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If there are workers pursuing industrial archaeological studies in any of the five counties who are not yet in touch with that County's representative, it is hoped that contact will be established as soon as possible so that each representative will have a complete record of the industrial archaeology being undertaken in his County. This will help co-ordination of the work so that:-

- (a) Anyone will be able to see if a particular topic is being studied and if so, by whom.
- (b) Anyone coming across information or material remains which are relevant to another worker's studies will know to whom to pass the information.

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BERKSHIRE & OXFORDSHIRE BREWERIES AND MALTINGS SOME NOTES

by John R. Gray

I was asked by the editor to write an article about the breweries and maltings in my part of Berkshire. Let me begin by saying that as I live only about one mile from the Thames I hope Oxfordshire members will forgive me if I cross the border.

My interest in breweries and maltings stems, not from a lifelong love of "The Best Drink in the World" but from the fact that in June 1969 my wife and I moved together with young son, Vintage Talbot and a large family of cats to the defunct village brewery at BUCKLAND (344977). After passing from the Walters family to the firm of W.G. Phillips & Son during the 1860's, brewing ceased around 1905 following a take over of Phillips various breweries by Hall & Co. of Oxford. From that date until 1968 the premises served as the village off-licence.

Time has left few clues to identify the brewhouse, a larger than usual chimney is an external clue, and inside the brewhouse is an old cast-iron hand pump. In the garden a spot of "dirt" archaeology unearthed the site of the boiler that gave this modest brewery the grand sounding name of "Steam Brewery".

Also in the garden we found several parts of what I took to be ventilator bricks with rather small holes, these of course were malt kiln tiles. These led me to the small "barn" opposite the brewery which was the malthouse. The curved brickwork of the kiln shows in an internal wall, and the position of the kiln floor is obvious. Outside this building I have unearthed a number of very early kiln tiles. Obviously hand made and of considerable antiquity these are smaller (9" x 9" x 1½") than usual tiles and have groups of only three holes.

These finds spurred me on and at various sites I have found around a dozen different types of kiln tile, some with holes in circular groups, some square, some are buff, some terra-cotta, some glazed, some not. The most common both in terms of numbers and types are the products of Stanley Bros. of Nuneaton, but the other manufacturers are too modest for they do not show their names. If anyone researching into brick and tile works could help me identify any of the examples I have I shall be very pleased to hear from them.

In "my" corner of CBA Group 9 only two breweries are still operating, Morlands at Abingdon and Morrells at Oxford, and a little further afield we have the Hook Norton Brewery. To the best of my knowledge no floor maltings still operate in this area, although a number of buildings exist, Wallingford and Abingdon have modern maltings. Those at WALLINGFORD (600890) could be mistaken for a power station, but do not resemble maltings at all. The ABM Maltings at ABINGDON (500975) still possess traditional buildings, but these are now used as store rooms and dwellings, the malting is done in modern Vickers-Boby plant in a modern building.

ABINGDON has long been a centre for brewing and malting and the town has revealed a number of buildings. The most obvious is Morlands (495969) large red brick brewhouse and maltings. The maltings are now used as offices etc. but the kiln floors and seep tanks are still in situ. Alongside this maltings is the kiln tower of another large maltings, the main building of which has been demolished. The offices and certain of the original brewery buildings were retained when the new buildings were erected in 1911-12. These can still be seen. Nearby and almost in the shadow of Morlands brewhouse there is a sad little brewery (496969) damaged by fire at some time and now used as a builders yard. I have not yet traced its original ownership but Morlands claim it was not theirs!

Morlands also use the old Vineyard maltings (497974) as a malt extract plant, and Townsends Tower Brewery (491969) has long been their transport department. Here the maltings survive and the large stable block is interesting in that it has its own light railway, used presumably for feeding and "mucking out". Almost opposite Tower Brewery in Oak Street is Blake Bros., corn merchants, who occupy an old

In the railway station yard is an old stone building that looks as if it ought to have been a malthouse (498972) but this I have yet to confirm.

Most of the OXFORD breweries were on the west side of the town. Morrells Lion Brewery (508061) being the only one still brewing. Here the traditional exterior hides a wealth of modern equipment. The steam engines have gone (happily preserved) together with the remains of an old horse wheel. Remains of a water wheel still survive.

The nearby Eagle Brewery of Hall & Co. (507062) is now a bottling plant for Ind Coope. Originally Eagle Steam Brewery, of Weaving & Son, the brewery was damaged by fire in 1894, and shortly after became part of the Hall empire. Halls also once owned the Swan Brewery and City Brewery in Oxford as well as numerous breweries in the towns and villages around Oxford. The City Brewery (late Hanleys) still nestles behind the new City Chambers (512064) and itself is used by the council as offices. Part is now also an art gallery. The Swan Brewery (509060) was in later years the Swan Bakery and now the site boasts a modern office block. The St. Giles brewery (509073) once also owned by a Hall but not by Hall & Co., was used in later years by the Northampton Brewery Co. as a distribution depot before making way for a block of exclusive flats. Similarly I can find no trace of the St. Ebbes or Jericho Breweries, but Wootton's St. Clements Brewery is recalled in "Little Brewery Street" (526062). Incidentally, where was Tower Brewery, Oxford? It was owned in the 1890's by W.G. Phillips & Son who owned "my brewery" at Buckland.

The only Maltings I have traced in Oxford are those in Tidmarsh Lane, now used by the University Surveyor's department (509062). These belonged to Morrells, but were used by Downings in later years. Halls maltings were on the site of the Post Office sorting office in Beckett Street, before being burned down between the wars (506061) and the older buildings used by the GPO on this site may well be part of the maltings.

Clinch's Eagle Brewery at WITNEY (355095) survives as a good example of a small town brewery. Brewing ceased in the early 1960's and the premises are now used by Courage as a distribution store. Most of the buildings are intact although the valuable equipment has gone. For the industrial archaeologist interested in breweries it is a great pity that copper has a high scrap value! Also on this site is a small well preserved maltings complete with kiln and seep tanks.

Perhaps the best survival in the area is the Hook Norton Brewery (349334) still brewing "Hookey" ales and little changed from the original late 19th century design of Wlm. Bradford & Sons, architects, specialising in breweries. The earlier brewhouse was retained in the 'new' buildings. Power is provided by a Buxton & Thornley horizontal steam engine, who were also responsible for the pumps. The maltings are now used as a bottling store.

BURFORD has unfortunately recently lost its brewery (250132) following a take over of Garnes by Wadworth of Devizes. Fortunately the buildings survive including a well preserved maltings complete with kiln. The locally built steam engine is to be preserved.

Geographically between Garnes of Burford and Hook Norton was another recent loss, Hitchmans Brewery and Maltings at CHIPPING NORTON (325268). The site is now cleared and all that now remains is the offices and the original mineral water factory and hop store on the main road. Until March 1970 there were three maltings (two of which had been converted to other uses) the brewhouse and various outbuildings and dwellings. In later years only mineral water and ginger beer were made here, for brewing ceased following a take over by Hunt Edmunds & Co. of Banbury.

