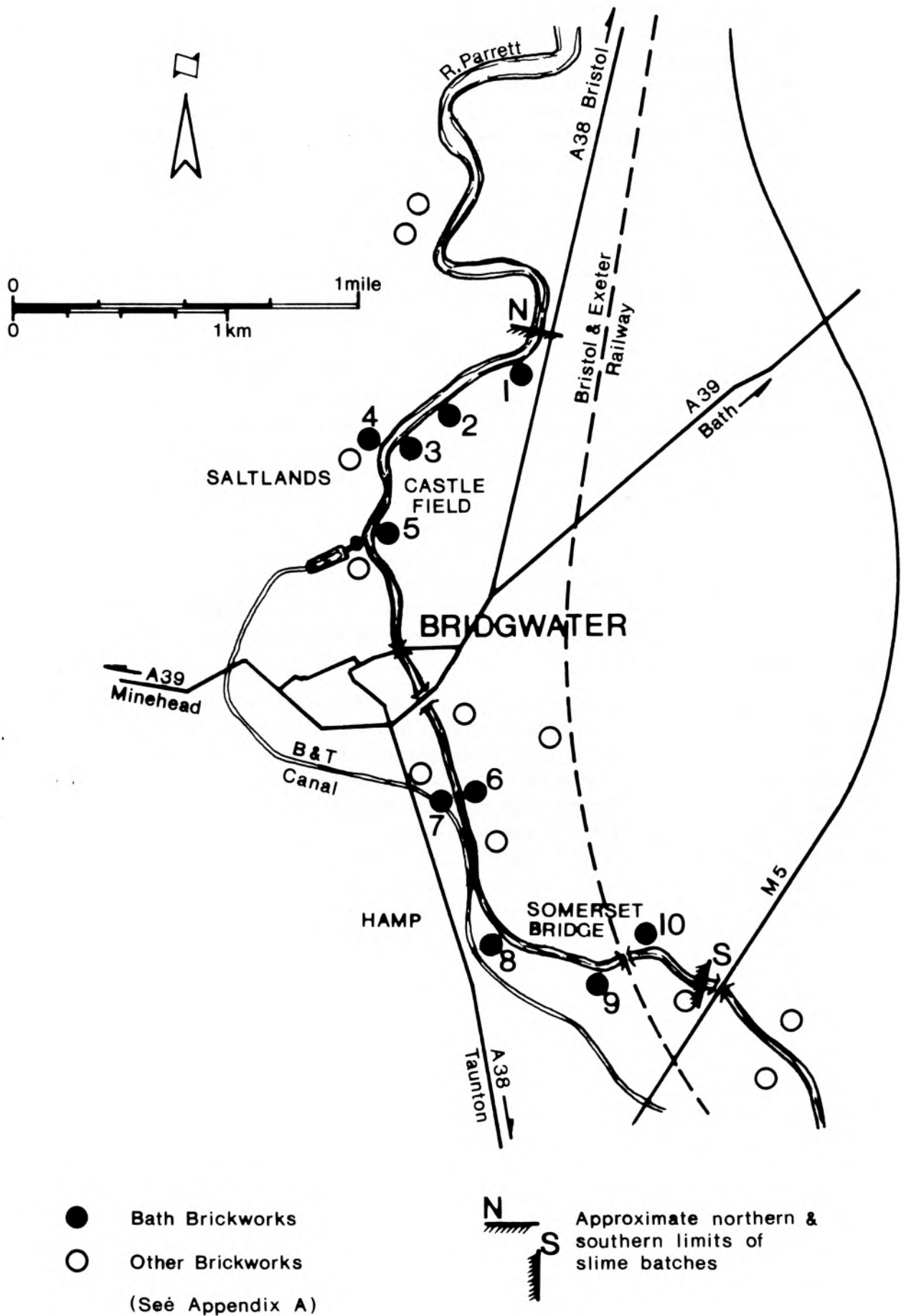


Fig. 1 THE BATH BRICK INDUSTRY

NJM/1 1975

# THE BATH BRICK INDUSTRY AT BRIDGWATER :

## a preliminary survey

B.J. Murless

"But thou flowest ever beautifully thick  
Leaving thy filthy slime to make Bath brick!"

E. H. Burrington, 'Apostrophe to the Parrett'<sup>1</sup>

### Introduction

The intention of this article is to draw together existing evidence relating to the manufacture of scouring bricks, popularly known as Bath bricks,<sup>2</sup> at Bridgwater, Somerset. Although the production of Bath bricks continued well into this century, and could be said to have constituted one of the staple industries of the town, very little has been recorded about either the bricks themselves or their manufacture.

### The Appellation

Four reasons why the scouring bricks have been designated as 'Bath' bricks appear in print:<sup>3</sup>

1. That the City of Bath was the location for the storing and the marketing of the bricks.<sup>4</sup>
2. That the bricks became popular at the same time as Bath buns and for commercial purposes adopted the name 'Bath'.<sup>5</sup>
3. That the original manufacturer and/or inventor was a Mr. Bath.<sup>6</sup>
4. That the appearance of the bricks resembles Bath stone.

Apart from the two sources noted there is no additional evidence for the first and second hypotheses. The third one, however, receives widespread support, including the 'Victoria History for the County of Somerset'.<sup>7</sup>

Unfortunately, none of those who propound the idea of a Mr. Bath are prepared to identify this person. One suspects also that the latter sources have accepted verbatim the earlier accounts. It is therefore to the fourth opinion, the likening of the bricks to Bath stone, that one seeks further clarification. It appears in the form of a patent granted in 1827 which refers to

"A Certain Composition or Substance...when perfected...would resemble in colour the Stone called or known by the name of Bath stone".<sup>8</sup>

### The 'Substance'

As the extract from the poem which prefaced this article indicated, the substance, or more correctly the number of substances, which constitute Bath brick derive from the action of the River Parrett. The way in which the material reached Bridgwater is described by Edmund Porter:

"...diatoms conveyed by the fresh water from land adjacent to the higher reaches of the river were carried down and deposited at the mouth of the river, later to be brought in suspension with the high tides and deposited on the banks".<sup>9</sup>

These diatoms have variously been described as "slime", "a very peculiar sand", "a black, tacky mud" and "a mixture of clay and sand". For

the purist an exhaustive chemical analysis of this "slime" does exist <sup>10</sup> which shows it to consist basically of alumina and silica particles.

### Slime-batches

The River Parrett was therefore the controlling factor in determining where the material for the manufacture of Bath bricks was deposited. To assist its collection, shelves were cut in the river bank within a vertical range of 8 feet, at base 3 feet above low-water mark. An extension of these were linear platforms or batches constructed along the bed of the river, adjacent to one bank or the other, using brick rubble.

Michael Williams has produced a map to show the positions of some of these slime-batches in the River Parrett and their relationship to the brickworks.<sup>11</sup>

Two elements governed the siting of the batches. Firstly, they were situated where the tidal flow and river flow interacted and hence where the deposition of the slime was at its greatest. Secondly, it was found that the composition of the slime was unsuitable for making Bath bricks if collected from the river further than a distance of approximately one mile to the north and south of the town bridge at Bridgwater (see Figure 1). Above the northern limit the slime was too coarse: conversely, below the southern limit it became too fine.

The rate of deposition of the slime on the batches varied with the tides. W. Lunn, in his 'Report on the River Parrett Floods Prevention' (1898) states that up to 12 feet could be deposited annually. The rate has also been expressed as one tenth of an inch per normal tide.

### Processing

The slime was first taken by barrow from the Parrett to the brickyards which were adjacent to the river. Because of the tide only sufficient quantities of material could be recovered for one, or at most two, days of work. The material was put into a machine similar to a pug mill used in preparing clay for the moulding of bricks and tiles. This mill, originally operated by a horse but later by a stationary steam-engine, ensured that the slime was thoroughly mixed and that the larger impurities were removed.

The making of the bricks could now commence. The slime oozed from the mill in a continuous length and was rolled into balls or dabs of a suitable size.<sup>12</sup> The wooden, rectangular mould for the Bath brick was placed on a 'stock' board which had affixed to it an iron plate, stamped with the company's name.<sup>13</sup> The mould was then filled, the completed brick being tapped out, placed on a pallet and removed to the drying area. This was usually a shed where the bricks were stacked on edge in vertical rows, four deep. These piles of bricks were known as "acks" (hacks or racks) and were between 50 and 100 yards in length.

The bricks were frequently inspected and as they dried were brought to the top of the hack. Unlike its clay counterpart, the Bath brick needed to be only slightly baked. This was carried out in a square or bottle-shaped kiln of the updraught type, so-called because the fire-grate of the kiln is at the bottom, the heat passing through the bricks and the hot gases escaping out at the top.<sup>14</sup>

After firing the bricks were dressed into their final shape by the removal of surplus pieces of material from along the edges. This process was known as "rubbing off" and was carried out by holding the brick against an abrasive wheel driven by shafting. The resultant waste was collected to be sold as scouring powder. The final stage was the wrapping of the brick and if they were destined

for export a wrapper in the relevant language was used.

### Labour Force

As recent as the 1920's groups of women could be seen, in their long skirts and aprons, setting out for work in the Bath brick sheds in and around Bridgwater. Apart from the heavier (lifting) tasks, the various processes involved in producing the bricks were undertaken by women and it seems probable that in the nineteenth century children were employed as well. It is difficult to set down either conditions of employment or the numbers of persons making the bricks. This is because the Bath brick industry was essentially an integral part of the brick and tile industry.

The sheds for the manufacture of the Bath bricks were located inside the yards where the clay goods were also made. The brick and tile industry was operated on a seasonal basis even during this century and the clay workers welcomed the opportunity of digging and barrowing slime during the winter months as an alternative to Poor Relief.

At the present time, therefore, it is only possible to offer generalities with regard to the labour force, such as that given in 1840:

"A great number of the inhabitants are employed in making them, the demand being considerable." <sup>15</sup>

### Uses

To persons born earlier this century the cleansing properties of the Bath brick are very familiar but what is not so well-known are the various uses advocated for it. These are printed on the wrappers of the bricks and brick wrappers issued by Barham Brothers <sup>16</sup> and John Board <sup>17</sup> survive.

The brick was first reduced to a powder form for common use in polishing, scouring, and cleaning knives, forks, fire-irons, fenders, brass, steel and tin-work. Although intended as an alternative to soap and soda, it was recommended that soap should be added when cleaning dirty and greasy woodwork, floors and tables. Normally, water was all that was necessary to dampen the scouring powder but Board's also suggest petroleum or turpentine when polishing metal-work.

One adaption of the function of the Bath brick was to carve them into cylinders. This was done in the foundry of Chidgey at Watchet and the bricks served, in this form, as spindle moulds in the casting of gears for ships' machinery, windmills and watermills. Sand was inadequate for this process and the bricks were supplied by the Bridgwater Bath Brick Company.

