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IN CBA GROUP 9

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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 representatives, it is hoped that contact will be established as soon as possible so that each representativewill 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 workers studies will know to whom to pass the information.

MEMBERSHIP OF C.B.A.

After last years Bath conference on the future of industrial archaeology, a steering committe was set up to negotiate with the Council for British Archaeology about better communications between workers in the field, among a number of other matters.

During these negotiations it became evident that a good deal of information was being sent out by C.B.A., but which was not reaching the local societies affiliated to Group 9, as well as to others.

The steering committee therefore recommends individual societies to join C.B.A. directly. The cost is £1 per annum per hundred members or part of a hundred members. C.B.A. will also need to be satisfied that societies will not engage in body-snatching or barrow-robbing. We have never heard of industrial archaeologists engaging in these occupations, but it is curious what may be practice among dirt archaeologists.

When applying to C.B.A., please address your letter to Miss B. de Cardi, F.S.A., at the C.B.A., 8 St. Andrews Place, London, N.W.1., giving details of the size of your society's membership, the date when the society was founded, and some account of its general aims and objectives.

All societies engaged in I.A. are invited to send two members to a conference arranged by the C.B.A. at the Institute of Archaeology, 31-34 Gordon Square, London, W.C.1. on Saturday 11th October 1969 to discuss the future requirements of the subject. The principal speakers will be Professor W.F. Grimes, in his capacity as chairman of the C.B.A. Industrial Archaeology Research Committee; Dr John Butt, editor of Industrial Archaeology; and Mr. L. T. C. Rolt,

chairman of the Bath conference steering committee.

Please write to the C.B.A. at 8 St.Andrews Place London,NW.1. for tickets.There is no charge,but admission will be by ticket.

P.N.J.

WITNEY WATERMILLS

by J.F.Carter

Between Witney and the Thames the river Windrush divides into two main streams.It is thought this division was artificially constructed in the Saxon Period to provide power for 8 water mills, 4 on each stream,and each with approximately the same fall of 3'10".

The area is very flat,and a number of interconnecting drainage ditches may have already existed.The main parish boundaries in this area are defined by what is now a very insignificant field ditch,and this may have been the original main channel.

The stream divides in the parish of Cogges.On the northern branch are

GILL MILL	SP 380	070
BEARD MILL	396	055
CUT MILL	404	043
GAUNT MILL	405	030

and on the southern branch

FARM MILL	SP 360	093
DUCKLINGTON MILL	362	074
HARDWICK MILL	379	061
UNDERDOWN MILL	394	045
CHURCH MILL	397	058

Nowhere else in Oxfordshire is there such a concentration of mills in so small an area.The extra mill is Farm Mil which is of later date than the other eight,and in Witney parish.When this mill was constructed it was alleged that the cutwater at the division of the two streams was deliberately altered to provide more water onto the southern branch and thus causing dissention amongst the millers using the northern branch.

All the mills in this area other than the Blanket works, are corn mills, but in 1870 W. Langford made several sketches of "old fulling and tacking mills" in Witney and district, including one at Standlake. Although 16th century maps show additional mills or mill sites, no permanent buildings remain except at the places mentioned above. Langford's Standlake fulling mill as yet remains a mystery.

In 1870 Ducklington Mill was owned by G.H. Holtom who carried on an extensive business, and a little later the mill had both steam and water power to cope with the volume of business. This is a large "Town Mill" of the type associated with an extensive corn, flour and seed business. The mill buildings are still occupied and used by the successors of the business. Hardwick is a separate civil parish, but only a hamlet in the ecclesiastical parish of Ducklington, and in 1870 had only 149 inhabitants; but 4 farmers, and the only person of sufficient standing to qualify for inclusion in Harrod's gazetteer, is J. Mountain Junior, Miller, presumably the son of J. Mountain Senior, Farmer of the same parish!

Underdown Mill is given in the Bampton Hundred Roll as serving the village of Brighampton, the parish boundaries being specially arranged to give this small hamlet a river frontage at this point so that a mill could be constructed. ... parish ceased to be separate early in the 1800's.

Church Mill, Standlake, also in the Bampton Hundred Roll, is obviously the village mill,hand in 1870 was owned by William Hemmings. He was followed in 1876 by James Hemmings (No. 5), whose daughter Lydia is still living, and who remembers the mill. It is her opinion that the popular demand for white flour instead of wholemeal, which required the use of fine silk screens

on the flour sifters, caused millers to stop grinding flour because of the high maintenance costs. The mill still works, and provides electricity for the present owners, the Collins family, who came here in 1908 from Iffley Mill after it had been burnt down.

Gaunt Mill (or Gaunt House, or Burnt House, or Burford Mill) was grinding in 1939 but disused by 1949. It has been fully converted to a house. David Hosier is given as Miller, Landowner and Farmer in the parish, but whether here or at Underdown is not mentioned. The two streams re-unite below Gaunt Mill, and one further mill, Newbridge, is on the Windrush before it joins the Thames.

On the northern arm, Gill Mill is now arranged to take water from a series of ditches which flow originally from above the division of the two streams, but a disused loop in a field below the buildings shows where the earlier by-pass may have been. This is still in Ducklington Parish but no mention is made of it.

By contrast, in Stanton Harcourt parish, both Beard Mill and Cut Mill are mentioned. William Mountain was the Miller, presumably a relative of J. Mountain at Hardwick, further along the same road to the west. He was also a farmer and landowner in the parish.

Messers E.H. and H.J. Hutt were at Cut Mill Farm in 1870, but not being listed as millers one assumes that the mill was either disused or only used for their own requirements.

Newbridge Mill in the parish of Northmoor has the name of D.E. Bartlett given as Farmer and Miller in the parish in 1870.

Of these mills, Church Mill, Standlake, has been the subject of a detailed survey. The mill originally had two pairs of stones, and the machinery lay-out is similar to that at Little Barford, where the main drive is not by a vertical shaft supporting wallower, spur wheel and crown wheel, but by two horizontal lay-shafts driven by vertical spur wheels. The drive to the stones is controlled and transmitted through a bevel gear. This is expensive, as it requires a complete set of machinery for each pair of stones, as well as some sort of crown wheel shaft to provide hoist and other auxiliary power. One set of machinery has been removed, and from the hoist shaft a complicated belt reduction gear drives a 50V dynamo. The wheel, which is completely enclosed within the building, is an under-shot one, and it has a cast iron frame and wooden paddles. The overall diameter is 8'- 4" and it drives a cast iron shaft and a pit wheel of the same dimensions. The building is of local stone with a stone tile roof. The condition of the building is not good, but the machinery is all well maintained. An interesting feature is that there is evidence of another completely separate set of machinery in the other half of the building, driven from a wheel at what is now an internal by-pass sluice.

Reference: Royal County Directory, Beds., Bucks., Berks. & Oxon. J. Harrod & Co. Norwich 1870.

WOLVERTON WORKS: A FILM.

Dr. Peter Jarvis describes this film which was made in 1967. It is silent, runs for 20 minutes, and is on standard 8mm film held on a 400 ft. reel.

At the time of the opening of the London and Birmingham Railway in 1838, the railway board deemed it necessary to provide for the repair of "lamed locomotives". Wolverton was selected as the place for this duty, because it was halfway along Mr.

Robert Stephenson's line. Progress had not been very extensive before the L. & B. was amalgamated into the new London & North Western Railway in 1846. Wolverton became the principal works of the Southern Division of the line, and after 1860 it became the main carriage and wagon building establishment of the L.N.W.R., while Crewe became the main locomotive centre. When this film was made in 1967, a fair amount of most interesting machinery survived, and though some was still in regular use, other machines were specially operated for us to photograph.