Hunt Edmunds themselves are recent victims of a take over by the Bass Charrington group with the inevitable result that their brewery in BANBURY (459406) ceased brewing in 1967. Once again the buildings survive, used as a distribution depot. Outstanding is the large Italian style building that is the maltings, by complete contrast the brewhouse is unimpressive. The cooperage recently yielded a number of coopers tools that were on the point of being thrown out.

THAME has a well preserved old maltings (704061) now used as a plastics factory and been that a carpenter's shop. Alongside these maltings are what I take to be the remains of Fields brewery, and opposite are the Malthouse tea rooms which, apart from small first-floor windows, reveal little of their previous use. Fields were another of the firms acquired by Hall & Co. of Oxford around 1900.

BUSCOT has a group of buildings known locally as the malthouse (236978) which were probably both malthouse and brewhouse. Curiously, the National Trust, owners of the Burcot estate, have labelled the old cheese wharf "Malthouse"!

DEDDINGTON has a building at the northern end of the market place (467318) which could have been Margretts Brewery, but seems also to have served as a blanket factory, could anyone help me with this one?

The "atomic" village of HARWELL possesses a good example of a small tower brewery now used by Davenports as part of their off-licence premises (493897).

WATLINGTON is about to lose its last brewery land marks. The brewery chimney and the brewers house are to make way for a shopping area and flats (688956) the brewery itself having long since gone.

WALLINGFORD is more fruitful, the low built brewery buildings (605895) are still used by the Watney Mann group as offices and by a soft drink manufacturer. Part of the building has a datestone 1774. Just below the brewery is a fine maltings (605893) now used by a corn merchant. Opposite the brewery is a building that could have been a maltings, but is now much altered.

Goodwins Crown Brewery at EYNHAM exists (431094) as a romantic roofless, ivy-grown building hidden in the garden of a private house. The main building is of stone with the tower in red brick. Nearby, half hidden by trees, is the iron archway surmounted by a crown that was once the brewery entrance. Goodwin was famed for his stout and is reputed to have sold the recipe to Clinch's in Witney when he sold out to W.G. Phillips & Son, but local tradition tells us that Clinch's never quite captured the secret. Along with the rest of the Phillips properties it was acquired by Hall & Co., around 1900. The last time the building was used was during the 1939-45 war when Balkan Sobranie cigarettes were made here. Of Gibbon's brewery (434094) nothing remains, the site now being occupied by a modern bungalow. In the High Street an old corn mill has been converted into a private house (429093) and carefully tucked inside is a malt kiln, the kiln vent is still in position on the roof.

Shillingfords brewery in BICESTER has long been defunct but the offices and bottling store together with some of the walls of the building still exist beside the swimming pool in The Causeway (584224). I understand that this brewery was yet another of Halls "victims".

The Vale of the White Horse Brewery (sometime known as Eagle Brewery) in FARINGTON (955288) has gone, although some of the walls in the Southampton Street car park may have been part of the brewery buildings. As this was another of Phillips breweries I presume that Halls killed this one too.

The Back Street Brewery of the WANTAGE Brewery Co. (397878) still exists as a group of undistinctive buildings behind the Woolpack Inn. Brewing ceased here in 1919. Morlands of Abingdon being the "culprits" in this case. Of the breweries in Grove Street and Wallingford Street I can find no trace.

A considerable amount of research and field work remains to be done. The Oxford Colleges for instance nearly all had brewhouses and before the middle of the 19th century most inns too did their own brewing. The buildings used for this type of brewing lacked the distinctive appearance of the later and larger tower breweries and so are difficult to trace. Similarly maltings were small, and where they still exist have lost their distinctive features. If any readers can help me in my research and make this list more comprehensive, I shall be very pleased to hear from them.

HAGBOURNE MILL, EAST HAGBOURNE, BERKSHIRE

by J. Kenneth Major

National Grid Reference SU 537 875

Hagbourne Mill with its associated farmhouse, stables and farmyard, stands a little distance to the east of the road from East Hagbourne to Blewbury. This mill is the only intact mill remaining on the Mill Brook which flows from springs above Blewbury to join the Thames at Wallingford. In the course of this short stream there were at least six watermills. Hagbourne Mill is shown on a map of 1715, and it may well have been earlier than that.

The Mill Brook crosses under the East Hagbourne to Blewbury road, and broadens out to form a mill pond which is held back by the hatches at the mill, and by an escape hatch some distance above the mill. The escape stream joins the tail race a little way below the mill.

The mill building is two and a half storeys high, with a granary floor and gallery in the roof space. The lower storey is built of stone with brick dressings to openings and quoins. The area of wall above the tail race arch must have collapsed a long time ago, and this gap has been filled with a panel of weather-boarding. The first floor is clad with weather-boarding, except for the south west face which has been faced with vertical tiling. The roof is a double-pitched roof with a small half hip on the north end. At some time after the earliest construction of the mill, a weather-boarded cart shed was added to the downstream side. There are doors in all four faces of the ground floor storey, and there is a sack door leading on to the stone floor at first floor level.

The water wheel is 12'-0" in diameter by 5'-0" wide, and is a late nineteenth century pattern built by Wilders of Wallingford. The 48 sheet iron buckets are bolted to iron starts mounted on the iron rims of the two sets of spokes. The sets of spokes were cast in two parts bolted together along a pair of spokes. The 6 spokes finish in a square hub box through which the wooden main shaft passes, and on which the wheel is clamped. The water enters the wheel 30° below the horizontal, and to increase its efficiency, the wheel runs in a brick wheelspace which holds the water in the floats. The main shaft passes into the wheelspace through a dividing wall. In the wheelspace, the main shaft carried an all iron pit wheel. This pit wheel is 6'-0" in diameter and has 80 iron teeth cast on the rim of the wheel. The casting has been made in two halves bolted along one pair of spokes. The rim is connected with the hub by 8 spokes. The wallower on the upright shaft is also made entirely of iron, and is 3'-0" in diameter and has 40 teeth.

The upright shaft to which the wallower is clamped is a wooden shaft running up to the ceiling beams of the first floor. Below the beams carrying the stone floor, the wooden great spur wheel is mounted on the upright shaft. This wheel is 6'-0" in diameter, and has 144 teeth in its rim. It is supported by 8 spokes which are clasped around the upright shaft. This wheel is of very heavy construction, and could date from the alterations of 1828 which are recorded on a date stone in the ground floor storey. The three pairs of stones are driven by stone nuts which engage with the great spur wheel, and are all iron mounted on iron spindles. The stone nuts are 1'-6" in diameter and have 36 teeth, and when they are to be disconnected from the great spur wheel, they are screwed up out of the way on raising rings.

There are two pairs of French stones and one pair of Peak stones. These are contained in old wooden tuns on which are mounted plain wooden horses and hoppers. Two of the tuns are at present in place, and these are fully equipped with their shoes, damozels, willows and bell alarms. There is a very fine old pulley race mounted on the beams over the uncovered stones. As the mill was working until only a year or two ago, the miller's and millwright's equipment is all there in the mill.