The slime itself may have been utilized by the Duke of Chandos in his speculative commercial and industrial ventures at Bridgwater during the eighteenth century. There is no evidence, however, to support this suggestion in the Duke's biography. <sup>18</sup>

The first patentees, John Browne and William Champion, anticipated the material as having further applications since in 1827 a patent granted to them stated that it was

"for all internal and external Architectural purposes". <sup>19</sup>

Nothing further is known about these other ideas for the slime.

Long after the production of Bath bricks had ceased, the slime still found favour with the local brick and tile makers as a seal to the 'wickets' - the arched entrances to the kilns. <sup>20</sup>

Because of the close association of the manufacture of Bath bricks and clay bricks and tiles, it is a complex matter to chart the development and eventual decline of the Bath brick industry as a separate entity. Its pattern of growth takes the form of a complicated series of mergers and take-overs within the companies operating in the Bridgwater area. (Figure 1 and Appendix A are together the first attempt to unravel this complexity using archive sources and trade directories.)

Within the approximate two-mile stretch of the River Parrett, as determined by the tidal factors (described elsewhere), there were four areas where Bath brick works developed. They are: Somerset Bridge, Hamp, Saltlands and a further area which includes the Castle Field and East Quay.

Scouring bricks are mentioned as early as 1818 in the 'Book of English Trades'.<sup>21</sup> The first patent appears to be granted to John Browne and William Champion, local brick and tile makers, in 1823 but it is clear that the other makers in the Bridgwater area were not slow to grasp the commercial possibilities of the product and soon commenced production themselves.

One of the first of the other companies to begin manufacturing Bath bricks was the long-established firm of Edward Sealy at his works at Hamp. In 1836, John Easton surveyed two routes for the extension of the Bridgwater and Taunton Canal through Hamp from Huntworth. The projected lines of the canal bisected both the brickyards of Browne and Champion and Sealy, their works being shown clearly on the plans.<sup>22</sup> A significant proportion of the land worked by Sealy at this time was owned by John Chapman, a local resident and councillor. In 1838, during the course of a law case between Chapman and the Bridgwater Canal Company, it was mentioned that £120 a year was paid for eight acres of land by the side of the Parrett from which scouring bricks were made.<sup>23</sup>

The Tithe Apportionment Award for Bridgwater (1847)<sup>24</sup> shows further developments with yards now operating at Saltlands and at Somerset Bridge. A local poet, commenting on Bath bricks in 1854, said:

"They form a staple article of trade;  
Their cleansing qualities so well are known,  
To other lands their useful fame hath flown,  
So that we hold a sort of patent prize,  
Which can be sold as foreign merchandise".<sup>25</sup>

Just how important an export commodity Bath bricks had become by this time can be judged by the figures quoted in Murray<sup>26</sup> who states that 8 million bricks, valued between twelve and thirteen thousand pounds, were being made every year. The majority of these were exported and one transaction that survives was the payment, in 1860, for Bath bricks bought by a Le Havre business who paid 40s per thousand. Not only was Europe receiving supplies of bricks but America, the Middle East and China as well.

Kelly's Trade Directory (1861) shows the growing list of makers which now included Barham Brothers at East Quay, and Colthurst Symons, one of the powerful multi-yard brick and tile companies. From this time until 1914, the Bath brick industry enjoyed a period of great prosperity with an average of 24 million bricks being produced each year. The Parrett Bath Brick Company started operating as late as 1886.<sup>27</sup>

A measure of the importance of the industry to Bridgwater can be noted from the lists of magistrates and mayors of the town which include many

Bath brick makers.<sup>28</sup> John Browne, for example, was mayor on no less than five occasions. The economic and political power of the makers was also firmly demonstrated during the 1890's when they successfully vetoed schemes to improve the drainage of the River Parrett; these schemes, had they been carried out, would have destroyed the slime-batches and the actual deposition of the slime.<sup>29</sup>

### Decline

In view of the undeniable success of the Bath brick in the half century before the Great War, it seems perhaps surprising that by 1939 the industry was all but dead.

For the companies concerned, the Bath brick industry in the nineteenth century had been a lucrative sideline to the production of clay goods. The slime was an untaxed raw material, in plentiful supply, with the added advantage that the source was within barrowing distance of the works.

The conflict of 1914-18 contributed, albeit indirectly, to the decline of the industry by causing a depletion of manpower and disrupting the export trade. The industry never fully recovered its former strength. The export of Bath bricks, which had been in excess of 17 million per annum at the beginning of this century, disappeared virtually overnight.

In addition to these fundamental problems, the industry failed to respond to the challenge of new productive processes and alternative cleaning agents which were now being manufactured in larger quantities. These rival products were cheap and attractively packaged, and more suited to the changing requirements of the post-war world.

Whilst it is undoubtedly true that there were those who, for commercial reasons, did not mourn the passing of the Bath brick, it could be said that the industry was allowed to die rather than be re-moulded to meet the challenges of the twentieth century.

Historically, the final demise of the Bath brick is almost as obscure as its birth. No precise date can be given because companies ceased production of the bricks at different dates. The realisation that the brick was no longer viable commercially emerged in the late 1930's and many of the bricks stock-piled during that period were used for construction purposes and may still be seen built into walls and garden sheds in the Bridgwater area.

### The Bricks Themselves

Appendix B shows the dimensions of ten different Bath bricks known to the author. It should be noted that at present no comprehensive collection of these bricks is available for either study purposes or on display.

Three important points should be made concerning the table. Firstly, the words "top" and "bottom" have been used at the head of the second and third columns to describe the two opposite surfaces of the brick having the largest areas. The two words themselves are those used in conventional brick terminology. As Bath bricks were not designed for a constructional role, it would be technically incorrect to refer to these as "faces" and "sides".

Secondly, the dimensions of the bricks are given to the nearest quarter of an inch. To express measurements in such a manner may seem highly suspect until it is appreciated that the crude processes of manufacture plus the crumbling fabric of the product make it difficult to give exact dimensions. It seems reasonable to suggest, though, that the companies producing Bath

bricks in the latter half of the nineteenth century and during this century (S. 1, S. 2, S. 3, and S. 9) aimed at a uniform standard of 6 x 3 x 2 in. (This is corroborated by the relatively modern and wrapped example, S. 10, which conforms to these dimensions.)

Thirdly, whilst the bricks listed represent actual bricks, the author checked a number of Bath bricks which were stamped in the same way as those detailed in the table without finding further samples of radically different dimensions. The conclusions which follow, therefore, are based on a wider body of evidence than the ten examples listed.

Size: apart from the near conformity of sizes in the later bricks, already referred to above, present information suggests that the Bath bricks made earlier in the nineteenth century (S. 5, S. 6, S. 7 and S. 8) are larger both in length and width.

Colour and texture: all the bricks examined have a "bleached yellow" appearance and a sandy texture without inclusions.

Stamps and motifs: with the exception of S. 10, all the bricks have been stamped at least once, S. 6 and S. 7 being stamped twice each. Three bricks have distinctive markings in addition to the lettering. S. 1 has a small rectangular panel ( $1 \times \frac{3}{4}$  in.) above the word "Bridgwater" and S. 3 has a similar panel ( $1\frac{1}{2} \times 1$  in.) but this encloses an angled 'V' motif. The angle of the 'V' differs on several of the bricks from the same company and a metal stamp for making this mark has been found on the site of the works at Saltlands. Brick S. 4 was also located at Saltlands and is almost certainly an example of a Bath brick made under contract (see also S. 6). S. 2 has a crude horseshoe-shaped motif and is of unknown origin.

#### Postscript

Although the majority of sources stress that the making of Bath bricks was an industry unique to Bridgwater, such a successful product undoubtedly had its imitators both from within and without the County of Somerset. Hunt and Company's 'Directory and Topography' (1850) stated that white scouring bricks were made at Highbridge. Makers of scouring bricks outside of the Bridgwater area listed by trade directories are Edward Saunders at Huntspill (1850) and John Prior Estlin at Highbridge and Huntspill (1861).

It is also of interest to note that one of the schedules of the Burnham Tidal Harbour Act of 1860 lists harbour dues of 1s 6d per thousand for scouring bricks but 5s per thousand for Bath bricks. The distinction in category and price may indicate a bias towards a locally-produced brick in preference to those made at Bridgwater. It could also suggest that Bath bricks were of greater mass than other scouring bricks produced at this time and were therefore more inconvenient in terms of crantage and wharfage.

MAKERS AT BATH BRICKWORKS SHOWN IN FIGURE 1.

- No. 1. The Parrett Bath Brick Co. Ltd. Beginning in 1886 this company concentrated on manufacturing Bath bricks at its only works in Bristol Road, Bridgwater. It still advertised the bricks in 1939.
- No. 2. John Board & Co. Ltd. Board's had other works manufacturing clay goods at Dunball and Dunwear and acquired the premises in Bristol Road, formerly Wilds or Wylds Cement Works, by 1902.
- No. 3. Castle Field Works. Thomas Colmer Colthurst owned land here in 1847 which by 1861 had become the brickyard of Colthurst, Symons & Co. Ltd. Bath brick production was centred here after 1918 and the product was still advertised in 1939.
- No. 4. Saltlands Works. This site had a sequence of makers. In 1822 Robert Ford was making clay bricks here and added Bath bricks to his list of products in the 1840's. By 1852 John Baptiste Hammill had acquired Ford's works and Hammill himself was succeeded on this site by John Symons and Co. Ltd. (sometime between 1883 and 1889). Scouring bricks appear to have been made by Symons under the title of the 'Bridgwater Bath Brick Company'. By 1939 the company was known as Oswald F. Symons and in 1941 linked up with the William Thomas Group of Poole, Wellington. It is thought that Bath bricks were not produced here after 1930.
- No. 5. Barham Brothers' Works. Founded in 1859 at East Quay, Bridgwater, the company made a variety of products in addition to Bath bricks and retained its name throughout the trading life of the company.
- No. 6. Salmon Parade Works. Edward Sealy was working on this site in 1847 and his business was continued by his son John. Henry James and Charles Major had acquired Sealy's company by 1872 and Bath bricks were made here until about 1914.
- No. 7. Old Taunton Road Works. In 1811 Charles Mines had a brickyard on this site but Bath brick production probably began with John Browne and William Champion in the 1820's. By 1897 the yard had been absorbed into the Somerset Trading Company.
- No. 8. Hamp Works. Edward Sealy had a brickyard here in 1811 and its history follows a similar pattern to No. 6.
- No. 9. Crossway Works. Thomas C. Colthurst was the lessee of land in this area in the early nineteenth century and Colthurst, Symons & Co. Ltd. had begun brickmaking here by 1859. It is thought that Bath bricks were not made on this site after 1918.
- No.10. Somerset Bridge Works. Charles Champion had a brickyard on this site in 1847. Its subsequent history follows a similar pattern to No. 7. Bath bricks were still being manufactured here in the 1930's.