The titling shows the Wolverton Works signal cabin, a very pleasing example of an L.N.W.R. box, now painted in the livery of the electric trains.

Wheelwrights.

The first sequence is taken in the Road Vehicles Shop, where the only mechanised wheelwrights shop I have seen, made the wheels for the horse-drawn wagons which delivered parcels from the stations. The tools seem to date from about 1880. First the electric motor which turns the belting is turned on - Wolverton used to generate its own electricity. The belting drives more belting, and eventually it drives the first machine which shapes the felloes or segments of rim, and then bores the holes for the spokes. Next comes a machine which cuts the ends of the spokes to the right size. It is noticeable that the controls occupy both hands of the workman so that he cannot entangle himself in the machinery - a standard safety feature of many machines in this film.

Next the wheel is assembled, using a spoke dog to keep the spokes the right distance apart while the felloes are persuaded into place. After this, the wheel is turned and shaved until it runs true. Once running true, the steel tyre is put on, not by the usual process of heating the hoop and dropping it over the wheel, but by compressing the tyre with hydraulic rams. The film shows the eccentrics which drive the pump to drive the rams, which are seen in a circle with the pressure gauge at the left and the control lever on the right. Not very dramatic to see, but the crunching noise of the wood leads one to suppose it will all fly up in a shower of splinters !

Bandsaw.

The splendid bandsaw in the sawmill is quite eight feet high, and is probably a hundred years old. The film shows a man making wheel sprags for parking vehicles with no brakes; he can also make first-class chair legs with the same ease.

Mortising Machine.

This is a Greenlees imported from Chicago in 1888, and which is still in daily use. It works by a combination of chiselling and drilling which have given eighty years of service, and it is still perfectly sound.

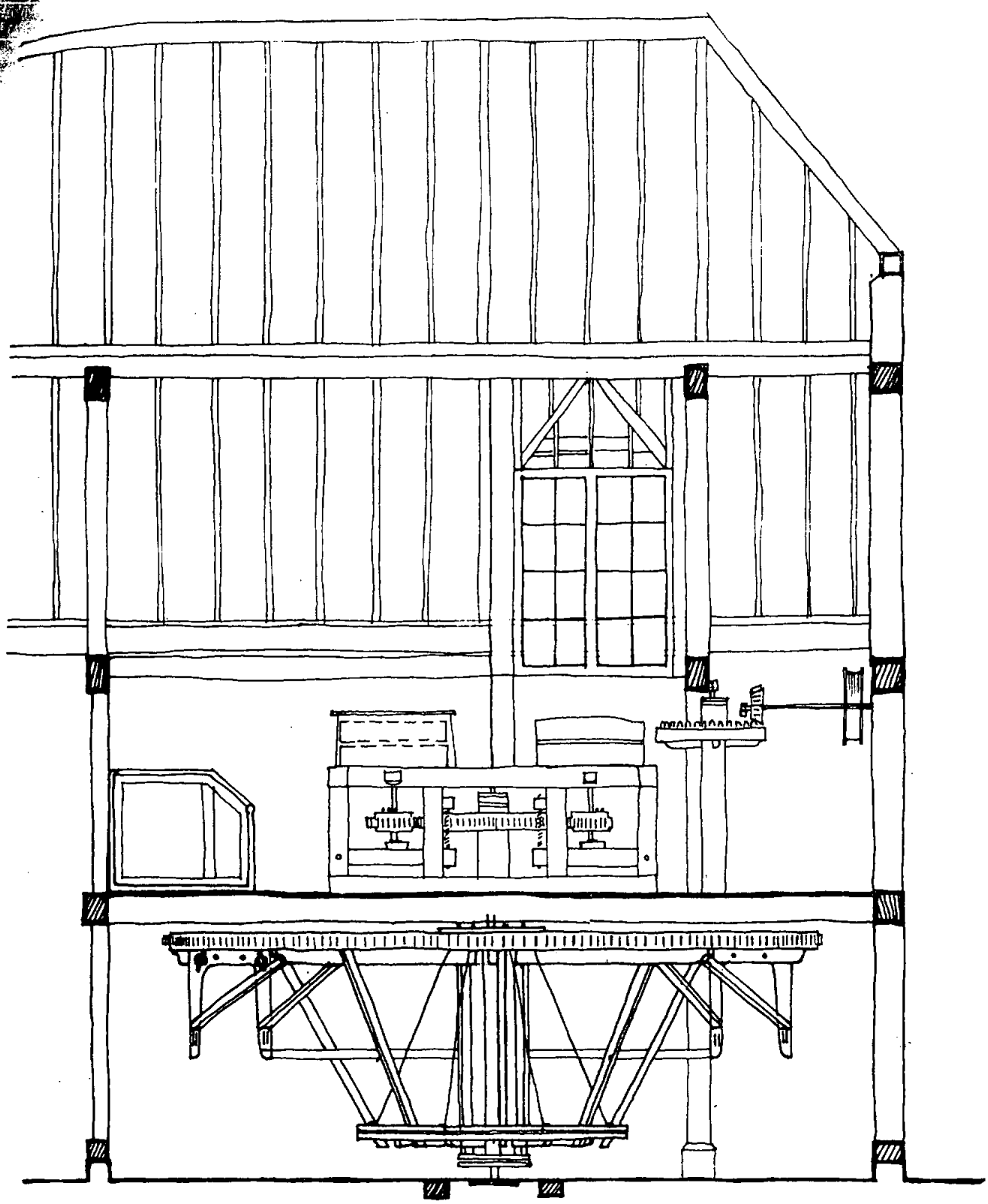
Universal Woodworker.

This has attachments to do everything. In the film it is shown making a level-crossing gatepost, and shows the chiselling, drilling and sawing attachments in use. I do not like the circular saw - the switch is too near the blade for my liking, but this appears to be a later alteration.

Brassfoundry.

I think these are the most remarkable shots of the film. One expects to see limping Vulcan in person, or at least a set of Nibelungs. The crucibles are heated in the first shot - aluminium is being melted. The crucible is lifted out by this long-range pair of tongs, and placed into the hoop by which it is carried.

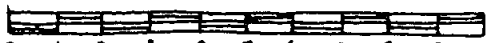
Meanwhile, the sandmoulder prepares the patterns, places them on a board, dusts them with chalk to make them easier to remove afterwards, and shovels sand through a riddle into the moulding case. Then he places a second board on top of the case,



Section showing Horse Collars & Mill Work beyond.

THE HORSEMILL WOOLLEY PARK BERKSHIRE

Measured & Drawn by J. Kenneth Major B.Arch., A.R.I.B.A.
November 6th 1966.



Scale of Feet.

Scale of Metres.

inverts it, and removes the first board. He finishes the bottom part of the pattern, then repeats the whole process with the top of the pattern in the second part of the mould. Finally, he opens the mould and with the greatest delicacy, removes the patterns.

Lastly, the film shows the molten metal being poured into the moulds. Unfortunately, at this juncture we ran out of film.

The last shots are exterior views showing the appearance of the buildings. Much of the trackwork is laid in Bridge rail, and the huge traversers for moving railway carriages sideways are worth seeing.

We thought that this interesting machinery was a considerable tribute to the men who built it and to those who have looked after it since. We were very grateful to Mr. Geoffrey Tew, the Works Superintendent, and his staff, who went to considerable lengths to arrange lighting under almost impossible conditions, and who worked the machines for us. We are also grateful to Mr. Rex Wailes, who inspected the works on behalf of the Industrial Monuments survey, and who pointed out the more interesting processes. Last. but not least, out thanks are due to our cameraman, Dan Johnson.