The crown wheel mounted above the stones is a wooden bevel wheel with an effective diameter of 3'-0". From this wheel there is a single lay shaft projecting through the wall on the downstream side. Beyond the wall there was a pulley which drove a grindstone at ground floor level in the cart shed, or a rope drive could be used to drive machinery in a nearby farm building. The lay shaft was also used to drive a 2 yd. silk machine and the sack hoist is mounted on a series of levers which, when they are raised, tightened the belt, and this drove the millstones.

TWYFORD BRICKWORKS, OXFORDSHIRE

by Susanna Everett

(Now Mrs. Wade-Martin)

The Oxford City and County Museum have produced a booklet 'Notes for Use in Detailed Field Recording' (available from the Museum, Fletcher's House, Woodstock, Oxford, price One Shilling plus postage). The following shows the use in recording a brickworks of Guide 7 - Industrial Sites or Monuments. The numbers and letters in brackets refer to the items on Guide 7 which, for reference is reproduced after the notes on the brickworks.

1. BRICK WORKS, TWYFORD
2. (a) Brickmaking
(b) Brick kilns and drying sheds and clay pits
(c) pre 1880 - 1930
(d) Coal
3. (a) SP 43 NE
(b) SP 484372
(c) Banbury R.D.
(d) Adderbury
(e) Wharf House, Twyford, Adderbury
(f) The brick kilns are to the south of Wharf House, previously the Red Lion, beside the Oxford Canal where the Adderbury-Kings Sutton road crosses the canal.
4. (a) Ironstone with clay in river valleys
(b) 300 ft.
(c) In the canalside settlement of Twyford, next to the coal wharf. Bricks exported by canal and coal imported there. Only four miles from the centre of Banbury.
(d) The brick kilns are sited in the lowland of the Cherwell Valley, beside the canal.
(e) There are two kilns. One has collapsed and the other is used as a woodshed. The drying sheds are used for storage, for keeping pigs and straw. One of them has been pulled down.
The old office and cottage adjoining are also used for storage, and the clay pits are full of water.
5. Two brick kilns, two drying sheds, the clay pit and a cottage/office survive. The two brick kilns are brick built. The older of the two is complete and is 27 ft. x 19 ft. (external measurements). The walls are 1'9" thick. There is an arched doorway 3 ft. wide in the centre of each short end. There are six fire holes on each side which are 1 ft. wide and 3 ft. apart.
The newer of the two kilns has fallen in and the bricks of which it is built were made by Pearson and Sons, Stourport. It is larger, with eight fire holes on each side and is about 3 ft. wider.
The foundations for both these kilns are at least 4 ft. deep (Mr. Thomas, the owner, has excavated to that depth).
Of the two drying sheds remaining, one has been rebuilt as a barn. The other is of wood weatherboarding and both had flues for heating them under the floor. The chimney of the furnace stands to about 10 ft.
A third shed which used to contain a steam engine (for the clay mill?) stood to the south of the drying shed (now a piggery and store).
The clay pits are overfrown and water-filled to the west.
The brick two-storey cottage/office building is beside the canal.
The coal wharf and warehouse are near. Wharf House, previously the Red Lion, was probably built at the time of the canal bridge. All the canal building is in ironstone, while the brickworks is of brick.
(g)
(h) No

- 7. (a) 1881 1st edition O.S.
(b)
(c)

8.

9. Mr. Thomas, Wharf House, Twyford, Adderbury

10.

11. Susanna Everett

12. September 1969

Provisional Recording Guide: 7 - Industrial Sites or Monuments

1. Local name (put here whether on O.S. map or not)

2. Classification

3. Location

- (a) Type of Industry(ies)
- (b) Type of site or monument
- (c) Period or date if known
- (d) Power source

- (a) O.S. 6" sheet number
- (b) Map reference
- (c) Local authority
- (d) Parish and hamlet
- (e) Address
- (f) Description of modern siting

4. Geology and Topography

- (a) Geology - from maps and as noted on ground
- (b) Height above O.D.
- (c) Type of country/urban area, noting relationship to the water supply, other services and industries, communications and accessibility
- (d) Siting - on plateau, hill top, spur, slope, valley head, valley bottom; did topography determine siting? Give reasons.
- (e) Present treatment of site and adjoining land/property

5. Description of Existing Physical Remains noting

- | | |
|--------------------------|---|
| (a) Number and name | (i) Buildings |
| (b) Layout and location | (ii) Machinery and fittings as used in-
production and transmission of
power; |
| (c) Function | processing and manufacturing; |
| (d) Structure and fabric | extraction of raw materials if
on same site; |
| (e) Present use | (iii) Implements and tools |
| (f) Present condition | (iv) Internal and external transport |
| | (v) Product |
| | (vi) Any other remains - e.g. storage
areas, workers' housing |
- (g) Total area covered by site
 - (h) Any buildings of particular architectural interest

6. Status of Monument

Is the monument or site or any part thereof.

- (a) Listed (Section 32 of the Town & Country Planning Act)
- (b) Scheduled (Ancient Monuments Act)
- (c) Given any other official status

7. References

- | | |
|---|------------|
| (a) Maps other than modern O.S. | |
| (b) Any existing - published references | |
| other written sources | |
| other sources - verbal or tape recordings | Other |
| photographs/films | than |
| plans and sections | recorder's |

(c) Photographs/films taken
Plans made
Sections made
Drawings made
Tape recordings made

By recorder

8. Any additional information or amplified descriptions
9. Owner - Name and address
10. Tenant - Name and address
11. Recorder - Name and address
12. Date of recording.

G.T. LAW & SON, RUGBY BOOT MAKERS, TOWCESTER

by Richard O'Rourke

As in most Northamptonshire towns, the boot and shoe trade played a considerable part in Towcester's industrial life, although neither of the attempts to set up large scale factories appear to have been a significant success. One small business does survive here, that of G.T. Law and Sons, and the reason for their survival lies in the specialised nature of their product, rugby football boots.

The founder of the company, Mr. G.T. Law was in the first decade of this century, an accomplished athlete, and being dissatisfied with the track shoes currently available he decided to make his own. Certain of his friends also asked to have shoes made, and this persuaded him to set up a workshop for their manufacture in Wimbledon, some years before the First World War. Running shoes, road walking shoes and rugby boots were produced here until 1940 when the area was bombed and he decided to move to Towcester to live. About 1946 he started manufacturing here, but his son continued at Wimbledon, keeping the retail shop and workshop there. This arrangement survives today except that the son, Mr. C.W. Law, took over control on his father's death.