Fig. 2 (I)MPERIAL BATH (S.7)

## APPENDIX B

BATH BRICKS

| SAMPLE<br>NUMBER | TOP                                                             | BOTTOM                                      | DIMENSIONS                                                                   |
|------------------|-----------------------------------------------------------------|---------------------------------------------|------------------------------------------------------------------------------|
| S. 1             | BARHAM BROS.<br>BEST BATH BRICKS<br>(Motif)<br>BRIDGWATER       | (Plain)                                     | $6\frac{1}{4} \times 3\frac{1}{4} \times 2$ in.                              |
| S. 2             | BEST BRIDGWATER<br>BATH BRICK<br>GUARANTEED<br>(Motif)          | (Plain)                                     | $6\frac{1}{4} \times 3 \times 2$ in.                                         |
| S. 3             | BRIDGWATER<br>BATH BRICK COMP                                   | (Plain)                                     | $6 \times 3\frac{1}{4} \times 2$ in.                                         |
| S. 4             | BRIDGWATER<br>BATH BRICK<br>J. H. BROUGH & CO.<br>LIVERPOOL     | (Plain)                                     | $5\frac{1}{2} \times 2\frac{3}{4} \times 2$ in.                              |
| S. 5             | FORD & SONS<br>1847<br>PATENT                                   | (Plain)                                     | $7\frac{1}{2} \times 3\frac{1}{2} \times 2\frac{1}{4}$ in.                   |
| S. 6             | FORD & SON<br>PATENT                                            | J. B. HAMMILL<br>MANUFACTURER<br>BRIDGWATER | $6\frac{3}{4} \times 3\frac{1}{2} \times 2\frac{1}{4}$ in.                   |
| S. 7             | IMPERIAL<br>BATH                                                | SEALY                                       | $7\frac{1}{4} \times 3\frac{1}{2} \times 2\frac{1}{4}$ in.<br>(See Figure 2) |
| S. 8             | SEALY'S<br>IMPERIAL<br>PATENT                                   | (Plain)                                     | $7\frac{1}{4} \times 3\frac{1}{4} \times 2\frac{1}{4}$ in.                   |
| S. 9             | THE SOMERSET<br>TRADING CO LD<br>LATE BROWNE & CO<br>BRIDGWATER | (Plain)                                     | $6\frac{1}{4} \times 3 \times 2$ in.                                         |
| S.10             | (Plain)                                                         | (Plain)                                     | $6 \times 3 \times 2$ in.                                                    |

### Spellings

In the sources referred to below the following variations in spelling were noted:

|             |              |
|-------------|--------------|
| Bridgewater | (Bridgwater) |
| Ham         | (Hamp)       |
| Parret      | (Parrett)    |

(To avoid possible confusion the variations have not been used in the article.)

1. A full text of this poem can be found in S.G. Jarman, 'A History of Bridgwater' (London & St. Ives, 1889) p. 199 and a slightly shortened text in D. Hawkins, 'Avalon and Sedgemoor' (Newton Abbot, 1973) p. 47.
2. Pigot & Co.'s 'Royal, National and Commercial Directory' (1842) p. 47 and Hunt & Co.'s 'Directory and Topography' (1848) p. 2 both give an alternative name, 'Flanders', to the scouring bricks. The words 'Flanders bricks' are generally understood to refer to the (clay) bricks imported into England from the Low Countries, often as ballast in ships' holds, from the early thirteenth century onwards. These bricks were longer, wider and shorter than the modern 'standard' brick. The dimensions of Flanders bricks were about 12 x 5 x 1½ in.
3. It has also been postulated orally that for 'Bath' read 'bath' but there is no evidence to suggest such a hygienic role for the bricks and the scouring of baths does not appear on surviving Bath brick wrappers (see section on uses).
4. J. Murray, 'Handbook for Travellers in Wilts., Dorset and Somerset' (London, 1882) pp. 380-381. Murray draws a parallel between the naming of Bath bricks and the naming of Stilton cheese!
5. S.G. Jarman, op. cit. p. 199.
6. A contributor to the Somerset County Herald, 'Notes and Queries' 1930 18 Oct., for example, states that the bricks owe their name to a Mr. Bath, or Batheo.
7. 'V.C.H., Somerset' (London, 1906) ii, p. 353.
8. E. Porter, 'Bridgwater Industries, Past and Present' (Bridgwater, undated) p. 6.
9. Ibid., p. 6.
10. W.A.E. Ussher, 'The Geology of the Quantock Hills and Taunton and Bridgwater' (London, 1908) pp. 96 - 97.
11. M. Williams, 'The Drainage of the Somerset Levels' (Cambridge, 1970) fig. 38. The number of slime-batches in operation varied at any given time but they occupied 1½ miles of the approximately 2 mile stretch of the river from which the slime was drawn.
12. E. Porter, op. cit. p. 7, refers to this process as "obstricking".
13. In the Blake Museum, Bridgwater there is a metal plate (6½ x 3½ in.) stamped with the words "BEST BATH BRICK ENGLAND".
14. The bottle-shaped or beehive kilns are known locally as "pinnacle" kilns.
15. W. Bragg, 'General Directory for the County of Somerset' (Taunton, 1840) p. 60.
16. 'BIAS Journal', Vol. 6, 1973, p. 33.
17. In the collection of the Somerset Educational Museum and Art Service, Weir Lodge, Taunton.
18. C.H. Collins Baker and Muriel I. Baker, 'The Life and Circumstances of James Brydges, First Duke of Chandos' (Oxford, 1949) pp. 221 - 235.
19. 'Somerset and Dorset Notes and Queries', Vol. 19, 1929, p. 234. The wording of the patent differs with that quoted by E. Porter (see n. 8.)
20. D. Hawkins, op. cit. p. 48.
21. Somerset County Herald, 'Notes and Queries', 1903 September.
22. Somerset Record Office, DP 133 and DP 134.
23. Somerset County Herald, 'Notes and Queries', 1927 31 December.
24. Somerset Record Office, tithe award, 496.
25. G. Parker, 'A Sketch of Bridgwater and its Neighbourhood' (Bridgwater, 1854) p. 7.
26. J. Murray, op. cit. (1859 ed.) p. 195.
27. P.J. Squibbs, 'A Bridgwater Diary' (Bridgwater, 1968) p. 132.
28. S.G. Jarman, op. cit. pp. 272 - 275.
29. M. Williams, op. cit. pp. 216 - 218.

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Mrs. V. Stevens for permission to examine Bath bricks in the collection of the Somerset Educational Museum and Art Service.

Mr. W.W. Heath of Bridgwater with regard to Bath brickmaking by Colthurst, Symons and Company.

Mr. D. Greenfield for information about Chidgey's of Watchet.

The Staff of the Somerset County Record Office, Taunton, for assistance with primary sources.

Mr. D. Bromwich, Local History Library, Taunton Castle, for assistance with secondary sources.

# A CORNISH BOILER AT HIGHBRIDGE

## I. Miles

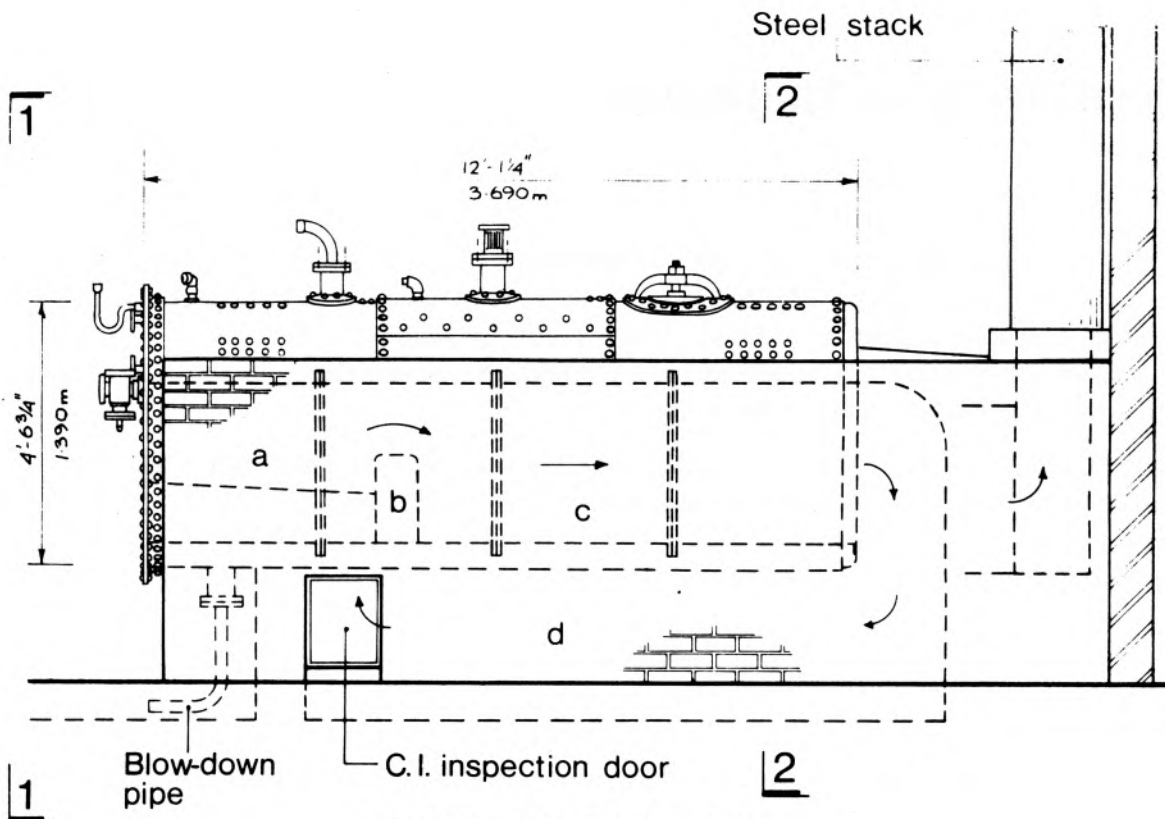
The solid fuel fired Cornish boiler, together with a small vertical boiler, at Pitts Brick and Tile Works, Highbridge, were both probably used to provide steam heat for the drying sheds. No evidence could be found on site that the steam was used for driving any machinery, although the possibility, in the earlier years of the works, cannot be ruled out.

The Cornish boiler, when surveyed, was devoid of all fittings and lagging, and had obviously been out of use for some time. It had suffered the effects of vandals, and consequently there was no builder's plate or any identifying marks which would enable the makers to be traced. Alongside were the remains of a boiler feed pump.