A HORSE DRIVEN CORN MILL

J. Kenneth Major describes the mill at Woolley Park, Berkshire.
Nat. Grid Reference: SU 410 802.

In Britain, where the use of water power was almost universal, it is not surprising that there are so few recorded examples of the horse driven corn mill. The records that do exist are associated with large mansions and not with humbler farms. Woolley Park is a large estate with a fine manor house set in a valley in the Berkshire Downs to the north of Newbury. There is no water in the valley for the purposes of power, and the Downs would prevent the use of a windmill, and it is for that reason that the horse driven corn mill was installed.

The horse driven corn mill has been built in the north west corner of the complex of barns by the house. The mill occupies one bay of the barn and is separated from the rest of the barn by a brick wall. The bay is 6.50m wide and 8m between the outside walls. The outside walls both contained double doors so that the horses could enter easily. This bay of the barn has a first floor which carries the stones, the dressing machine and the meal bins. The horse wheel of the mill is mounted in the centre of the ground floor, and this was turned by two horses walking in a circle with a diameter of 4.75m.

The horse wheel consists of a wooden spur gear 5.40m in diameter. The wooden rim is made up of 8 pieces of timber .12m by .14m in cross section, and into this rim 216 wooden teeth are wedged and socketed. The rim is kept in place by 8 struts from a bottom wheel 2.2m in diameter. Both wheels are mounted on a main wooden shaft .6m in diameter which has been prepared with 16 faces. The main gear wheel has 8 spokes between the rim and the shaft which are .2m by .08m in cross section. Two of the spokes have been reinforced by further struts to carry the vertical frames to which the horse collars were attached. The horses were balanced one against the other, so that they both pulled equally, by a system of pulleys which enabled the thrust to be equally distributed.

The spur gear of the horse wheel engaged with two sets of gear wheels; one drove the millstones, and the other drove the secondary equipment of the dressing machines. The millstones are

mounted on a stout wooden hurst frame on the floor above, and the upright shaft of this gearing is supported on a beam between two upright posts. The gear wheel at the bottom of the upright shaft which engages with the horse wheel is .9m in diameter. The wooden rim of this gear has 36 teeth socketed into it, and 5 of these teeth can be removed so that the millstones can be disengaged. Above the first floor in the hurst frame there is a second gear on this upright shaft. This upper gear - which corresponds to the great spur wheel of a watermill - is 1.20m in diameter and is made of wood. The rim of this wheel carries 64 teeth which engage with the two wooden stone nuts. These are identical, .3m in diameter, with 16 teeth in each, and are disengaged by means of wedges on the bridge beam. The millstones are all .9m in diameter, one pair being Peak stones and one pair French stones. The runner stones were raised or lowered by means of screws on the inner ends of the bridge beams.

The secondary upright shaft is supported in a similar manner to the other upright shaft. The spur gear at the bottom of this shaft is .6m in diameter with 24 teeth. The upper end of this shaft carries a crown wheel .75m in diameter with 45 teeth. This engages with a bevel wheel .25m in diameter with 15 teeth. The bevel wheel is on a lay shaft which carries a pulley .5m in diameter which is connected to the drive pulley of the dressing machine .25m in diameter.

This horse driven corn mill is an important relic of the period of millwrighting between Smeaton and the beginning of the 19th century. The importance of this horse engine lies in its survival as an all wooden arrangement. Most of the gearing contained in the farm gins up and down the country contains iron elements of a more sophisticated type.

The Woolley Park horse mill can be visited if one obtains prior permission from the owner, Colonel Wroughton.

ISLIP IRON CO'S MINES AND QUARRIES IN 1930

The following review is based on the field notes by S.H. Beaver (now Professor in Geography Department, Keele University) during 26th and 27th March, 1930. Some notes on the history and present studies on these ironstone workings were given in Bulletin No. 9, page 14.

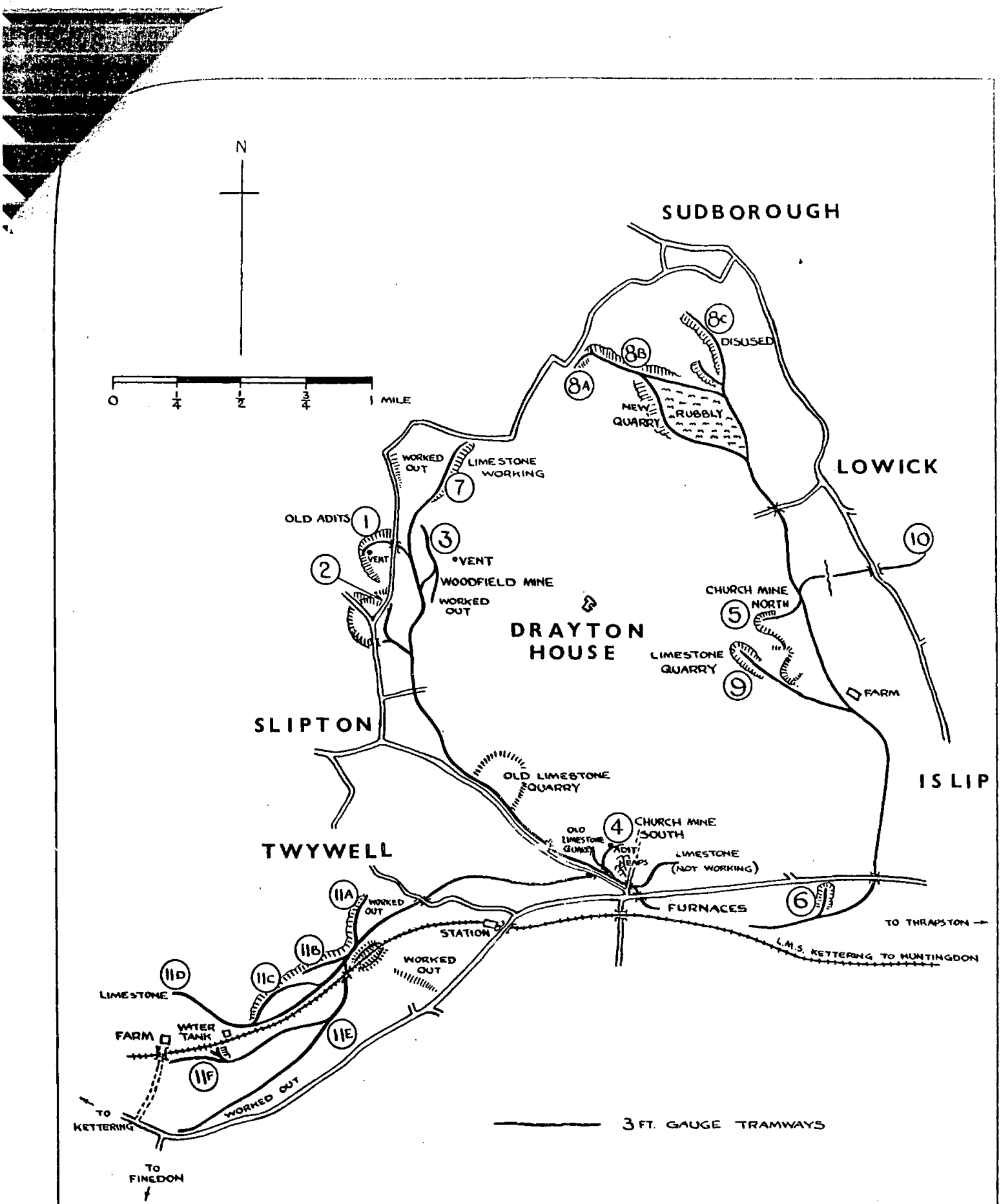
The Islip Iron Co. own on lease most of the land lying within the circle of five villages: Islip, Twywell, Slipton, Sudborough and Lowick (except the large area of Drayton Park in the centre of this area), together with other small areas outside: S.W. of the Furnaces, S.W. of Twywell, N.W. of Slipton and S.E. of Lowick.