In December 1970 a party from the Northamptonshire Industrial Archaeology Group were pleased to accept the invitation to view the workshop and we were shown round by Mr. R. Stafford. The workshop is attached to the rear of a house on the Watling Street at the north end of the town. It was originally a carpenters shop (some evidence of which survives) and provides adequate accommodation on one floor for the three employees and for the relatively small stock of lasts. As usual for a boot and shoe shop, it is well lit with large areas of glazing on the north wall and roof. Mr. Stafford is engaged in the clicking and sciving of the leather, two types being used. 'Indian sides' being a full grained hard leather are used for the toe and seat and 'Irish softies', a split artificial faced leather for the remainder. Sciving can be done by a machine, but this is rarely used since a very stiff leather is required for its efficient operation. The many pieces of the upper are first stuck together temporarily with a latex glue before Mrs. Hillyard sews them together by machine. Insoles and stiffeners are produced on a 'revolution press', leather being used for the former and 'Celasto' for the latter. The stiffening material is put into the boot before lasting and is then wetted with acetone. This softens the 'Celasto' which then dries hard and to the correct shape when put onto the last. The correct thickness of leather for the insole can be obtained using the splitting machine if necessary. The closing of the boot on the last is by nailing, Mr. W. Tompkins performing this. The boots are eyeletted by machine, and must afterwards be sent to the Wimbledon shop where one man is employed to apply the soles and studs.

Most of the work is bespoke, although some stock sizes are made, a good proportion of which are exported, mainly to South Africa. The bespoke boots cost around £8 which is a remarkable price considering their hand made character. Some road walking shoes are still produced to order, but the making of running shoes was rendered uneconomic when German manufacturers entered the market several years ago. These were hand sewn tumshoes, and a channeling machine to prepare the soles for sewing was installed. This, with all the lasts have been destroyed.

Altogether an interesting visit and an incredible contrast to the factory methods of Northampton.

REPORTS FROM THE INDIVIDUAL COUNTIES

BEDFORDSHIRE

Preservation

Bromham Water Mill (TL 011 507). The Bedfordshire County Council is interested in preserving this mill, which dates from the 17th century with later alterations. Whilst the mill, as a building, makes a good contribution to the landscape the machinery is a heterogeneous mixture and incomplete. The waterwheels might be worth saving.

BUCKINGHAMSHIRE

Preservation

Lacey Green Windmill (SU 819 008). This is a smock mill, built c. 1650 at Chesham and moved to its present site in 1821 when the fantail was added. It was restored in the early 1930's but since then has become gradually more derelict due to lack of maintenance. In fact, it is a prime example of the folly of preservation without a Trustee Body being established to ensure the continued maintenance and preservation. The Chiltern Society have taken active interest in the mill and have been advocating its restoration. However, it has not been able to agree terms regarding the lease etc. with the owners. The millwork is a good example of its period and type but is in poor condition. The structure is considered by many to be dangerous, more or less relying on the cladding to hold it together.

NORTHAMPTONSHIRE

STUDIES

1. Watermills

(a) Islip (SP 991 792)

As part of her course at the City of Leicester College of Education's Annexe at Corby, Mrs. P. Pridmore made a study of Islip Watermill in October 1970. Her report included the following:-

Description:- Four storey building, with farmhouse attached, now stands vacant. In 1960, flour milling ceased. In 1965-66 grinding of animal foodstuffs for customers ceased, only made foodstuff for animals on farm premises until 1970.

Machinery:- All the machinery has now been removed from the Mill. One of the water-wheels is still in position, but dilapidated; the other was removed when its gudgeon pin broke in 1954, then Mill was converted totally to electric power. (Prior to this the water-wheels had been 'assisted' by a steam engine - then a gas engine was installed in 1922, as an auxiliary to the wheels). Two of the old French Burr Millstones still remain outside the Mill.

Danger of Demolition is not yet decided. The Mill is owned by the Drayton Estate, who have not decided on the future of the premises as it was only vacated this Autumn, when the farmer retired.

(b) Brixworth. Mr. Rowles of Brixworth has located evidence of two of the mills in this village:-

(SP 746 709) During relaying of sewers in the village, at manhole 14, about 6 ft. - 8 ft. below the road surface, two walls were found between which a waterwheel presumably turned. Upstream, on the east side of the wall bounding the road, large deposits of silt indicated a former mill-pond.

(SP 743 709) Traces of a leat cut from the main stream and a mill-pond (although both dry) with about 8 ft. fall at the mill-site, to original stream. The footings for a building were reputedly visible some years ago.

(c) Harpole (SP 687 595)

The mill was demolished in March 1970, leaving the adjoining mill house standing. Although the waterwheel had been removed some time ago, the cast-iron wheelshaft and other machinery remained until demolition.

Attached to the wheelshaft was a cast iron pit-wheel, over 8 ft. diameter with 128 wooden cogs. and running in an iron pit box let into the ground. The mill water

5 in. sides. The great spur wheel was almost 8 ft. diameter, of iron with 124 wooden cogs. The stone nuts were of iron with 25 teeth. Two pairs of stones, each 50 in. diameter were supported on cast iron hursting. At the top of the vertical shaft was an iron crown wheel with 72 wooden cogs engaging with an iron pinion of 16 teeth. This was on a shaft carrying several pulleys, some of wood and some of iron. On a wooden beam over the wheel-race was carved "MILL NEW BILT BY WP MILRIGHT AND W.d. M....ASON FOR THE" The beam was dressed to take more words after THE - possibly GLORY OF GOD? This beam is to go to the Billing Mill Museum of Milling.

(d) Harlestone (SP 708 646). As a result of the Industrial Archaeology exhibition held at Northampton Museum in April/May 1970 (see Bulletin No.13), Earl Spencer approached the Northamptonshire Industrial Archaeology Group to see if they were interested in preserving the watermill at Harlestone. From the group's survey of mills it was known that the mill still contained its waterwheel and much of the machinery but a lot needed doing to the structure. However, soon after Earl Spencer's approach, the Group were contacted by the Endeavour Training Organisation (which aims to complement apprentices technical training with training in social service in its widest sense) to see if there were any projects needing the services of about a dozen able-bodied young men for a week-end. Arrangements have now been made for a first working party sometime in February.

(e) Thrapston (SP 994 780). Geoffrey Starmer and Jack Stocks made a quick survey of the interior of this mill which will soon be unsafe for anyone to venture inside. Having stood idle for many years, with no attention given to the structure, water has got through the roof and rotted the roof beams which have now collapsed. Debris from the roof covers much of the machinery but it was possible to discern that the mill had two separate sets of machinery. One was driven by a waterwheel outside the building and was connected to three pairs of stones. The other had a waterwheel inside the building and appeared to have driven two pairs of stones supported by cast iron hursting.

2. Stone Sleeper Blocks at Ringstead (SP 968 745)

On the footpath to Great Addington, leading from the former Ringstead and Addington railway station, are a number of large stone blocks, forming stepping-stones (and piers for plank bridges) across the low-lying fields in the vicinity of the River Nene.