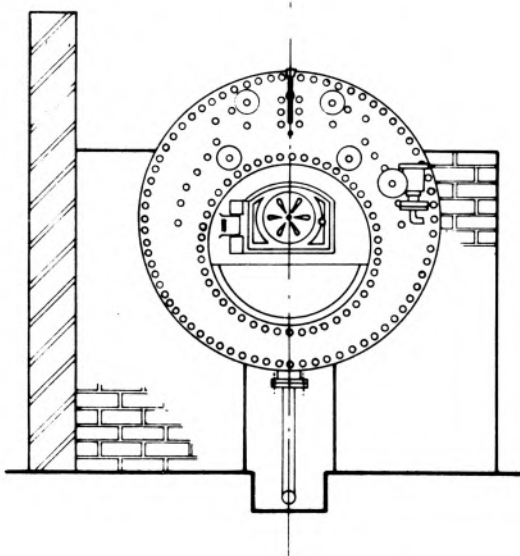
The design is typical of that invented by Trevithick. It consisted of a horizontal cylinder, flat at both ends, and of riveted construction. The cylinder contained a single large tube below the water-line, with a furnace at one end. At the other end it was open to the external flues, which were arranged to make nearly all the external surface of the boiler shell below the water-line act as part of the heating surface.

As can be seen from the diagram, the hot gases, after leaving the furnace (a), were made to pass over the firebrick bridge (b), and continue along the fire-tube (c). On reaching the external flue the gases were diverted downwards, and passed beneath the boiler from the rear to the front (d). When they arrived at the front of the chamber the gases divided, rose either side of the boiler, and passed along the flues (e) towards the rear and away to the chimney.

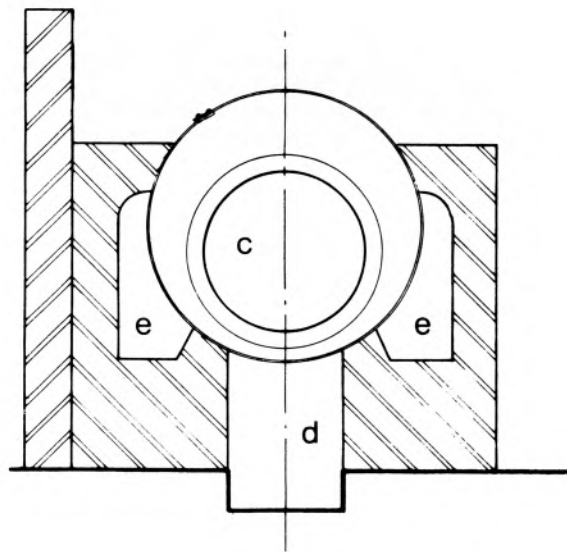
Footnote: Kelly's Directories indicate that George and Frank Pitts had a brick and tile works on this site by 1872. The Company had become known as A.G. (Arthur George) Pitts by 1889. Both members of SIAS and the Bridgwater and District Archaeological Society carried out further surveys at the works before its demolition in the Autumn of 1974.



SIDE ELEVATION



END ELEVATION 1



SECTION 2



CORNISH BOILER AT PITT'S BRICK & TILE WORKS

I.D.M./① 1975

# HORSE GINS IN SOMERSET

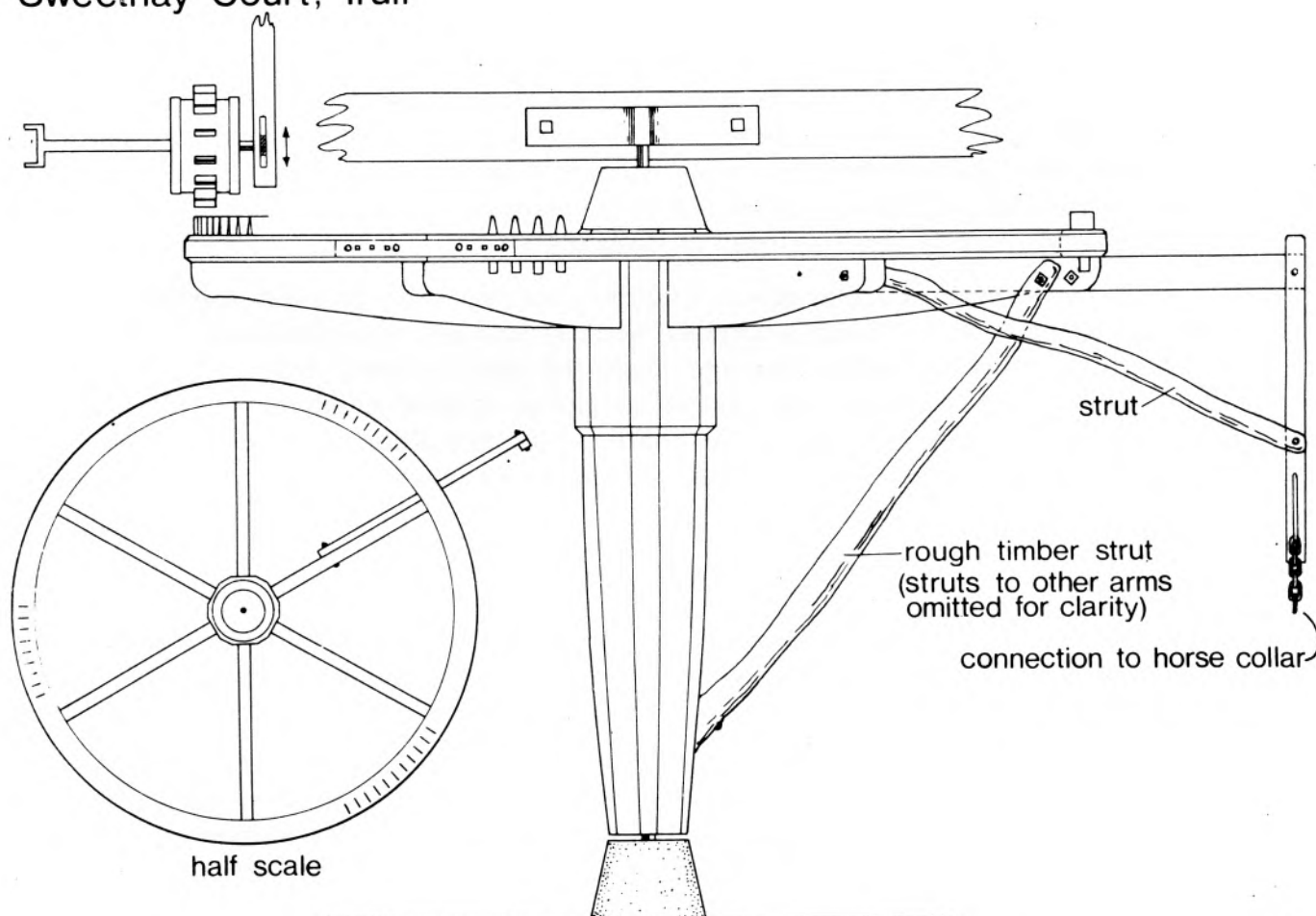
## Introduction

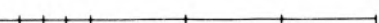
Although the principles and uses of horse gins are well known,<sup>1</sup> it is extremely difficult to assess their numbers and distribution in Somerset and hence their contribution to the economy of the County.

The structures which housed the gins are often shown as appendages to farm outbuildings on the large scale Ordnance Survey Maps. Nevertheless, no attempt has been made to collate information about these structures or whether they contain the gearing.<sup>2</sup>

In Part One, Brian Hook describes the prevalence of both the gearing and their housing in the vicinities of Ash and Long Load. Tony Ward surveyed a surviving gin at Trull on the occasion of a SIAS visit, by kind permission of the owner, and this is shown and described in Part Two.

HORSE GIN  
Sweethay Court, Trull



Scale  Feet

## PART ONE:

### HORSE GINS AT ASH AND LONG LOAD

#### B. Hook

##### Hollands Farm <sup>3</sup>

No longer an independent unit, the land and remaining buildings are now part of an adjoining farm. The farm fell into disuse about 1936, when the house was gutted by fire. Parts of the original stone buildings, including a barn, still stand. In one of these there is an overhead gearing still connected to a wooden-rollered apple crusher with a cider press standing alongside. The horse walked under the wooden beam which carried a wooden yoke and this was attached to the harness. The iron crown-wheel is set under the floor of the loft above where the apples were tipped prior to crushing. As 4 - 5 ft. of poultry manure covers the floor, it is uncertain whether the original base was a cobbled circular walk or just a dirt floor.

##### Milton Farm

This farmstead now includes Hollands Farm and had indoor gearing but apparently only the building in which it was housed remains. (Further details of this site are difficult to obtain.)

##### Manor Farm and Falconers Farm

These two neighbouring farms would appear to be of sufficient size to have used gearing in bygone days. However, both present families have no knowledge of any such machinery. In conversation with older locals, I was assured that Manor Farm "certainly had" an outside gear and that it was pulled by a horse "on a circle of stones out in the courtyard". If so, this was a different method to that employed at Hollands Farm.

At Falconers Farm there is neither gearing nor a suitable building in which to house it. Though surprised by this, another conversation with an ancient local worthy some time ago suggested that a former tenant had been so go-ahead that he had been the first in the parish to have an engine. This once drove the overhead shafting for the chaff-cutting and other machines. These jobs had hitherto been done by hand. Even more surprising, there is no report of a cider cellar here.

##### Witcombe

This hamlet had, at various times, five sets of horse gearing, one at each of the five farms. None remain now though the "walk" of one is still evident.

One of these farms had "one at the bottom end of the long shed" which drove an apple crusher. This went out of use when that particular farmer "let the apples rot, annually, so badly in the loft that the floor collapsed bringing down the roof". The building later became a cowstall which in turn is now no longer used.

##### Batstones

This farm had an outdoor "pulled" gear. I understand that it provided

power to drive butter churns in a large dairy. No alternative use is apparent and I find this unusual. Perhaps the farm served as the local creamery. The cobbled track, or walk, is still visible. There is no stock on this farm nowadays.

### Higher Farm

The famous cellar at this farm is no longer. There are many who have reflected, regretfully, at the previous evening's drinking in that building (including myself)! It was here that I first learned anything of cider making. All I have spoken to only recall handpower, but concede that a cellar such as this would have had other power when at full production last century. The stonework showed where shafting had entered the end wall but no track was evident. The cellar and adjoining building have now become a bungalow.

### Sidewell House

Although the House did not have much land, it did eventually assume the title of 'Farm'. The indoor, overhead horse gear was situated in the stable and drove an apple crusher in the adjoining cellar. Apples gathered in Martock and made up here resulted in cider 'as good as any in the district'. A relation of the folk at Sidewell House kept the 'Prince of Wales' public house at Ham Hill, Stoke sub Hamdon. Each week three hogshead of cider was taken to the 'Prince of Wales' to quench the thirst of the quarry workers. The carrier of the cider was also the official carrier for the Yeovil to Ilminster 'run', a journey which took a whole day. Sidewell House is now two private dwellings, one of them being the former stable. During the re-building part of the structure collapsed into a well at the side of the foundations of the original house!

### Ash Farm

This farmstead once boasted two sets of gearing, though whether this was one-upmanship or the farm was large and efficient enough to warrant it is not clear. One was an indoor, overhead type used for chaff-cutting and other agricultural tasks but nothing now remains. The other was an outdoor, towed unit for apple crushing. Were one allowed to excavate the present front lawn the cobbled track would be evident and probably still complete.