All three methods of obtaining ore are illustrated:

(a) Mining,
(b) Quarrying at surface,
(c) Quarrying under deep cover.

In addition, there are several quarries, besides the deep ones, which produce limestone.

These widely scattered mines and quarries necessitate several miles of efficient tramways. As these all converge at the furnaces, a signalling system is in force, white single-arm signal posts being placed on each line as it approaches the furnaces. There are 5 locomotives in fairly regular use, with several others which are used when necessary. The tramway system works on a regular time-table, transporting wagons of ore limestone and empties to and from the quarries at regular times each day.



ISLIP QUARRIES & MINES

1930

BASED ON PROF. S.H. BEAVER'S FIELD NOTES

GHS 1969

Mines.

There are 4 mines, 3 of which are working. Willowclose and Woodfield (closed) mines lie north of Slipton, and Church North and Church South mines between Slipton and Islip.

1. (Crops Acre Mine. In addition to the 4 mines mentioned above, Prof. Beaver's field sketches indicate "Old Adits" about ½ of a mile due north of the adit for Willowclose mine, see map. These correspond to those in the area covered by the Crops Acre lease: Ed.)

2. Willowclose Mine. The adit entrance to this mine lies almost underneath the Slipton-Sudborough road, about 100 yds. beyond the sharp bend in the road ½ a mile north of the Slipton fork-roads. The mines are heading north-westwards. The most striking feature of these mines is the smallness of the tunnels, which are made only 9'- 10" wide and are from 7'- 0" to 10'- 0" high. About 6'- 0" to 10'- 0" of stone are worked, but a good roof is always left, and the blue "bastard" stone at the base is left also. There are two main tunnels which meet near the adit.

The plan on which all the Islip mines are based is quite different from that on which the Wellingborough and Ebbw Vale mines are worked. Instead of the rectangular pillar and stall system, the headings are offset at an angle of 50 degrees, giving diamond shaped areas in between. (See diagram inset on map). The reason for the diamond system of headings is apparently connected with the system of joints in the rock, it being easier to cut across joints with a heading rather than to follow them. The headings are usually 2¾ chains (i.e. about 60 yds.) apart, but this distance is not constant so that sometimes two cross headings meet opposite each other, but more often they do not. Occasionally cut-offs are made, in order to assist haulage round the acute-angled corners.

Horse transport only is used, and the wagons in which the ore is loaded underground are not sent to the furnaces, a change being made at the mine entrance, where the ore is tipped into hoppers which are hauled by locomotives to the furnaces.

There is practically no water trouble in the Willowclose mine, which is reasonably dry underfoot except in one or two places where at most it could be only described as sloppy. This comparative dryness is due mainly to the height above sea level (the entrance is between 200' and 250' O.D.), and to the fact that there is a natural dip slope gradient towards the south east; the further end, about ¾ mile in, being 23'- 0" higher than the adit - a gradient of 1:170 or 30' per mile. Moreover, the rock is very tough, especially the so-called "haematite" bed which occurs at various levels, usually near the top, in seams 6" to 2'- 0" thick.

In this mine, the ore seemed to be particularly liable to break up into very small pieces, which clogged the furnaces, so that all ore is now "riddled" (i.e. sieved) and only the larger stuff sent out. Hence the output per man (or rather per 2 men; miner and helper) is rather low. Each couple fill 5 wagons of 35 cwt. each per day - a total of 8¾ ton (i.e. 4⅜ ton per man) which is very low compared with most of the opencast workings. The men pay for their own "ammunition", as in the mines elsewhere.

A ventilation shaft (similar to those over railway tunnels) for this mine is situated in the disused quarry a few hundred yards north of the adit, on the western side of the road. The ventilation is all natural: no artificial aids are employed, except that disused headings are bricked up so as not to lose the draught, and occasionally tunnels have doors across them.

Only occasionally are props necessary to support the roof - indeed, there is no room for them! - the narrow tunnels for the most part tending to prevent roof falls, but in many places old rails and timber are used to make a roof and occasionally

brick pillars are used at junction points; they seem to take no risks here.

3. Woodfield Mine. This was closed in August 1915. It lay on the eastern side of the road, slightly north of the Willowclose adit and was working eastwards. A ventilation shaft is observable from the road, situated up the hillside towards Drayton Park.

4. Church (South) Mine. The quarry from which this mine begins is a large curve between the Slipton road and the "green lane" to Drayton Park. The adit is near the N.E. end of this and strikes somewhat east of north. Owing to the slight dip of the beds towards the valley, rather more water is experienced in this mine as it drains down from the direction of Willowclose.

5. Church (North) Mine. This is situated about one mile N.W. of Islip village and is approached across a field path opposite a small spinney on the road up to Drayton Park. It is connected by tramway with the main Lowick line.

It is worked S.W. and heading for the workings of the Church (South) Mine, which are at present under the aforementioned spinney. Mining was begun because the cover began to get too thick. Although there are only about 15' of overburden at the adits the rising ground soon converts this into upwards of 100'.

The tunnels (two in number at the entrance) are again 9'- 0" wide, the offsets being at 50 degrees about every 2¾ chains. On an average, about 8' of ore is worked, from 9" to 2'- 6" being left as roof, since the roof above the ore-bed is very poor, consisting of about 2' clay and then several feet of white sands.

As the ground rises, giving an increased thickness of cover, the stone gets much harder and is almost entirely blue carbonate, the red oxidation only appearing along the joints, whereas the stone at the entrance has the typical box-structure, and is very much weathered and brown in colour. The thickness of cover (90' - 100' maximum) combined with the pressure of a layer of Boulder clay on the hill-top, also renders this mine comparatively free from water. However, drains are here installed about 7'- 0" below the bed of the tunnels and ditches are also dug to drain each new heading.

The regulations demand two entrances to each mine, hence two adits had to be driven. Here again, the ore from the mine-wagons is tipped into hoppers which are drawn by loco. to the furnaces.

Although the mining conditions are rather more difficult here than in Willowclose, owing to the hardness of the ore, a gang of 2 men fill 7 wagons per day (since all ore is sent to furnaces as it comes out in larger lumps) i.e. 12 ton per day or 6 ton/man/day.

The rates of pay in the mines vary considerably, being based on the difficulty of mining, so that, for example, Willowclose and Church North differ and even in the same mine rates may vary. It is all done by piece-work and a miner earns on average, about 9/- per day (though some may earn 12/-) and a helper earns 7/- per day. Much depends on individuals, however. The daily hours worked are 8½ hours underground, from about 7.00 until 3.00 p.m., but with piece-work these are not necessarily strictly adhered to.

The numbers of men employed underground are as follows:-

Willowclose	30
Church South	18
Church North	9
Total	57

Quarries.

There are about a dozen quarries worked for ironstone and limestone, and numerous others which are stopped, either for the time being or for good, where the stone has either proved unprofitable or the boundary of the leased area reached. Four of the working quarries work limestone only, and the Lowick quarries work both limestone and ironstone.

6. Limestone quarry, ½ mile east of Furnaces, running approximately N-S and working eastwards. This interesting quarry shows about 12'- 0" of White Greatoolite Limestone, capped by 8'- 0" of Greatoolite clay - tough, black carbonaceous clay with red and green streaks, followed by 7'- 0" of Cornbrash.

7. Limestone quarry, working in a small way, just over a mile north of Slipton, on the eastern side of the stream - Greatoolite limestone.