The blocks are all at least 9 in. deep and vary from 24 in. square and 27 in. square to 25 in. x 31 in. They nearly all have two holes, about 1 in. diameter at $8\frac{1}{2}$ in. centres on a diagonal. In some cases, the holes are in a recessed portion of the stone, approximately 13 in. long in the direction of the diagonal and 5 in. wide and approximately 1 in. deep. The arrangement of the holes is similar to that on the stone sleeper blocks used in the early days on the London and Birmingham Railway and now to be found as kerbs to the canal at bridges on the Blisworth-Northampton arm. John Gimms (of 25 Broadmead Avenue, Northampton) would welcome information as to:-

- (a) whether the stones were originally railway sleeper blocks,
- (b) if so, from where did they come
- (c) when?

3. Street Survey in Northampton

Following their survey of an area south of the Wellingborough Road, near Abington Square (see Bulletin No.11, January 1970), the Archaeological Section of the Northamptonshire Natural History Society and Field Club are surveying another part of the town. This is bounded by Abington Square (North side), Kettering Road (North side), the Racecourse (West side), Barrack Road (East side) and The Mounts (East side).

Unfortunately, demolition has already started in the SW portion of the survey area and much of the remainder is due to suffer by redevelopment and construction of new roads. The intention is to record the present environment for each street, showing the intermingling of industrial and domestic buildings. The present use and the main architectural features will be recorded for each building. Photographs will be taken of all the non-domestic buildings and of representative examples of the houses.

The survey has been made possible by a grant from the Carnegie Trust to cover the cost of record cards (those prepared by the CBA for the National Record of Industrial Monuments) and photographic materials.

Lime-kilns and Quarries

As part of the 'Old Crafts and Industries' course at the University Centre, Northampton, Clive Birch (of the Northamptonshire Record Office) used the topic of lime-kilns and quarries to illustrate the use of documentary evidence. He posed four fundamental questions related to lime-kilns:

Where are (or were) they?
How long have they been there?
Who worked them?
Outputs?

For general information as to the areas of limeburning in the county, help might be obtained from the general histories of the county, Bridges (written c. 1720 but published later), Baker (1822-1830) and the Victoria County History. Unfortunately, none of these completely cover the county. As an example of the information to be found, Bridges 'History of Northamptonshire' Volume 1 on page 457 gives for Fotheringhamay:

"In the second year of (Edward IV, he granted to the College at Fotheringhamay) four acres of land, with a kiln for burning lime in the lordship of Woodnewton"

On the manuscript evidence, the Finch Hatton papers showing their possessions in 1584 includes a map of Kirby on which is marked "The Limekiln". When children in 1932 compiled a map of Kirby Hall there was no evidence of the kiln but their map marks "lime-pit Field".

Limekilns have been featured on many maps and a number are shown on Bryants map of Northamptonshire (1827). They have also been shown on the various scales of Ordnance Survey maps. Amongst the Tithe Maps, one of 1839 for Stowe IX Churches shows the tramway built to bring limestone to the Grand Junction Canal near Heyford. The Tithe Award gives Harrison Wordsworth and others as proprietors of the tramway. A later plan, in the estate papers relating to when the property of the Corporation of the Sons of the Clergy were sold, shows what was left of the tramway at that date and also marks limekilns near the Watling Street (A5).

As to who worked the limekilns, the earlier sources of occupations - the Militia Lists (of all people likely to be called-up) are not helpful. For Northamptonshire, the 1777 Militia lists contains 12,000 names and not one lime burner although two lime trimmers were listed for Irthlingborough. The later Trade Directories, published at intervals from about 1820, have many references to lime burners, including some ladies.

In the 1690's, the Fitzwilliam Papers show correspondence related to digging lime-pits and erecting new lime-kilns. (Note that this date is about the time of building Kirby Hall). Estate accounts sometimes have references to limestone as in those for the Grafton Estates during the 1830's and 1840's. On the whole, it seems that if lime burning was a normal activity, it was taken for granted and the accounts for this were included in a block payment.

In 1927, Beeby Thompson presented his report "Lime Resources of Northamptonshire" to the Northamptonshire County Council (copies of this 88 page illustrated booklet are still available, price 50p from Miss Beal, Hon. Librarian, Northamptonshire Natural History Society and Field Club, Castillian Terrace, Northampton). At this time over 30 limekilns were still in use although Mr. Thompson listed nearly 2000 sites of which 65 were along, or very near, the Grand Junction Canal.

From the documentary evidence it is intended to make a survey of what remains and the following are notes on two sites:-

Cottingham (SP 848 899) Kiln built into side of hill with grass grown banks indicating route for carts tipping raw materials into top of kiln. Stone construction, front now fitted with wooden doors as farm store.

Nether Heyford, near Flore Lane Wharf (SP 641 589) A mound, about 65 ft. x 40 ft. containing three kilns has been revealed after clearing scrub and undergrowth in connection with work for a marina by the canal. The kilns are about 6 ft. 6 in. diameter, with between 9 in. and 13 in. thickness of brickwork around each one. Two of the kilns are together but between these and the third kiln is a space sufficient for another kiln. The kilns are right by the side of the canal and most of the field around them seems to be of plain ash.

5. Early Pottery

For several seasons, Kettering Grammar School have been excavating at Lyveden (SP 984 861) and the headmaster, John Steane, talked about the early pottery industry to the "Archaeology of Old Crafts and Industries" course at the University Centre, Northampton.