### Manor Farm

This was situated opposite Ash Farm but can no longer be located. Although the farmhouse is now occupied by a local doctor, the two sets of farm buildings, on opposite sides of the road, which were the outbuildings and cottages have disappeared. The area is now covered by about a dozen semi-detached houses. The outdoor, towed gear was used at the farm as recently as the late 1930's. I recall a relation of mine, now living in one of the new houses, complaining that he had no depth of soil in his back garden. This was not surprising since he was trying to dig the cobbled floor of the old stables!

### Church Farm

There is no evidence remaining of horse gear here but a member of the family recalls that gearing at the farm was replaced by an oil engine early this century. The engine was supplied by Brown and Winsor of Yeovil and was used to drive chaff-cutters, cake-crackers and similar machines in order to release horses for the more important outdoor seasonal work.

### Long Load

In my own village there is a fine example of an indoor overhead gearing

which is virtually complete and possibly workable. The building in which it is housed appears to have been used for other purposes but several pieces of cider making machinery still stand alongside. The circular track is also in good condition.

Another gearing used quite close to my home was revealed to passers by when the building collapsed. The consequence of this revelation was that the owner had to sell the gearing as scrap to help the war effort!

### Conclusions

In the parish of Ash there are now twelve farms and eight other sites which were farmsteads. I have not checked all as yet but from the evidence given above it can be seen that the number of horse gins used in the past was considerable. It could be that where cider making was done in any quantity there was more of this sort of power used. The alternative uses of overhead gearing, such as powering machines for grinding, chaff-cutting and cake-cracking, were found on the larger, more prosperous and more efficient farms. The smaller farms relied on handpower.

Many of the surviving installations are in a reasonable condition and some are worth removing for preservation. Finding a suitable place for the re-building and demonstration of this type of machinery is the most difficult aspect.

## **PART TWO:**

### **A GIN AT SWEETHAY COURT, TRULL**

**Survey: A.P. Ward**

**Text: B.J. Murless**

The horse gearing is situated in part of a barn adjacent to the farmhouse at Sweethay Court, Trull (ST 205213).

It consists of a substantial upright shaft of elm, set into the floor and supported above in a bearing on a cross beam of the building. The wooden spur-wheel, 9 ft. 6 in. in diameter, is mounted at the top of the shaft and receives additional support and rigidity from eight arms which radiate from the shaft to the rim of the wheel. There are 125 teeth on the spur-wheel which connect in turn with a cog-wheel of 15 teeth. This latter pinion drove a wooden-rollered apple crusher which stands nearby.<sup>4</sup> There are also two cider presses in the barn.

The apples were stored on racks in the loft above and fed into the crusher at a convenient point in the floor. The wooden yoke, for attachment to a harness, is still intact on the spur-wheel and its size suggests that the machine was 1 h. p.

#### Notes

- 1 For a general introduction to the subject see the chapter by R. Wailles in B. Bracegirdle, 'The Archaeology of the Industrial Revolution' (London, 1973) p. 86.
- 2 SIAS is indebted to Roger Carter, a member of the Chard History Group, for drawing attention to a hexagonal structure, a familiar form for housing a gin, at Higher Wambrook Farm (ST 293086). It is to be hoped that more of these buildings will be revealed in the archaeological surveys now being undertaken in various parishes in Somerset.
- 3 Many of the farm names are those used by former owners or tenants and are therefore not necessarily current.
- 4 For a sketch of both the apple crusher and the gin see O. Hallam (ed.), 'The Story of Trull' (Trull and Staplehay W.I., 2nd ed., 1953) pl. XIII.

# DUNKIRK MILL, FRESHFORD

## P. England

Dunkirk Mill is situated in a small valley near the Avon Rubber Company's factory. Although the valley is 80 ft. above sea level the surrounding hills rise to a further 200 ft. The mill is built in a cream stone. Today it is virtually held together by ivy. The interior of the mill was plastered. The roof has disappeared and so has much of the flooring, although a few rotting beams have survived together with several cast iron roof supports.

### History

The main building was built in 1795 and originally produced West Country broadcloth or twilled cassimere. There were other mills in Freshford: in 1612 there was a mill on the site now occupied by Peradin's Rubber Factory. Another mill was known as Laddcombe, Lutcombe or Langford Mill but it has not been possible to locate this mill with any accuracy. When the first lease of the site was negotiated by the founder of Freshford Mill - Thomas Joyce - a clothier of Bradford-on-Avon, there was no suggestion of an earlier mill occupying the site. However, there was a house on the site at this time which might have been the original Laddcombe Mill.

In the garden, where the stream descends, there are remains of a group of buildings which after 1795 were used as staff cottages and stables. One is built across the stream which suggests that it could have been a mill. The stream rises a quarter of a mile above the mill and never runs dry. The pond appears to have been created by a masonry dam; the bottom must have been lined with puddled clay and stones.

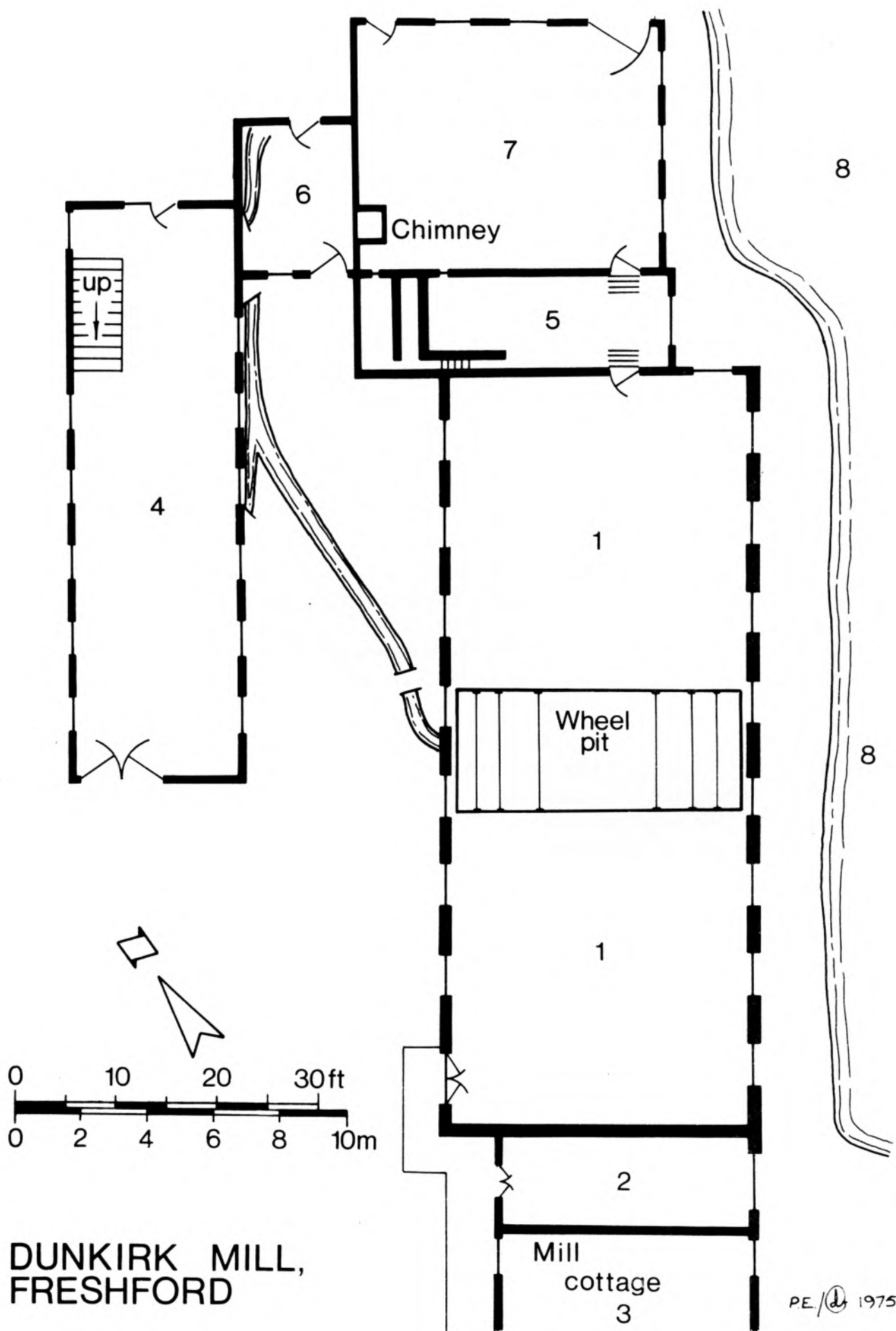
Joyce and his partner, called either Moggridge or Methuen, opened the main mill in 1795. In the same year trade tokens were issued for paying employees. There are nine varieties of these coins and each depicts the six-storeyed mill. Although the mill was originally water-powered, it is believed that a steam-engine was first introduced in 1813.

An advertisement in the Wiltshire Gazette dated 5th October, 1820, refers to this engine as a 32 h. p. Boulton and Watt. The mill was visited by the Factory Commissioners in 1833. Out of the 150 mills visited by them in the South West, Freshford was the only one where they found young people being overworked. Their hours of work were from 5.00 a. m. to 9.00 p. m. with no time allowed for meals. Soon after this visit the hours were reduced to 5.00 a. m. to 8.00 p. m. with two hours being allowed for meals although overtime might be worked when necessary. Out of 60 employees, 12 were boys under 18, and 4 were under 12. By this time there was a 40 h. p. engine at work, which apparently continued to function until 1856 when the mill was put up for sale. By this latter date two additional steam-engines were working in the mill.

The mill is believed to have continued to manufacture cloth until the 1880's when it became a flock mill. In time this also ceased and the premises were taken over and used as a coal merchant's store. Finally, the mill became a rubbish dump; the roof collapsed in 1955 and the floors rotted rapidly. The walls, however, are still intact and generally sound.

### Description

Although almost derelict for about fifty years the physical remains of the



mill buildings are sufficient to indicate a structure of some architectural merit.

The walls (building No. 1 on the plan) held a large number of windows which gives some indication of the strength of the foundations and wall columns. The building is 75 ft. long and 33 ft. wide. In the middle is a pit, 20 ft. deep and 12 ft. wide. A pipe projects from just below floor level at 45° to almost the bottom of the pit. This pipe is about 12 in. in diameter and made of wrought iron. It carried the water needed to power the water-wheel, the flow of the water from the mill pond being controlled by a sluice. The mill was roofed with slates, many of which can still be found. In the débris on the ground floor was a rusting iron trough which was probably used in the woollen processing. The mill housed all the spinning section although it is not known what kind of machinery was used for this operation.

The entrance door to the building was arched and measured 100 in. by 60 in. In general it appears that this building was very modern for its time. The walls were relatively slender for a building of this type and the generous amount of windows would have enabled a good light to enter the working area.