8. South of Sudborough - a whole series of very extensive, and, generally, very deep quarries.

(a) A small quarry, not working just now, alongside the road about ½ mile S.W. of Sudborough, shows ironstone almost at the surface, in a very weathered condition, with marked cellular structure, resembling the ores of the Blisworth area.

(b) The above section runs N-S, but from its northern end the extensive E-W face of a very large quarry stretches for a considerable distance. The cover on the south side of this pit (working south) is very variable, according to the undulations of the ground surface, from a few feet, up to 20'- 0". The cover consists of white sands and estuarine clays. The white sand is very much in evidence here: it is the chief bugbear of the quarrymen and furnace people, since the wash from it coats all the ironstone quarry faces, making the stone very dirty so that, but for the expense involved, it would be much better washed before going into the furnace.

The beds here have a distinct dip northwards, following the slope of the ground, and there are signs of minor disturbances, which have no doubt been caused by the foundering of the Lias clay beneath. The dip increases as the lower northern part of the pit is approached.

Several ironstone faces are being worked here, and when the cover gets thick, the ore has to be blasted. All the ore here, however, is very much weathered and the blue carbonate stone is not much in evidence. Several steam navvies are employed in removing the cover in these extensive pits.

(c) (Prof. Beaver's field sketches show another quarry just south of Sudborough; see map: Ed.)

9. A small limestone quarry is working, only just south of the entrance to the Church North Mine.

10. From near the point where the lines from the last mentioned quarry and Church North Mine join the main Lowick tramway, a new line is being constructed in a direction slightly north of east, across Harper's Brook by a bridge which is not yet built (since winter working is not easy here owing to rain and floods washing away embankments) and under the main road by a long cutting. The line at present ends about 150 yards from the main

road. It is intended to open up a limestone quarry here and perhaps ironstone mines also, for ore is deep here: it exists because Lloyds have trial holed the area further over.

11. The Twywell Quarries. These extend alongside the Midland Railway for nearly ¾ of a mile on the north side, with a smaller quarry working on the south side about one mile S.W. of Twywell.

(a) The first quarry is working westwards. At the southern end, nearer the railway, the quarry face shows about 13'- 0" to ironstone 8'- 0" and broken ironstone beds 3'- 0" with 2'- 0" soil. Here the ore is intensively weathered, with marked celular structure, owing to the thinness of the cover. Many of the "boxes" have collapsed giving a very large proportion of dark brown bands and making the ore quite rich. Here the cover is removed by hand and dumped behind the quarry. Also, owing probably to the fact that this quarry is quite near to the village, and hence land is valuable, men are employed in levelling off the dump heaps, so that 20 yards behind the quarry face, the cabbages are growing greenly on the villagers' allotments. The ore is also dug by hand, with pick, crowbar and shovel.

Further in, the quarry gets deeper owing to the rising ground, and the thickness of the ore-bed increases to about 9'- 0" or more (owing to the fact that the riddled top beds are now incorporated in the main ore body owing to the thicker cover). The cover, now made up of whitesands and estuarine clay, increases to about 10'- 0" to 12'- 0" but is still removed by hand. The thicker cover brings about a change in the ore-bed. Blue-hearted blocks begin to be seen at the base and the ore occurs in more massive blocks which have to be levered out and smashed along joint planes. The cellular structure is still very marked and the boxes, up to 2'- 0" across, often with blue hearts, have usually several cases which show up the rectangular jointing very markedly. The joints seem to run in an E-W direction here, and the quarry face cuts across them at an angle.

Several drainage ditches show clearly the blue "bastard" stone at the base of the ore-bed. Some of the beds, especially near the top, contain abundant black casts of lamelli branches - tigonia, acteromya, etc. - and these blocks of stone especially appear to be very rich in iron.

The wagons used hold 3½ ton and each man fills 4 per day if he is energetic, making a total of 14 ton per man per day.

(b) The second quarry is not at present working. Here the face runs N-W. The stone is again very good, but trouble with water has apparently been experienced - several small springs running out of the white sands and spreading a thick coat of white and yellow muck all over the ironstone. The main spring is led down a drain.

(c) The third quarry begins where the second one ends, and just where the two join the ore is very much weathered. Then the cover quickly increases to 15'- 0" to 20'- 0" and a steam navvy has been used in its removal, and there is a corresponding change in the hardness and solidity of the ore-bed, which has to be frequently blasted. This quarry continues for nearly 400 yards. The large dump heaps of white sand and clay which form the overburden, have been levelled off roughly and are being planted with conifers.

(d) Beyond the water tank (by milepost 4½ on the Midland Railway) at the end of this quarry, the line bends round to the north, and across a field is a small limestone quarry (where the ore would be too deep for working by opencast method).

(e) The long line of quarries between the railway and the

Kettering road, have long since been worked out, or abandoned because the land rose too steeply on the south, rendering the ore too deep for working. The land between the stream and the railway, alongside the peculiar cutting (the Midland Railway had to make a cutting about ½ a mile west of Twywell Station. However, subsequent quarrying on both sides of the line has left the former M.R. line running between two "embankments"), is all under the plough, the ore having been worked out.

Most of the worked over ground between the old train line (rails now removed) and the road is rather hummocky with tufty coarse grass and bushes.

(f) There is a new quarry, with an old one alongside, extending on the north side of the lake, between it and the railway. The present quarry face extends from the small lane leading to the farmhouse, to the western end of the lake, and an older disused face lies opposite the water tank to which reference has been made above.

At the eastern end, rubbly ironstone is at the surface, but the beds dip down by the lake and rise again on the western side where the ore is about 10'- 0" thick and much weathered with cellular structure. The surface of the ore (which is not at present being worked since operations of removing the cover are proceeding) is thickly plastered with white sand from above. The cover is some 3'-0" to 10'- 0" thick, a clay bed on top of the ironstone followed by white sands. These beds are much disturbed, the sinking of the clay having caused numerous small faults with a throw of from a few inches to 3'- 0".

The cover is removed by a small Ruston-Bucyrus petrol motor digger, which dumps the debris into trucks which are shunted round to the opposite side of the quarry, and the stuff is tipped out and roughly levelled.

"CHRONICLE" - BBC-2 TELEVISION

The BBC-2 History and Archaeology Unit produces a monthly colour programme, "Chronicle", devoted entirely to these subjects. In the last year, two complete programmes have been shown reflecting the growing interest in Industrial Archaeology. "Chronicle", in acknowledging that the real impetus behind the subject lies in the enthusiasm and hard work of the local societies, is offering an Industrial Archaeology Prize for imaginative and successful work in this field, for open competition by local societies, groups or individuals who are engaged in this work.

The adjudicators for the competition are Mr. Kenneth Hudson (University of Bath), Mr. Kenneth Hawley (Sheffield Trades Historical Society) and Mr. Neil Cossons (City of Liverpool Museum). Individuals and groups in CBA 9 known to have been interviewed in connection with the competition are:-

John Carter, Banbury (Survey of watermills in Oxfordshire)

Kenneth Major, Reading (Water raising by animal power)

Oxford Museum Study Group (Restoration at Combe Mill)

The prizes are to be presented during a studio programme which will include the finalists themselves, an audience drawn from participating groups, and film of the finalists engaged in their various kinds of field work.

ANNUAL GENERAL MEETING OF CBA 9

The main annual meeting of the Group is to be held at the University of Reading at 2.30 p.m., on Saturday 8th November. The main speaker is Dr. Pantin of Oxford University on "Recording Old Buildings", but there will also be short reports of activities in CBA 9, including one of industrial archaeological interest by Kenneth Major. Admission, including tea, costs 5/-.

COMMENT

From Mr. Hugh Oak-Rhind:-

"There is an idea, I think not yet proved, that bell founders may have made moulds for clay tobacco pipes, though I don't see why this should not have been done by any other metal founders. Any evidence of a connection with bell founders would be interesting, and I would welcome information from any readers of the Bulletin."