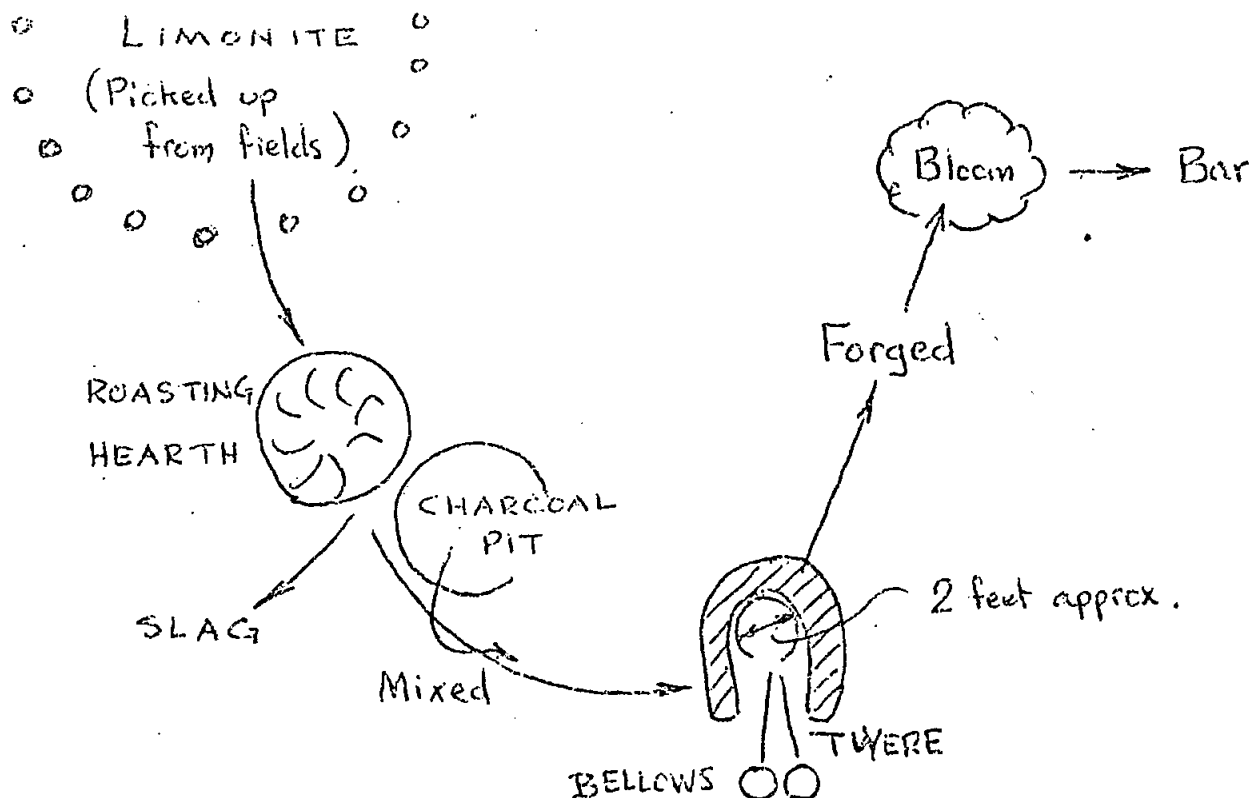
Early evidence shows that the potters must have been fairly lowly "citizens". Towards the end of the 12th century, individual potters begin to be identified. The scale of production changed and "an industry" began to emerge. At the same time, potters appeared where previously there had been none. The first reference to potters at Lyveden is 1385 although in 1279 there is a reference to people renting kilns at Brigstock.

The excavations have revealed a great variety of kilns. The fuels used were coal (occasionally), wood (in the form of loppings) and peat. The usual form of marketing was by sale in the local markets but sales were helped by extra markets and fairs. Examples of Lyveden ware have been found as far afield as Stamford (25 miles to the north of Lyveden), Cambridge (to the east), Badby (to the south) and Leicester (to the west).

During the 13th century, best quality medieval pottery was produced but after the Black Death agricultural society declined and so did the quality of the pots. In the 15th century, tile kilns were in operation and finds at Lyveden include ridge tiles with an animal on top.

6. Early Iron Smelting

Excavations at Lyveden, under the pottery layers have revealed beneath silt from the overflowing brook, an early iron smelting site. The arrangement and probable flow paths of material are shown in the following diagram:-



The silt was approximately 2 ft 3 in thick and completely covered the slag and ash of the early 12th century (Dated from over a thousand sherds of Stamford wares) smelting. A well defined circular stone hearth, 5 ft 6 in diameter with a surround of large red burned limestones lining it was embedded in an intensely black charcoal layer 9 inches thick. Close by was a shallow circular pit 3 ft 9 in full of charcoal (Maple, oak, hazel and alder). To the east of the hearth was a small furnace with an oval bowl lined with fireclay reinforced with limestone and a hard mass of slag in the bottom. A trench full of black ash 7 ft x 1 ft x 6 in ran up to the bowl on the south side. No signs of clay tuyeres or a forging floor were found.

J.M.Steane

Leather and Tanning

Although the archaeology of boot and shoe making is receiving considerable attention in the county, there seems to be less concern for the leather trade itself. In the hope of promoting research on the local history of this subject, Miss June Swan of Northampton Central Museum, talked about leather and tanning to the 'Archaeology of Old Crafts and Industries' course at the University Centre, Northampton. She pointed out that Northampton Museum concentrates on boots and shoes and tended to leave leather to the other museums such as the Museum of Leathercraft, now in the Guildhall Museum, London but which may move to Walsall.

The basic materials are hides (from heavier animals) and skins (from calves, pigs, sheep, etc.) Normally the skin is a by-product, the animals having been killed to provide food. The older methods of leather production involved soaking the skins in lime for eight days followed by stripping of the hair from one side. This was achieved by placing the skin onto a beam (at first of oak but later of cast-iron) and scraping with a blunt knife (a de-hairing knife). Because of the length of skin and the arrangement of the beam, the worker had to bend down and at the end of each stroke was almost at floor level. The skins were then soaked again and replaced on a beam for the flesh to be cut off with a very sharp two-handled knife (known as a fleshing knife).

In the vegetable tanning process, the skins underwent "baiting" by treating in cold water containing hen or pigeon-dung. There has often been an association between tan-yards and dove-cotes for the supply of pigeon-dung from the latter. After further cleaning of the hide with a skudding knife, the hides were placed in a weak solution of oak bark. The hides were progressively moved to stronger solutions until the final pit where there was alternate layers of hides and fresh bark. (This was obtained by the use of tools known as "barking irons" and then ground up. The Bark Mill was one of the few pieces of machinery in the old-time tanning process and was sometimes driven by a waterwheel.)

If the leather was to be used for shoe-making, it was subjected to 'currying', i.e. put over a vertical beam and the hide shaved down to the thickness required. Dubbing and similar substances were rubbed in and the final dressing consisted of hammering to consolidate the fibres and the use of a graining board (wood on one side, cork on the other) to bring up the grain.

With the chrome tanning process, the hides take only two weeks to go through a tannery instead of a year and a day with the older method. Although chrome tanning started by using pits, most of the processing is now done in rotating drums. The hide ends up a greeny-grey in colour and is then dyed to give the colour required.

The earliest reference to a tannery in the county is at Brackley in 1314. Kings Sutton was a centre for tanning and Brigstock was another important centre, obtaining its oak bark from Rockingham Forest. April until June was the recognised barking time and accounts of buying bark give an idea of where tanners were located and their relative importance.

Tanneries always required a good supply of water and because of the smell (and also because the pits probably got choked) they tended to get moved on - to the edges of towns and cities. For example, Dickins Bros. started in Spring Lane, Northampton, then moved to Kerr Street and in 1901 to premises on the Kettering Road (which at that time would have been near the edge of the town). However, indications of their former locations are given by names such as Skin Yard and Hyde Park, which are adjacent in Earls Barton.

Since the war, the tanning industry has divided into heavy leather (at the ports) and lighter leathers inland - at Northampton, Kettering, Leicester and Leeds.

PUBLICATIONS

1. "The Kettering Worsted Industry of the 18th Century" Adrian Randall, Northamptonshire Past and Present 4 No.5 1970/71 pp 313-320.