Building No. 2 appears to have been a store room with a staircase to all floor levels.

Building No. 3 is a large, three-storeyed house which is still inhabited. It was an extension to the mill built in Victorian times to house the manager of the premises.

Building No. 4 is a two-storeyed structure, the bottom floor of which is supposed to have been used to stable horses. The stone steps at the end go from ground level to the first floor. The door opens out on to the level of the water courses.

Room No. 5 was plastered and painted Wedgwood blue. Although the windows appear to have served four storeys there is no evidence of any corresponding floors. The room probably housed one of the steam-engines or served the needs of one stage in the production of cloth.

Room No. 6 contains the water course which falls from the first floor to ground floor level. The water may have powered a wheel which drove the weaving looms. The roof of this room was originally pitched at an angle of approximately 45°.

Room No. 7 was the boiler house with the chimney in situ. This part of the building was four storeys high. The chimney is of red brick and about 30 ft. high; it is 3 ft. x 2 ft. at the base. This room, together with those numbered 5 and 6 were added to the mill when it adopted steam-power in 1813. The chimney may have served the other two steam engines which were adopted later. This building also has a large arched doorway, through which, no doubt, the coal was delivered for the boilers. The building is also served by a smaller, conventionally-shaped door.

The mill pond is No. 8 on the plan.

FOR SALE, 22 MAY 1856

DUNKIRK WOOLEN FACTORY FRESHFORD, SOMERSET, \*\*

Comprizing of a 6 storey mill building each floor 72 feet 6 inches by 32 feet with,

Teazle House  
Drying House  
Spinning House  
Counting House  
Washing House  
Gig House,

and

3 boilers  
2 broad Gigs  
3 washers  
6 Iron Cloth racks

and other buildings  
Boiler house  
Weaving shops  
Engine house  
Store house

and an excellent 40 Horse Power Boulton and Watt Engine.

To be SOLD by Mr. John Totey,

at George Hotel,  
Trowbridge,  
Wiltshire.

\* This Bill of Sale is in the possession of Dr. L. D. L. Lycett of Mill Cottage, Freshford.

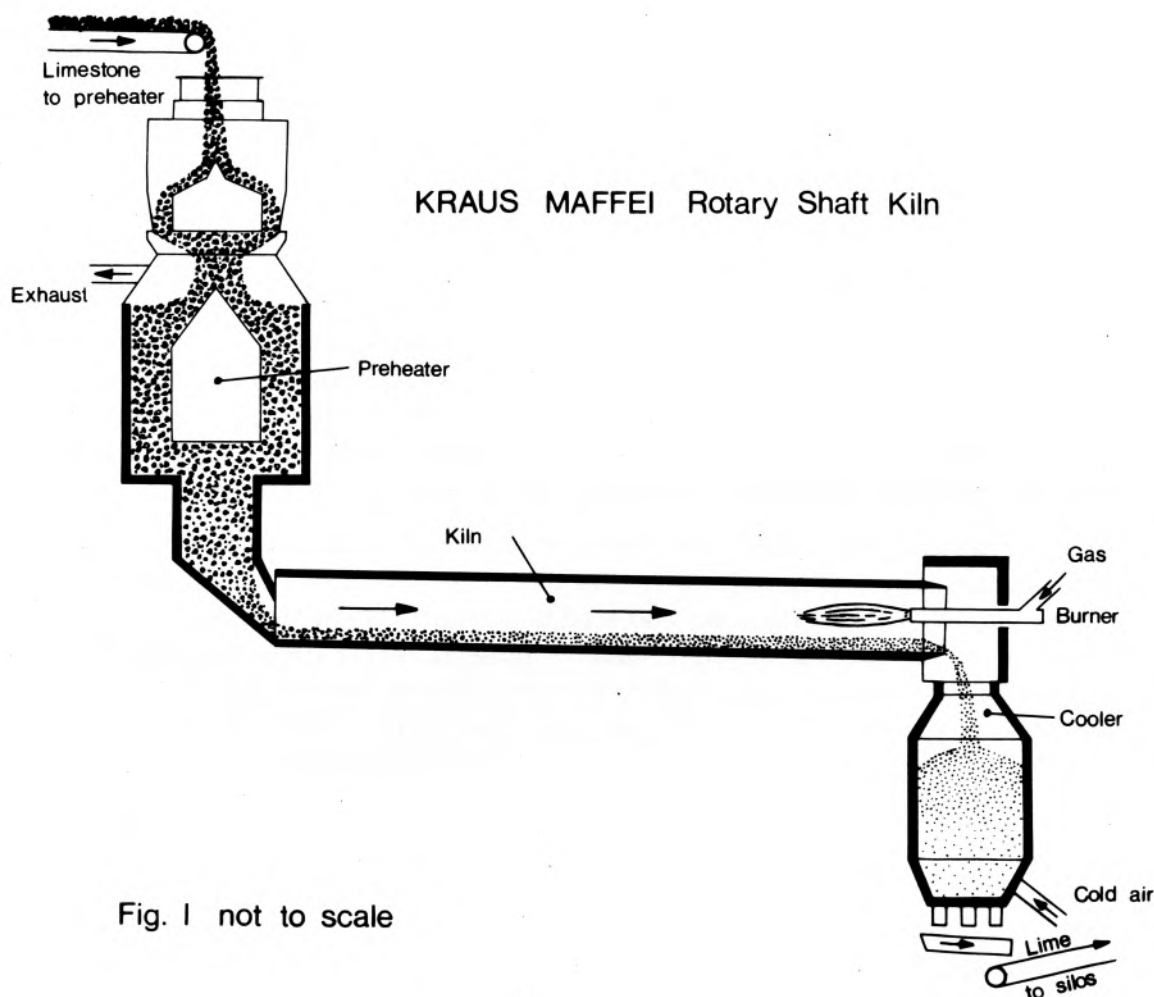
\*\* Dunkirk Mill is now in Avon.

# A LIMEKILN NEAR FITZHEAD

A.P. Ward

## Introduction

Limekilns are a common feature of the countryside in Somerset yet no assessment has been made of their construction, their economic role in the local community or their pattern of distribution. In this, the first of two articles about limekilns, the author has begun to assemble evidence to illuminate the subject.



## Historical Background

The burning of limestone to obtain lime could be considered as one of the earliest chemical industries. The mortar and concrete made with lime has preserved many examples of Romano-British buildings for posterity.<sup>1</sup>

In Medieval houses lime plaster was used for covering floors. One of the earliest documentary references to a floor of this type dates to 1556, when Bess of

Hardwick instructed her steward at Chatsworth to cause the floor of her bedchamber

"to be made even either with plaster, clay or lime".<sup>2</sup>

A plaster floor required the usual beams and joists, across which straw or reed was laid, then a layer of lime plaster 2 in. thick. The slow carbonating of the plaster turned it eventually into limestone.<sup>3</sup>

Evidence about early limekilns is revealed through archaeological excavations. During the uncovering of the Saxon and Medieval Palaces at Cheddar in 1960, the remains of a 13th century limekiln outside the north-east corner of a chapel was discovered. The kiln was circular in shape with a depth of 4 ft. and had a flue and stoking pit.<sup>4</sup> A further example of a small medieval limekiln was unearthed in 1972 at Bridgwater Road, Taunton, during archaeological investigations prior to the construction of a road linking the A38 and the M5 Motorway.<sup>5</sup>

Increasingly in the Middle Ages lime was used as a fertilizer, and concern was expressed at the serious depletion of the country's timber reserves by the use of wood for the fueling of limekilns as well as in the construction of shipping, for smelting and for domestic use.

In 1707, J. Mortimer wrote

"The harder the .... stones the better is the lime: only they require more fire to burn them; (they) may be burned with wood, coals, turf or fern which makes a very hot fire".

In filling the kilns, alternate layers of limestone and fuel were built up and the resulting product was, of course, contaminated by the ashes of the fuel. As coal production expanded and communications improved the poorer quality coal was used. A petition was delivered to Parliament in 1738 requesting that it take steps to prevent the excessive rise in the price of coal and it is significant that the petition was signed by limeburners amongst others.

Historically, lime has found a number of other uses apart from its traditional role as a fertilizer and in building construction. In ancient warfare glass phials, filled with lime and tied to arrows, were fired by armies at their enemies in an attempt to blind them. More recently lime cartridges were made for the coal mining industry by compressing caustic lime into a tube which, upon being made wet, expanded and split the coal. Edwardian theatres and music-halls relied upon limelight, an intense light given off by heating lime in an oxyhydrogen flame.

One telling reference survives which gives an insight into the character of an early limeburner. In 1650, Thomas Furze, a limeburner of West Hatch, spoke to a Christopher Rowswell against taking the Covenant (to resist innovations in religion). He said that only whoresbirds would take it or enforce others; and if the Lord Fairfax and Lt-General Cromwell were burning together in his limekiln he would keep them in with his iron bar until they burned to ashes.<sup>6</sup>

### Kiln Construction

Arthur Young,<sup>7</sup> writing in 1770 remarked

".... the kilns used for .... stone they commonly make in a great pit that is either round or square according as they have convenienced .... and big according to the quantity they want to burn".

Further information relating to the construction of limekilns is given in Billingsley's 'Agricultural Survey of Somerset' published in 1797:<sup>8</sup>

|                                                                   | £  | s  | d |
|-------------------------------------------------------------------|----|----|---|
| Digging the hole,<br>which will provide stone<br>for the building | 1  | 1  | 0 |
| Building                                                          | 4  | 4  | 0 |
| Lime and ashes for lining                                         | 1  | 15 | 0 |
| Building a shelf house<br>for storing the lime                    | 3  | 0  | 0 |
|                                                                   | 10 | 0  | 0 |

To burn 480 bushels of lime a week would require 120 bushels of poor quality coal, the lime from one kiln being ample to manure 3 acres per week. It was suggested that the bottle-shaped kiln, for which the costs and production are given above, was more efficient than the older inverted cone type.

Modern technological developments have resulted in oil-fired limekilns and at Cheddar new kilns have recently been constructed which will use liquid petroleum gas (Figure 1). Of German design, the Krauss Maffei Rotary Shaft Kiln consists of a vertical pre-heater into which limestone is fed by a conveyor belt.

The stone then passes through a steel tube, 36 metres in length and horizontally inclined, which is lined with 800 tonnes of refractory bricks. This tube rotates on rollers and a gas burner at the lower end heats the stone to 1200°C, the exhaust gases being drawn through the tube to the pre-heater and thence to the exhaust stack. The whole process takes 5 hours and the daily output will eventually be 380 tonnes from each kiln.

### Distribution

A large number of limekilns are to be found in Somerset and a gazetteer of the sites is at present being compiled. It is possible, though, to make a few general points at this stage.

In the Watchet and West Quantoxhead area the kilns are situated on or near the coast and were easily supplied with coal by coastal vessels.<sup>9</sup> Other sites are often beside a road, enabling convenient transport by cart or lorry.