Mr. Oak-Rhind's address is:- The Old Laundry, Little Horwood, Bletchley, Bucks.

From Dr. A. Buchanan, Bath University of Technology, Northgate House, Bath, Somerset:-

"As an interested reader of your excellent Bulletin, and an admirer of the good work which is being done by field workers in CBA Region 9, I was interested to see the Index of sites recorded in your last issue. On checking the entries in the National Record of Industrial Monuments, however, I find that a considerable number of the sites listed have not yet found their way into the national archive for which I am responsible. I would be grateful for an opportunity to remind the field workers in your Region of the importance of the NRIM, and to express the hope that they will support it. The NRIM acts as a clearing-house for industrial archaeological information and it is growing gradually into a comprehensive national archive of industrial monuments. At present there are about 6,000 entries, but some counties are very poorly covered and a lot of work remains to be done on making the Record complete. If field workers will send their cards to me, either directly (but please let your county representative know what you have sent so that your efforts are not duplicated - Ed.) or through somebody collecting for their area, I will undertake to copy them for the NRIM and to return them. Some members of Region 9 have already done valiant work in sending material for the Record. But much has still to be done, and one of the most useful and worth-while jobs that an industrial archaeologist can do is to complete the appropriate CBA cards for his field work and to send them to me for recording."

From J. Kenneth Major :-

"The article 'Flashlocks on English Waterways - A survey' by M.J.T. Lewis, W.N. Slater and P.N. Jarvis which appears in the August issue of Industrial Archaeology, is a long one by the accepted standards of the Journal, and is one of the finest ones to be printed in the six years of the Journal's history. Fieldworkers in the area covered by CBA Group 9 will be well advised to get a copy, as the principal flashlocks in the country occur on the Thames, the Ouse, the Ivel and the Nene. The pattern of early transport in the area of Group 9 is more clearly shown by the publication of this article than previously. Keen workers should also read the article because of the lucid writing, the clear illustrations

and the sound fieldwork on which they were based."

From Philip John Davies :-

"At this ... pumping st tion there are 2 X 30 horse power beam pu ping engines. I have had great difficulty in obtaining personal proofs, owing to the of icious policeman stationed on duty .... who were most insulting, for no purpose whatever, and a sergeant, behind my back, even went out of his way to tell Mr. Jones, the general foreman of works ...., whom I had asked a few questions relative only to the work (who, as usual, knew everything but proved old women's chat) not to have anything to do with me. This is not the first time that these insipid nondescripts have interfered with the progress of this work and it would be more to their credit if they did their duty where it is required." From his Standard Practical Plumbing, Volume 2, 1896.

From the Editor:-

"Although the circulation of this Bulletin is slowly increasing, it would help to avoid raising the price and at the same time enable extra information and ill strations to be given in each issue, if every present subscriber persuaded at least one other person to take out a subscription - ten shillings for the four quarterly issues, payable to J. Kenneth Major, 2, Eldon Road, Reading, RG1 4DH.

[ON] OF INDUSTRIAL ROMEOLOG[Y] IN THE INDIVIDUAL REPORTS OF INDUSTRIAL ARCHAEOLOGY IN THE INDIVIDUAL COUNTIES

BEDFORDSHIRE

Studies

1. Bedford Gas Works. A brief survey of the prime movers by Marshall Fayers, in June recorded four Bryan Donkin slow running horizontal steam engines with heavy flywheels, one Allen vertical compound steam engine coupled to a generator and one single cylinder Allen steam engine. In addition there were a great number of steam engines, mostly vertical Weir types but also some by Halls of Peterborough. There was also a very interesting Grafton Steam Grab.

2. Early Industry near Heath & Reach. (SP 938 291). Joseph Arnold & Sons Ltd. have been quarrying sand at their Double Arches Quarry since about 1915. For some years quantities of pot fragments have been turned up by the excavations in the top soil. In fact, one of the dumper drivers reported that at one time several years ago, so much pottery and possibly tiles, was turned up that it fell over the sides of the dumpers. Although the drivers have been taking an interest in what is turned up, much evidence has no doubt been destroyed, as is inevitable with earth moving machines. A digger driver has reported that he had come across what appeared to be a stone floor of a building, and also a blackened area which could have been a kiln. However, all this evidence had been destroyed whilst Mr. J.A. Griffin (of 15, Albany Road, Leighton Buzzard) who is responsible for this report and the subsequent excavation, was on holiday.

This excavation revealed a Roman Well with many interesting finds of pottery (reported with photographs in the Leighton Buzzard Observer, July 29th, 1969), but investigations of other features have been inconclusive as to the type of site. In the near future, further untopping is to take place at this sand

quarry, and it is hoped to find more about this Roman kiln site.

Preservation

Leighton Buzzard Light Railway. This four mile long two foot gauge line ran from the various sand quarries owned by Messrs. Joseph Arnold and George Garside on the north and east sides of Leighton Buzzard, to trans-shipment sidings on the Leighton & Dunstable line of the late L.N.W.R. and L.M.S.R. A number of bogie wagons supplied by the Gloucester Carriage and Wagon Co. during the 1920's were used until lately to carry bagged sand. Bagged sand now goes by road, and these trucks have been sold, four to the East Anglian Group of the Festiniog Railway, which proposes to overhaul them and send them to Wales to serve as coal wagons of six tons capacity, and three others to the Iron Horse Railway of Leighton Buzzard, which proposes to convert them for use as passenger vehicles on a section of the L.B.L.R. which they have leased. P.N.J.

Forthcoming Exhibition

Leighton Buzzard Light Railway Exhibition. To celebrate the jubilee of the Light Railway, an exhibition is to be held in the Hall of the Cedars School, Leighton Buzzard, on the evenings of Monday 29th December to Wednesday 31st December, 1969, with proceeds to the local Old Age Welfare Association. The exhibition will include stands by the Leighton Buzzard Narrow Gauge Railway Society, Joseph Arnold & Sons Ltd. (whose display of historical items connected with the firm will include one dated 1896) and George Garside (Sand) Ltd.

NORTHAMPTONSHIRE

Studies

1. Iron Industry.

(a) Aerial Photography. Through the good services of Mr. D. Reynolds, a member of the Sywell Aero Club, it has been possible for his brother Mr. A. Reynolds and Geoffrey Starmer to survey a number of the Northamptonshire ironstone workings from the air. These included:-

(i) Earls Barton. Part of the quarries operated by the Earls Barton Ironstone Co. Ltd. (opened 1913, closed 1921) was discernible amongst the encroaching newly built houses (SP 861 638). It had been hoped that the sites of the pylons for the aerial ropeway (used to transport the ore to sidings (SP 862 619) alongside the former LNWR Blisworth-Peterborough line) would show up from the air, but this was not the case.

(ii) Finedon Hill Mines, Stanton Ironworks Company. These were served by a 2'- 6" gauge tramway built in the period 1869-1875. Mining operations ceased in 1918 and the equipment was dismantled, but the aerial photographs clearly show the course of the tramway leading away from the tipping dock alongside the former Midland Railway at Wellingborough (SP 905 691) towards the quarry area.

(iii) Irchester. Iron ore quarrying at the former South Durham Steel and Iron Company's pits ceased at the beginning of July 1969. (See notes below). The pits being worked at the time of closure, i.e. Irchester Lodge Pit, show as a great gash in the countryside, but the earlier workings, north west of

Irchester, are hidden in the trees planted on the hill and dale formation left after excavation in earlier times. However, the layout at the site of the calcine clamps, near the workshops (SP 908 659), showed up very distinctly.