This is an account of the development, relative significance and organisation of this industry which had its origins in the first years after the commonwealth and collapsed with the Napoleonic Wars although it lingered on during the first years of the 19th century. The author reasons that the Kettering area produced worsted cloths because these required long staple wool (the main form obtained from the local sheep) and no

In considering the latter, Mr. Randall makes the surprising statement that "while the Ise and Nene could be used for washing and scouring purposes, their use for water power especially in the case of the Ise, was strictly limited". This is misleading as there are over 40 known mill sites along the main-stream of the River Nene and a further 13 along the River Ise. A reference in the article to a fulling mill at Woodford is accompanied by a foot-note, credited to V.A.H., about the fulling-mill at Adstone implying that there were very few fulling mills in the county. A glance through the "check list of Northamptonshire Wind and Watermills" given in No.12 of this Bulletin (April 1970) pp 11-38, reveals at least 14 different sites used for fulling mills in the county, one of which was at Isham, on the River Ise and within 4 miles of Kettering.

G.H.S.

2. "The Medieval Fishponds of Northamptonshire" J.M. Steane, Northamptonshire Past and Present 4 No.5 1970/71 pp 299-310

Is this in the realms of industrial archaeology? In some areas, the number and magnitude of fish-ponds represented an investment of capital which had a prospect of yielding substantial returns. If industrial archaeology is concerned with the production of all kinds of goods and commodities, including food, then a study of these medieval fish-ponds is industrial archaeology!

The article reviews the place of fish and fish-ponds in the medieval economy of Northamptonshire and gives over 12 examples in the county. The knowledge of the location and past use of these earthworks is useful to the industrial archaeologist in that those at Maidwell and Stoke Albany have, in the past, given rise to speculation about possible watermill sites.

G.H.S.

3. "Allchin Steam Wagons" by Dr. J. Middlemiss. The Road Locomotive Society Journal 23, 5 October 1970 pp 71-78

This is mainly a technical description of the various types of steam wagon, made by the Northampton firm of Wm. Allchin between 1908 and the late 1920's. Little attention is paid as to why technical changes were made or to possible reasons for the decline of the firm, for which the final meeting of the creditors was held on 23 December 1930. Knowing present day road traffic at the week-ends in Northampton, it is amusing to learn that Saturday afternoon was a popular testing time for new prototype wagons, which thundered through Abington Street at 20 miles an hour and then up the London Road along Mearway and back down the Towcester Road to the works near South Bridge.

It is unfortunate that the article presents a confused picture of the history of the firm, not distinguishing between William Loader Allchin and his son William Allchin inferring that the break-away firm of Allchin & Linnell was responsible for the manufacture of the steam wagons described in the article. Until someone can be persuaded to write on the engineering activities of the Allchin family (any offers of an article for this Bulletin? Editor), the most accurate version is the brief history of Wm. Allchin, Engineer and Millwright given on page 14 of "Industrial Archaeology in Northamptonshire" (published 1970 and available from Northampton Central Museum, Guildhall Road, Northampton. Price 22½p).

G.H.

OXFORDSHIRE

STUDIES

1. Salter Brothers' Boat Yards, Folly Bridge, Oxford (SP 514 055)

The Oxford University Industrial Archaeology Group (see below) is now actively making a record of the older parts of Salter Brothers' Boat yards at Folly Bridge. These yards are to be demolished for hotel development. The oldest part of the premises are those in the north-east corner of Folly Bridge, consisting of an L-shaped series of four-storeyed stone buildings with some extremely decrepit wooden boathouses behind. The stone warehouses, stables and dwellinghouse appear to date from c.1820 when the bridge was rebuilt and the area generally redeveloped. Pigot's directory of 1830 records the first occupier as Richard Parker, a Witney corn dealer who had a water-borne trade between Oxford and London based on this wharf. Salters have been increasing their hold on the site since 1858 until almost all the property around the bridge belongs to Salters, but is now owned by Ind Coope who propose to build

Philip Riden would like to know if anyone can supply further information about the site. The Group is making a detailed photographic and drawn record of the whole site.

2. Water Pumping. The Oxford City & County Museum's Study Group working on later historical material has dismantled, removed and re-assembled the small steam engine originally used for pumping water on a farm at Aston Rowant.

Later, the Group visited the 18th century pumping engine at Woodstock Mill. This engine was originally housed beneath the Grand Bridge in Blenheim Park and provided water for the Palace. A series of record photographs were taken and a set will be deposited in the Science Museum, London.

SOCIETIES

The Oxford University Industrial Archaeology Group is now active again. This section of the University Archaeology Society was formed in 1963 by P.J. Riden, St. Edmund Hall, Oxford.

PRESERVATION

Work on the beam engine at Combe continues. The engine has been dismantled as far as possible and after being cleaned is to be re-painted prior to its re-assembly. Work on this project is done on Friday evenings and Saturday mornings. Those interested in helping should contact: John Rivers, Telephone Oxford 57391, or the Field Department at Oxford City & County Museum.

MUSEUMS

The Oxford City & County Museum's Conservation Department have been treating a remarkable collection of 13th century shoes and other leatherwork (over 300 pieces) together with some wooden objects. These finds have been recovered by Tom Hassell during salvage operations on what appears to be a Barbican ditch on the east side of Castle Street, Oxford. The finds would seem to represent waste material from a leather workers shop.

The same museum has also acquired from the Ashmolean Museum and the Buckinghamshire County Museum material related to the Shutford Plush industry.

COMMENT

From Roger Worsley, Haverfordwest, Pembrokeshire:-

In commenting on the BBC 2 "Chronicle" programme (Bulletin 12, April 1970) you mentioned our efforts in Pembrokeshire, from which I would gather that you did not notice, or did not think important, the tape recording side of industrial archaeology; since many of the people involved in the earlier days and techniques are still with us, we've always regarded this as the most vital aspect of our work. A brickworks, with luck and no bulldozers, will wait a few years more - an old man (and some of those we have talked to are very old, almost at their century) - will not wait. We've been campaigning the Department of Industry at the National Museum in Cardiff, and other groups like ourselves, to concentrate at least a bit of effort on this vanishing aspect of our social history, those people who can actually remember the nineteenth century.

I'm perhaps not the person who should comment on your remark about flying, since I do nearly all of it! Suffice it is to say that the Linnet used in the film was one of two aircraft we use for survey and photography - the BBC chose it, as it was a pretty red colour and would come out well on colour TV - not a good archaeological reason, I agree. The alternative was a Cessna, which was the only one which would fit the film crew and their somewhat bulky equipment. So the choice of the low winged aircraft was thrust on us - I agree that for most purposes Cessnas or Austers are ideal for amateur aerial photography, especially if vertical or near vertical shots are required.

Most of my work for industrial archaeological sites from the air is low altitude oblique, which was what we were doing at Porthgain for the film, incidentally. We should have used the Linnet for this anyway, as it's far more stable - for near verticals using this plane we have a somewhat stomach stretching technique of tipping over and side slipping. But the Linnet's great advantage is cost - it's worth quite a lot of side slipping when it's only

(Editor: We welcome the foregoing comments from Mr. Worsley and hope that these will provoke some of the industrial archaeologists in CBA 9 to discuss the techniques they are using. Surely there must be some people in our five counties using tape recording in their industrial archaeology ?)