The limestone plateau of the Mendip Hills is dotted with kilns and in one area of 4 square miles (from a central point at ST 500520) there are 18 kilns shown on Ordnance Survey Maps.

### The Fitzhead Limekiln

The limekiln (Figure 2) is one of a pair situated at Holywell Quarries to the north of Milverton (ST 12752700). One has collapsed but the second is in a good state of preservation. It consists of three supporting arches of roughly shaped stones with squared stones framing the openings.

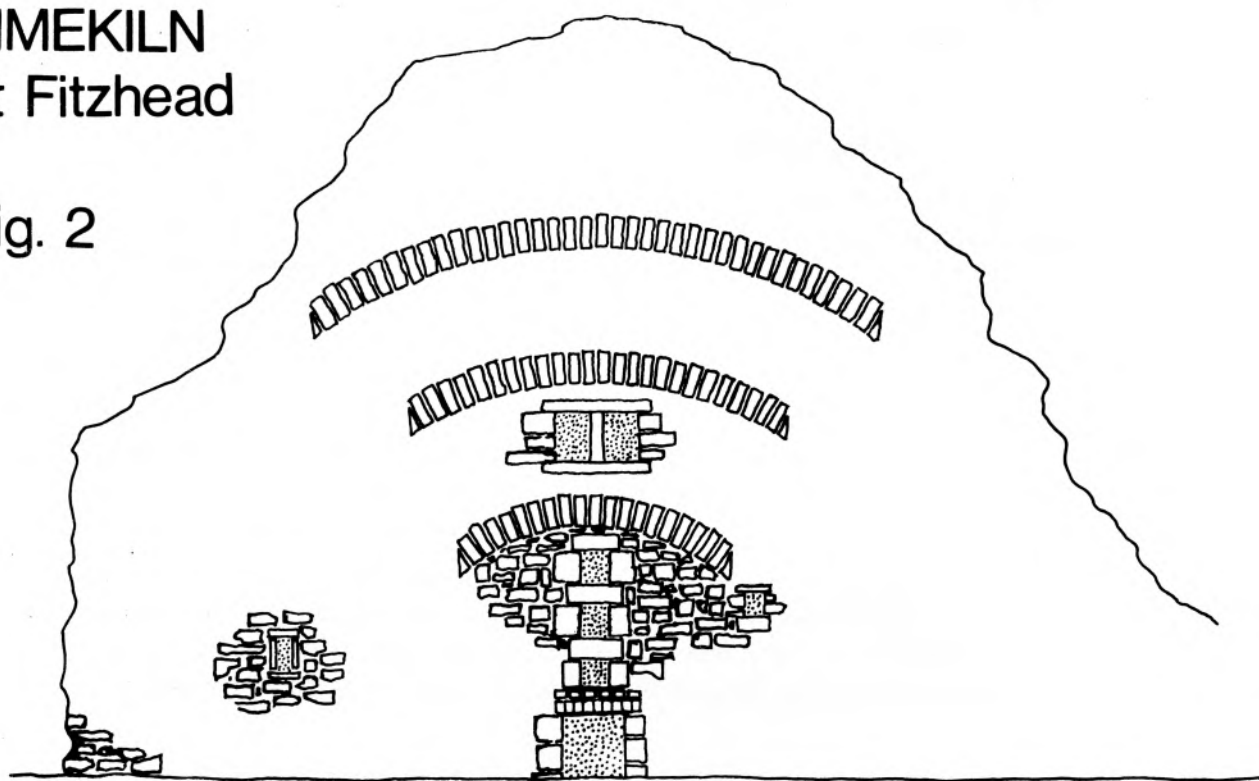
The kilns and quarries are shown as being disused and considerably overgrown with trees on the 1930 Edition of the Ordnance Survey Plan.<sup>10</sup>

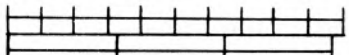
### Notes

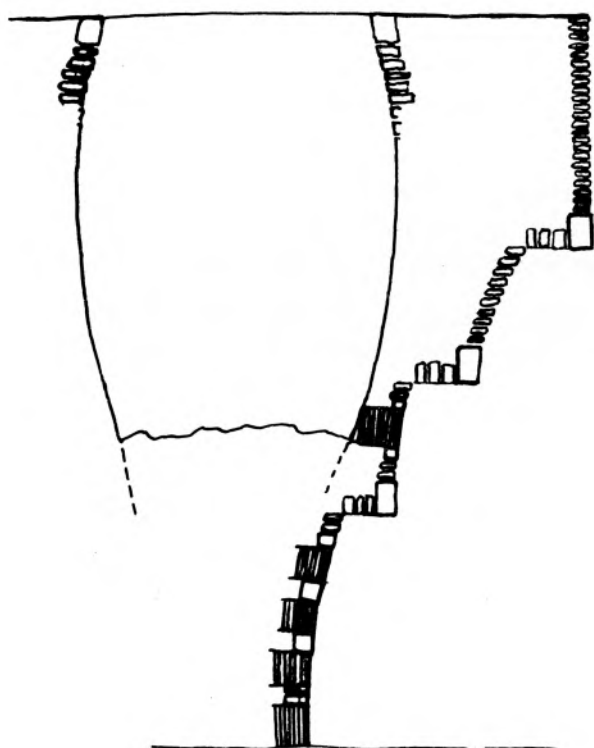
- 1 J. Livingside, 'Britain in the Roman Empire' (London, 1968) pp. 47, 62, 85.
- 2 M.W. Barley, 'The English Farmhouse and Cottage' (London, 1961) p. 83

# LIMEKILN at Fitzhead

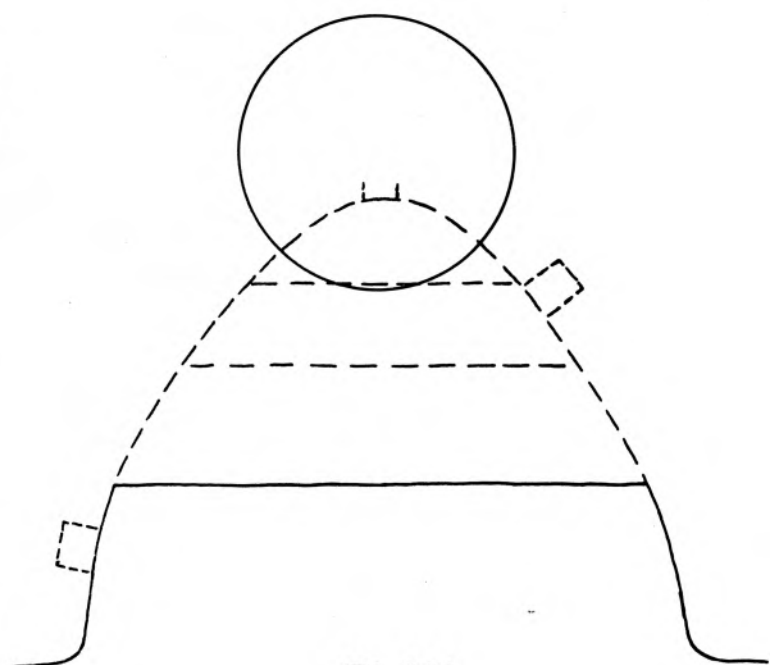
Fig. 2



Scale  Feet  
Metres



SECTION



PLAN

- 3 Ibid., p. 84.  
4 Proc. of the Som. Arch. and Nat. Hist. Soc. Vol. 108, 1964, p. 111.  
5 SIAS Newsletter, 1, pp. 5 - 6.  
6 Som. Record Soc. Vol. 28, 1912, p. xxxiii.  
7 Arthur Young was First Secretary of the Board of Agriculture founded in 1793.  
8 J. Billingsley, 'General View of the Agriculture of the County of Somerset' (1797) pp. 90 - 91.  
9 G. Farr, 'Somerset Harbours' (London, 1954) pp. 120 - 123, 133, 152.  
10 The geological classification is Pebble Beds and Conglomerate (Bunter).

## A BUILDING AT TRISCOMBE FARM, EXTON

### D. Warren

There is an unusual building at Triscombe Farm, Exton (SS 920375), the use of which is at present unknown.

It is situated in isolation some 200 yards south of the main buildings on an old track, the continuation of which leads to a small disused quarry.

The building appears, by reference to similar stonework on neighbouring farms, to be of 19th century construction. It consists of a small, square, stone building with fire-bars, a back chimney, a flat cemented roof and an iron plate door. On each side is a corrugated iron roof lean-to.

Owing to the accumulation of *débris*, it is not possible to locate the entry point of the flue and a suggested position only is shown on the accompanying plan. Whether the building functioned on the principle of a kiln or an oven therefore remains unknown.

An old lady who lived there in 1914 says it was disused by that date. Comments would be welcome. (See illustration overleaf.)

## NOTES AND NEWS

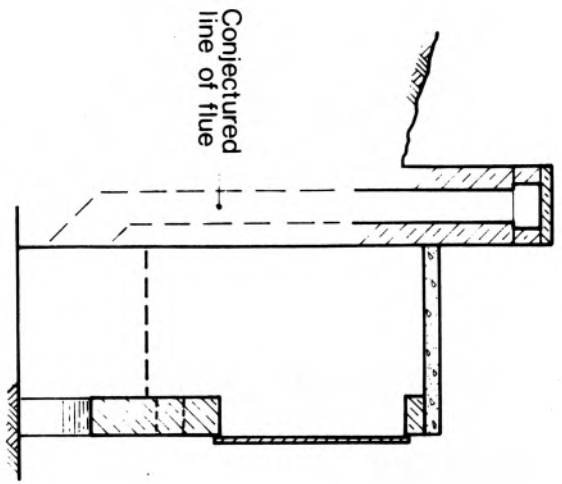
This section is intended to deal with matters not requiring a large amount of space such as brief reports of IA sites, book reviews, appeals for information and SIAS activities.