(iv) Islip. (See also notes below). Photographs were taken of the site of the ironworks (SP 969 784) which, despite recent industrial building, still showed enough earthworks to check on the disposition of the blast furnaces, ancillary equipment , calcine clamps and dumps. It was also possible to get a better idea of the quarries and tramway routes in the vicinity of Church Mines (SP 966 786) although views from a different approach later in the year, may give more definite proof of the relative positions of early and later tramways routes to the quarries and mines in the Slipton area.

Another benefit from the aerial photography was the evidence it provided of the course of a tramway, diverging from the main tramway at a junction near Twywell (SP 949 777) and curving south to link up with the old Woodford Company's lines to Redbrinks Quarry (SP 939 766) close to the junction of the A510 from Finedon with the A604 Kettering to Thrapston road.

(v) Storefield. Far more pronounced than ever appreciated from the ground, was the closeness of the extremities of the former South Durham Steel and Iron Company's Storefield system and those from Stewart & Lloyds (Minerals) Glendon East quarries. Although neither of these extreme workings is now being worked, they have not been filled in, and are separated by only a cart track. Again it was easy to see the layout of the former calcine clamps, with the railway to the quarries swinging through almost $\frac{3}{4}$ of a circle to get round them.

(b) Irchester Quarries. As mentioned previously, these quarries ceased production in the summer, and so brought to an end ironstone quarrying activities in the Wellingborough area which started with Thomas Butlin's activities in the environs of Wellingborough itself (SP 892 681) in 1852.

Earlier in the year, there had been indications that there would be iron ore quarrying in the Wellingborough district for some time. A report in the Chronicle & Echo, Thursday, April 10th, 1969, page 9, of a forthcoming inquiry into the expansion of Wellingborough, gave one of the principal reasons for favouring growth in the West, as the ironstone working consents on the east side. It was thought that this must refer to the Irchester workings since, despite these being more south than east of Wellingborough, they were the only ones still in use in the area.

The ore from Irchester was sent to the north east. In recent years the Cleveland furnaces have been taking more and more foreign ore, and changes in steel making techniques have now made Irchester ore unsuitable for the latest processes, hence the closure of the pits. Work began in July on dismantling the system. Starting from the quarries, the railway track has been lifted by the track shifter, usually helped by the diesel locomotive "MAUD". The track is cut up on the spot into approximately two feet lengths, and sent by road to Corby steel making plant.

One small Ruston steam crane-cum-navvy from Irchester has already been preserved privately, whilst Marshall Fayers has preserved some of the steam engines from a larger Irchester excavator at his home at Kempston, Bedford. There is still a Ruston excavator at the site of the old calcine clamps at Irchester, and it is likely that this will be preserved through the efforts of Mr. Fayers.

Six of the steam locomotives are due to go by road low-loader to Cohen's scrap yard at the Cransley blast furnace site (SP 849 775) near Kettering, for cutting up. Locomotive "No. 9" (0-4-0ST built by Andrew Barclay) has already been placed by the company in the playing fields at Irchester (SP 923 656) as an addition to the children's playground there - hardly preservation ! Loco."No. 14" (0-4-0ST by Manning Wardle) has been purchased for preservation and left by low-loader on the evening of Tuesday 26th August, 1969, for its road journey to the Quainton Road depot of the London Railway Preservation Society.

There are some wooden sided tipping wagons, with axle bearings between the wheels, of the type used in the construction of the Manchester Ship Canal during the late 1880's, and from where many such wagons came to ironstone quarries in the Midlands. One of these is to be preserved at Quainton Road. There also remain some of the steel sided tipping wagons built by the Gloucestershire Carriage & Wagon Company (to virtually the same design as those used on the Oxfordshire Ironstone Company's system at Wroxton - see Bulletin No. 3, October 1967, page 3). It is hoped to preserve one of these, No. 35, and Mervyn Leah of 18 Braunston Lane, Daventry, Northants. NN 11 6JG, is trying to raise funds for this purpose. Please send donations to the Midland Bank Limited, Southam, Warwickshire, made out to M.J. Leah (Irchester Wagon Account).

During the past few years, John Ginns and Geoffrey Starmer have been making a photographic record (still and cine) of operations in the Irchester quarries, and are very grateful for the facilities offered to them by the manager of the former SDSI group of quarries in Northamptonshire, Mr. D. Carden. He has recently enabled photocopies to be taken of old photographs of excavators at work in the Irchester quarries. Anyone with pre-1950 photographs of quarrying operations at Irchester could help with the record of these quarries, and is asked to let Mr. Ginns (25, Broadmead Avenue, Northampton) see them.

(c) Islip Furnaces and Quarries. Arising from the exhibition at the Hannington Steam Week-end (see Report of Exhibitions, below), it has been possible to contact and talk with many old employees of the Islip Iron Company. Amongst these have been :-

Mr. R.G. Baker of Woodford, now a locomotive driver at Stewarts & Lloyds, Corby, who started work on the Islip tramway system, and was able to describe the operation of the tramway and link names of quarries and mines (previously noted from documentary sources) with the actual locations.

In turn, he introduced his father, Mr. C.W. Baker, who had worked at the furnaces themselves and remembered going to the Finedon furnaces, after they had closed in 1891, to fetch back boilers for use at Islip.

Old Mr. Baker mentioned several of his colleagues who were later located in the village, and who were able to give information on the operating of the hoists serving the furnaces, details of the calcining of ore and loading the furnaces.

One of these ex-employees gave the name of Mr. Tommy Butler, at Islip, who was able to give details of much of the old steam excavating machinery, and in which quarries the various items worked.

(d) Loddington. Recently, Mr. Eric Tonks of Birmingham was shown a Midland Railway map on which was indicated all the private sidings connecting with that company's system. The part for Northamptonshire showed a previously unknown line from the narrow gauge quarry system of the Loddington Iron Company.

The map showed this leaving the 'main-line' (to the Orton area) just north of the old narrow gauge locomotive shed, and running in an easterly direction before swinging south to pass under the Midland Railway branch, and then westwards to the quarries south of the Midland Railway. In the company of Mr. Frank Dix of Kettering, Mr. Tonks visited the area and found physical evidence (e.g. the remains of the quarries, traces of the route, bridge under the Midland Railway) to confirm the existence of this previously unsuspected line.

2. Survey of a part of Victorian Northampton. As reported in Bulletin 9, page 11, the Archaeology Section of the Northamptonshire Natural History Society and Field Club are making a survey of all the buildings (industrial and others) in an area of approximately 47 acres bounded by Abington Square (south side), Wellingborough Road (south side), Vernon Terrace and Vernon Street (east side), Billing Road (north side) and York Road (east side). Each member of the study group was allocated one or two streets and asked to walk down them noting for each building:-

(a) Category of use (Factories/Workshops, Domestic, Religious, Retailers, Public Houses, Schools, Others)
(b) Location (Street and number)
(c) Dating
(d) Description (Approx. length along street, number of storeys, materials of construction, types of windows and doors, embellishments, type of roof, chimneys and particularly buildings behind or indication of these by extra doors in houses)
(e) If industrial, (i) present owner and use
(ii) past owners and uses (e.g. discernible in old signs or paintwork)
(f) If public houses, (i) Name
(ii) Details of inn sign, if any
(iii) Breweries (inc. signs of previous breweries)
(iv) Interior arrangements
(g) If retailers, (i) Name
(ii) Commodity
(iii) Interior arrangements, with special attention to old type shop fittings inc. cash registers.

The aim is to obtain sufficient information for :-

1. Making a diagrammatic representation of the elevation of each side of every street in the survey area, to show the overall disposition of factories, houses, entrances to workshops behind, shops etc.