From Rev. R. Howe, The Vicarage, Potterspury, Towcester, Northamptonshire NN12 7PX
(Membership secretary of the Narrow Boat Trust):-

With so many trades and customs vanishing, must the narrow boat become just a memory too ?

They'll exist, but as converted or shortened holiday craft, even as houseboats with all 'mod-cons' instead of that masterpiece of living in a boatman's cabin and the sheeted hold. The decline of commercial carrying numbers their days in their original form.

The Narrow Boat Trust has been formed now, before it is too late, to buy, restore and retain many types of narrow boats. These will be preserved and maintained permanently as living reminders of a bygone age and way of life. Should the chance of trading arise, our boats would be used - but the first priority is to retain the boats while there are still any left.

For this we need members, money and active participation. Membership is £1 (Minimum)

From D. Watts, Northampton :-

In the review of Victor Hatley's "Rails over Blisworth Hill" (Bulletin 13, July 1970), criticism was made of the lack of inclusion of information from the excavations along the route of the Blisworth Hill Railway, made in the summer of 1969 by members of the Industrial Archaeology course from the University Centre, Northampton. Is this a justifiable criticism of Mr. Hatley ? I rather think the blame attaches to those responsible for the excavation who have made no record of their finds, or if they have, have not made this available to others likely to be interested. Nothing is known of the results of this excavation at the Northampton Museum, the Northampton Library or the Northamptonshire Record Office.

This is only one of what must be many examples of industrial archaeologists making their own records but not continuing with the logical step of publishing the results of their work (This Bulletin is always pleased to publish such records - Editor) or depositing them where they will be accessible to other workers. For all the criticisms that have been made of the National Record of Industrial Monuments, I think that it does provide a known repository for the record cards, provided people send them in.

APPEALS

ICE-HOUSES IN OXFORDSHIRE

James Colville is undertaking a survey of ice-houses in Oxfordshire. Anyone who can offer any information on any examples is asked to get in touch with him at :-

The Old Manor, Poffley End, Hailey, Witney, Oxfordshire

WATERMILLS IN NORTHAMPTONSHIRE

For some time the Northamptonshire Industrial Archaeology Group have been collecting old photographs of watermills in their area. One area which, as yet, is not very well represented is that in the south-west of the county bordering Oxfordshire and Buckinghamshire. If anyone has, or knows of the existence, of such photographs (or other illustrations) please contact:-

G.H. Stanner, 17 Mayfield Road, Northampton, NN3 2RE

GENERAL PUBLICATIONS

The following publications, although not specifically about industrial archaeology in CBA 9, could assist industrial archaeology researchers in our area through demonstrating techniques or by illustrating items to help identification.

MILLS OF THE ISLE OF WIGHT by J.Kenneth Major. Published by Charles Skilton Ltd, 50 Alexandra Road, London, SW 19. Price £2.90 + 10p post and packing per copy. 10 in x 7½ in, 76 plates

In the book, Kenneth Major has recorded the 48 watermill and windmill sites in the Island which can be readily identified, both on the ground and in old documents. He analyzes the mills which still remain in very great detail, taking the reader beyond the wheels and stones to deal with all of the auxiliary machinery.

The book will be of use to both the tourist in the Island visiting mills open to the public but also shows what to look for in mills generally.

MILLNOTES. Edited by David Jones, Stephen Buckland and Kenneth Major. Available from J.Kenneth Major, 2 Eldon Road, Reading, RG1 4DH at 32½ p post free. Issue No.1 of 12 A4-size pages plus 2 pages of photographs in addition to that on the cover.

This is a bulletin intended for mill enthusiasts and research workers. It will carry research material of a kind not normally published in the journals devoted to Industrial Archaeology. The first issue has three articles :-

"Inventory of the Windmills standing on 1st January 1969 in the Dept du Nord" by J.Bruggeman

" Preserved Heritage - Some remaining windmills of the USA" by L.J.Turner.

"Haverhill Mill, New Light on its origin" by H.E.S.Simmons.

The cover of Bulletin No.1 carries a photograph of the burr stone factory at La Ferté-sous-Louarre with a note culled from an official French manual of 1847 on these quarries.

PRESERVED LOCOMOTIVES IN THE BRITISH ISLES Edited by M.Swift. Published by Industrial Railway Society and the Narrow Gauge Railway Society, 1970. Available from Publications Officer - NGRS, 55 Thornhill Avenue, Patcham, Brighton BN1 8RG. Price 15/- (75p) 114 pages (8½ in x 5½ in, approx) plus 32 pages of photographs.

This booklet attempts to list all of the preserved locomotives in the British Isles including those on operating railways, museum exhibits, exhibits in stations, parks and even children's playgrounds, locomotives preserved by enthusiast organisations, on industrial premises and by private individuals. Since there are more schemes for preserving locomotives than for all other aspects of industrial archaeology and the number of such schemes shows little signs of diminishing, there will obviously be some locomotives now preserved which do not appear in the book. Nevertheless, it is an excellent guide as to where to look for artefacts remaining from one's locality. The information is extremely well presented and easy to follow. It took only a few minutes to ascertain that there are fourteen preservation sites in the five counties of CBA 9 and these account for a total of 50 locomotives !

WINDMILLS AND WATERMILLS by John Reynolds. Published by Hugh Evelyn, London 1970. £4.20 9½ in x 8½ in. 196 pages. Illustrated. Glossary of terms and selected bibliography.

The book is an excellent guide as to what to look for in wind and watermills. Its value is increased by the author taking examples from abroad as well as from this country (Although here so many examples are taken from the south that the impression is given that there are not many watermills in the north or Windmills in, say, Lincolnshire!) The term 'mills' is not restricted to the grinding of corn and Mr. Reynolds includes those in the textile industry and drainage mills. There are also 23 pages devoted to other industrial uses of wind and water power.

The superb photographic illustrations and the many isometric drawings of machinery and buildings set a standard to which all industrial archaeologists should aspire in communicating the results of their researches to others.

ADVERTISEMENTS

(Nineteenth Century Style)

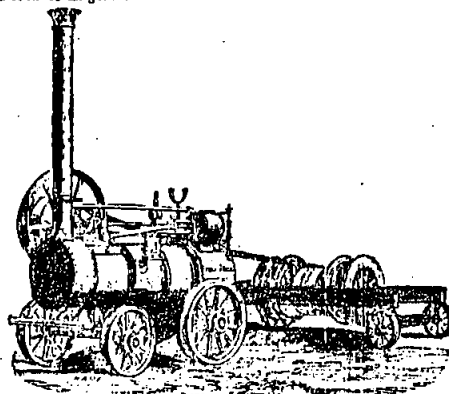
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OPINIONS OF THE PRESS:—

The TIMES, July 17th, 1861.
Mr. HAYES, of Stoney Stratford, exhibited a very clever windlass on the sailing principle.

The ENGINEER, July 10th, 1861.
The self-acting windlass of Mr. EDWARD HAYES, of Stoney Stratford, was one of the most important novelties in the show.

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