### Grand Western Canal

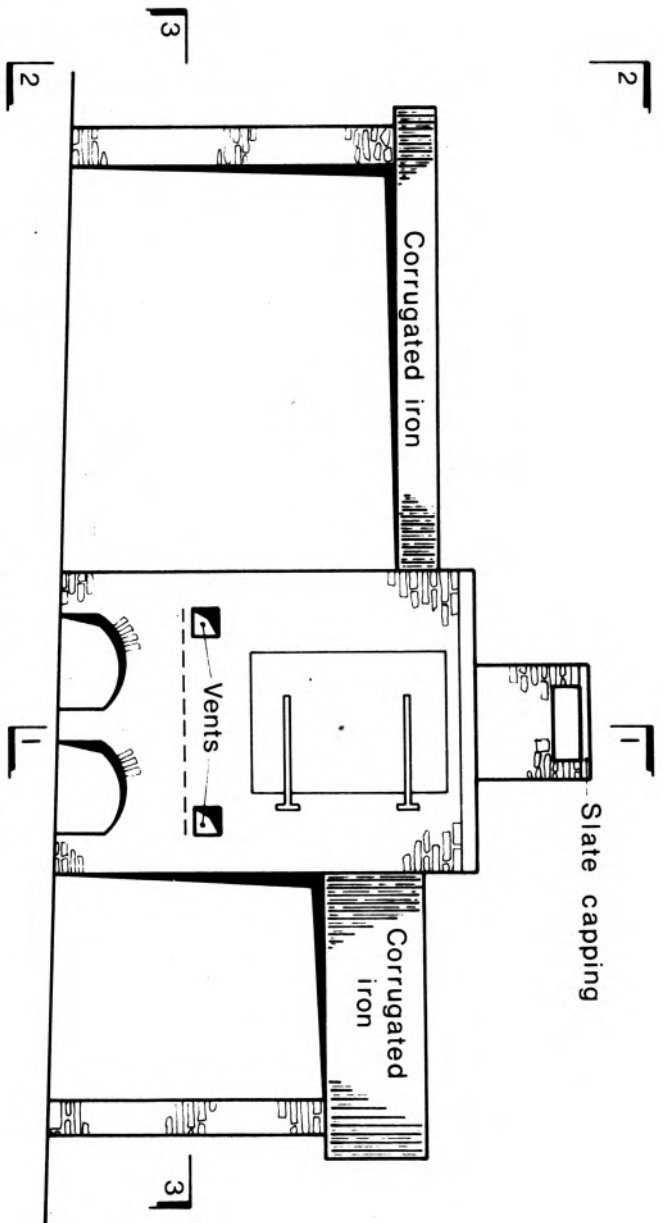
#### (i) Nynehead Drive Aqueduct

This aqueduct on the Grand Western Canal (ST 144217), in the parish of Nynehead, was built between 1831 and 1835. It is of fine ashlar construction, of greensand stone, probably from the Blackdown Hills, and blue lias; no bricks are evident in its make-up.

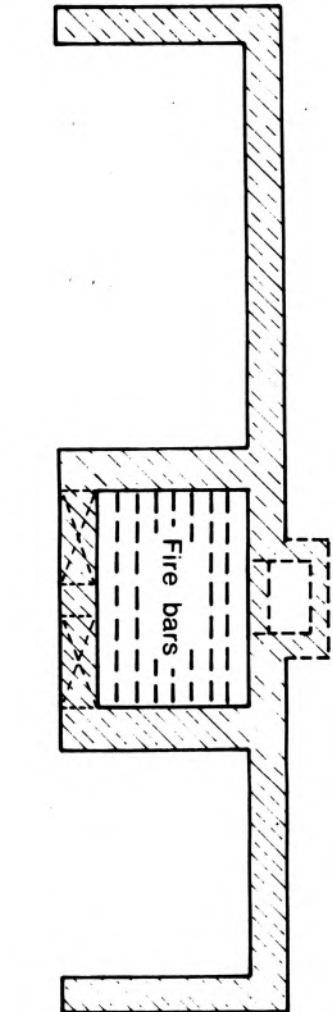
Since the aqueduct went out of use in 1867, growth of vegetation has obscured the lines of its appearance and displaced some of the masonry. In addition, several stones have been toppled from the parapets on to the drive below.



SECTION 1



FRONT ELEVATION



END ELEVATION 2

PLAN ON 3

Early in 1975 restoration of this structure commenced under the leadership of Frank Hawtin and with the willing support of the landowners, Mr. and Mrs. I. W. Darby. Members of SIAS and other interested organisations are assisting in the preservation and reconstruction and it is hoped to complete the operation by the end of European Architectural Heritage Year.

The aqueduct's importance as an industrial monument lies in its historical and architectural merits. It was designed on a grand scale because it carried the canal over the drive of Nynhead Court, and the resident Sanford family evidently ensured that it was of such appearance as would befit the approach to their 17th century home. There is no other comparable aqueduct in Somerset and the materials used in its construction contrast with the rag stone used to build other features of the canal.

#### (ii) Greenham Lift

Students of canal history will be familiar with the fact that one of the features of the Grand Western Canal was the use of seven lifts, constructed to raise vessels bodily in watertight caissons from one level to another. The Greenham Lift was, at 42 ft. 6 in., the largest of these, and in 1973 Frank Gregson and others began exploratory excavations to trace any remains of masonry under the steep grassy bank at Greenham (ST 078198).

Inspection of the Greenham Tithe Map had shown the front retaining wall of the lift to have been about 100 ft. in length, and during the excavations squared stone blocks were found at the assumed position of the southern end of this wall. At a distance of 100 ft. north of this stonework 7 ft. of a masonry wall was uncovered which ended in a well-defined quoin.

Further sections were cut into the bank at intervals to the south of this length of wall to trace its line, the uncovered length appearing to have been built on a slight curve. No further masonry was discovered at this time and the excavations were backfilled, with the intention of returning the following year to excavate at a lower depth. However, during a SIAS visit to the site in 1974, it was discovered that the area had been almost totally obliterated with quarry waste which was dumped across the steep bank to provide an access for the landowner.

#### Taunton Founders

Whilst carrying out research for their proposed booklet about Taunton's past industries and forms of transport, Tony Ward and Brian Murless found a notable absence of documentary sources for certain aspects such as brass and iron founding.

To an extent this lack of evidence is compensated for by noting the distribution and type of surviving products from these foundries. Obliging, many makers stamped their name, trade and locale on their goods or affixed a plaque bearing those details. (This has already been alluded to earlier in the Journal in relation to makers of water-wheels and mill-gearing.) In Taunton, however, the most common survivor from the era of the foundries is the humble inspection cover set in pavements and roads.

Taking care, one can observe covers made by Stevens and Sampson; Rudman, Lancey and Company (or just Rudman and Company), Easton and Johnson and C. Allen and Son, all local founders. One other variation has been noted on two cast iron columns supporting the porch of an antique shop in St. James Street, Taunton. These bear the legend "E. W. Stevens, Ironfounder, Taunton".

Those who are interested may like to begin by deciphering the maker's mark on some of the bases of the columns supporting the ornate balustrades of the Tone Bridge at Taunton.

### Limekilns at Milverton

A group of three limekilns was destroyed during the construction of the Milverton By-pass. In October, 1973, SIAS carried out a rescue survey of the kilns (ST 120267) under the direction of David Greenfield.

The limekilns were built in 1872 during the construction of the Devon and Somerset Railway. A contemporary account in the 'Wellington Weekly News' suggests that there were originally four kilns and that they were linked to the railway by a siding, of which no trace remained in 1973.

The survey, which involved the clearance of a considerable amount of vegetation and domestic rubbish, indicated that the kilns were constructed of brick from William Thomas and Company's works at Poole, Wellington. A number of the bricks had been imperfectly fired although this in no way impaired either the design of the kilns or their state of preservation, which were both sound.

The presence of a fourth kiln, mentioned in the newspaper report, was probably at the western end of the three surviving kilns as fallen bricks and masonry were found there during the survey. The central kiln of the three remaining was examined in some detail. The inner walling of the kiln's cone was built of rough slates, each averaging 3 in. in height. At the level where the cone narrowed towards the firegrate the stonework was replaced by brick.

It is thought that unlike the numerous other limekilns in the vicinity, which had direct agricultural associations, these kilns were both built and used by William Thomas and had ceased operating by c. 1912.

### Burrow Farm Engine House

Following the publication in January 1974 by R. A. Bye and S. G. Taylor of their document 'The Brendon Iron Industry - the case for conservation', SIAS made an inspection of Burrow Farm Engine House, Brendon Hill (ST 009346). This was done in order to ascertain the extent of the work needed to prevent further deterioration of the structure, and to assess the possible cost of this operation.

A report, prepared for SIAS by Michael Jones, listed four principal tasks which would need to be carried out. The upper three feet of three walls of the engine house would require to be taken down and rebuilt as would the brick portion of the chimney stack. The surviving timber lintels would be cut out and replaced with those made from reinforced concrete. Finally, weed growth would be removed from the masonry which would subsequently be pointed.

During the period of repair, lasting about three months, the building would be scaffolded inside and out. The cost, at Autumn 1974 prices, was estimated at between £4,000 and £5,000.

### A Beam Engine at Taunton

In the summer of 1974, SIAS was requested to carry out a survey of a beam engine at the premises of E. & W. C. French Limited, Tancred Street, Taunton.

The engine in this tannery was made by Bury, Curtis and Kennedy who were also the makers of a beam engine once housed in the adjacent silk manufactory of J. Pearsall & Co. Ltd., and which now resides in the Somerset County Museum.

The tannery is shortly to commence upon an extensive programme of re-development. SIAS has been invited to take the opportunity to record the existing layout of the works and the industrial processes undertaken there. It is hoped to publish Brian Whiteside's completed survey of the beam engine's foundations in due course together with this additional material.

At this stage SIAS would like to thank Mr. E. Fenton, for drawing the attention of the Society to the existence of the engine, and Mr. W. Richards for his continued assistance.

### Watchet Exhibition

'Aspects of Watchet and the Brendon Hills' was the title of an exhibition staged in the Council Chamber, Watchet, for three weeks during the summer of 1974. It was organised by SIAS members David Greenfield and Andrew Bye and stewarded by volunteers. A large number of items of local interest were loaned for display and the exhibition received acclaim from both residents and tourists alike.

Subsequently, a meeting was held which was attended by Mr. P. Stevens, the County Museums Officer, the local County Councillor, Dr. G. Court and Messrs. Bye and Greenfield. This meeting, arranged by the Clerk to the Watchet Council, discussed the formation of a permanent museum for the area. A further exhibition is to be held this summer, the material forming the basis for the museum. It is hoped that the Council Chamber can again be used for this.

SIAS would like to express its thanks to the Council at Watchet for their interest and assistance and also to Mr. B. Norman whose support helped to ensure the success of last year's exhibition.

### Chibley Estate Sawmill

Frank Hawtin visited this mill (ST 121236) in December, 1974, and noted that the millpond on the west side of the buildings had been cleared of rogue growth to reveal its shape and extent.

The pond is crescent shaped: about 25 ft. at its widest and about 200 ft. long. At the west end the feeding leat enters under a stone arched bridge, wider than a normal footbridge but with no parapet. The pond is contained by embankments which keep its level above that of the buildings. The embankments are mainly of earth, and on the north side a sluice, with parts of the gate mechanism still in situ, allowed excess water to flow under the road to a ditch. The sluice mechanism controlling the feed of water to the wheel is in very good condition and is possibly intact.

The leat apparently separates from the stream which flows along the middle of the field to the south but the diversion point could not be located. On the north bank of the pond is a pile of lengths of rail each bearing the name "Dowlais Steel Works".

Subsequent to Frank Hawtin's visit Derrick Warren has completed a measured survey and photographic record of the water-wheel and shafting inside the mill buildings.