2. Completing record cards for each of the factories and shops and representative houses. The reverse side of each card will carry photographs of the subject of the card. The cards being used are those originally produced for the National Industrial Monuments Survey, and will eventually be sent to the Centre for the Study of the History of Technology, Bath University, for photocopying.

3. Page's Mill, Wellingborough. (SP 905 685). This mill has been used in connection with the leather industry for at least 50 years. The waterwheel has been derelict for quite a time, and the present owners, J.E. Dickenson Ltd., Leather Merchants, have decided to fill in the water course. They kindly informed Mrs. Gent and Mr. David Goodey (of the Wellingborough & District

Archaeological Society) who made a brief survey of the wheel and associated gearing :-

Undershot waterwheel, consisting of three iron wheel frames spaced at 2'- 9" intervals along the 10" outside diameter iron wheel shaft. Each frame had 6 spokes of cruciform section, and a rim 9'- 0" outside diameter from which protruded wooden arms and paddles for a further 1'- 4". Although most had disappeared by the time of the survey, there would originally have been 30 paddles, braced between each other at 2" from their extremities, with iron straps.

The wheel shaft passed through a brick wall to a pair of 6" wide iron gears: 120 teeth on the one on the waterwheel shaft, and 60 teeth on the mating pinion. These gears remained at the time of the survey, although largely hidden by cupboards. The shaft carrying the pinion had been cut off on the side away from the waterwheel, but in the other direction it passed through the wall and across the wheel race. No pulleys remain to indicate what it drove.

4. George Yorke and Son's Shoe Factory, Long Buckby. (SP 627 676). During the summer a photographic survey was made of operations in this factory. The work there is now mainly surgical boots and shoes which are made individually to suit the feet of the wearers. This has resulted in the retension of many of the older manual operations, and it was possible to record a sequence showing hand sewing.

Preservation.

1. Northampton Arm of Grand Junction Canal. (later Grand Union Canal). Commercial traffic on this 5 mile length of canal form 'Blisworth' Junction (on the 'Main-line' of the canal) to the River Nene at Northampton and along the river to Wellingborough, ceased during April 1969. There has been some concern that this arm of the canal may go out of use, and David Martin, Secreary of the Eastern Branch of the Inland Waterways Association, has made a plea for pleasure boat owners to make full use of the Northampton branch canal, in an effort to keep it open. Mr. George Freeston, honorary secretary, Northamptonshire Local History Committee, supported this plea with a letter to the Chronicle and Echo, May 5th, 1969, in which he wrote :-

'Opening in 1815 this branch waterway was preceded by a horse-drawn railway (1805 to 1815) which followed much the same route, and over which the merchandise was carried between the canal to Northampton. This branch canal had also outlived the later branch railway line which ran from Blisworth Station to Northampton etc. which was born in 1845 and died in 1960. (The last advertised passenger train service was in January 1960, but some expresses used the route after this date, and freight trains continued for some years after this - Ed. CBA 9 Bulletin).

'For the benefit of ALL historians I would like to state that the starting point and initial lengths of all these three historic routes of transport were, and are within the parish of Blisworth (I much regret that British Waterways still refer to their work depot at Blisworth Arm as "Gayton Yard").

'The postal address of this group of industrial and domestic buildings which sprang up with the construction of the canal is "Blisworth Arm". Not so long ago it contained a good waterside inn, "The Navigation"... The boat horses were accomodated for the night in the adjoining stables.

'Two relics of the horse days still exist nearby, one being the interesting "crossover bridge" where the horses

exchanged tow paths in their coming and going from the branch canal to the main canal. The other item of interest is the cutaway construction in the towpath south of bridge number 48, which was a "walk-in" drinking place for the boat horses... plus a most refreshing bath for all four feet after a long day hauling a pair of boats. I would like to see this piece of industrial architecture restored and, together with the cross-over bridge, scheduled as protected items of industrial archaeology.'

2. 'Industrial Preservation Society'. A group of people at Corby hope to form a society with the aim of preserving actual industrial artefacts. Theye hope "to obtain sufficient public support to presuade Stewarts and Lloyds to retain items currently scheduled for scrapping and to allocate the Society a suitable site e.g. a disused quarry".

The secretary is Mr. R.W. Holmes, 8 Bodiam Place, Corby, from whom further details can be obtained.

Reports of Exhibitions.

1. Steam Week-end, Hannington, Saturday and Sunday, August 9th and 10th, 1969. At the invitation of the Northampton Fairground and Steam Hobbies Society, the Northamptonshire I.A. Group mounted a display of photographs, mainly of past uses of steam engines in the County. The captions, besides describing the pictures, also appealed for further information and other old illustrations. This resulted in a number of useful contributions including the first link in a very useful chain of contacts at Islip (see above). The week-end was mainly concerned with steam traction engines and rollers (including one built by the Northampton firm of Allchins), and a portable engine was used to drive a sawbench - also built by Allchins. There were also many early tractors and a good collection of small stationary internal combustion engines which had previously been used on farms.

2. Vintage Fair, Upper Boddington, Saturday August 23rd, 1969. This was organised by Rev. C. Brooksbank and Mr. D. Adkins and brought together a wonderful collection of items of past agricultural and domestic activity - flails, hand-driven winnowing machines, ploughs, threshing drums, wagons and a box mangle ! The Northants. I.A. Group had their display, changed slightly from that of the previous week-end display, in order to show pictures of more relevance to the SW part of the County. Again, much useful information came from visitors covering mills in the area, railways, and the timber hauling business of Hutt's at Byfield. Backing on to the display of photographs, Mr. John H. Thornton (Head of the Boot and Shoe Dept., Northampton College of Technology) showed a fascinating collection of early sewing machines, both domestic and those used in the boot and shoe industry. George Freeston, of Blisworth, had on display many smaller items associated witg older domestic activities.

Forthcoming Exhibitions.

Lawrence Cummings will be holding two exhibitions of his paintings, many of industrial archaeological interest, in Northampton. The first is from November 8th - 9th, 1969, at the Abington Park Museum, and the second is from Jan. 3rd - 28th, 1970, at the University Centre, Barrack Road, Northampton.

Oxfordshire

Study Group

The Museum study group concerned with recording later historical and industrial monuments now meets on the second Wednesday of the month at 7.30 p.m. at the Oxford City and County Museum in Woodstock.

Drawings of Great Haseley windmill have now been completed and the main autumn activity will be at Combe Hill (SP 415 150) where restoration of the beam engine has begun. It is hoped that in between one and two year's time this beam engine, installed in the 1850's, will be in working order again.

Garnes Brewery, Burford. Production of beer is ending at this small brewery which still uses a small vertical steam engine, built by the local millwright, Thomas Rose. The brewery has been photographed in detail by individual members of the study group during the summer months.

Publications

(a) Cake and Cock Horse (the magazine of the Banbury Historical Society), Volume 4, No. 4, Summer 1969. This is the second Industrial Archaeology issue of this journal. It contains a long article by G.C.J. Hartland on Gas Making in Banbury. This is an expanded, revised and illustrated version of the article Mr. Hartland wrote for No. 8 of the Bulletin (pages 9-12) One odd deletion from the original version is the mention of the Gas Act of 1948. This Act obviously has had great implications for the smaller gas works, and if there had not been a nationalised gas industry, the smaller production units would have survived longer, and the use of North Sea gas (mentioned in the penultimate paragraph but without giving the date of its introduction in Banbury) would not have been so widespread. It is also disappointing to note that the revised article makes little use of the extra information on gas making at Banbury given by Mr. J.B. Horne in Bulletin No. 8, page 18.

The other articles are "The Boat Building Yard at Banbury" another detailed and well illustrated contribution from Mr. Hartland, and two concerned with the Britannia Works. The first of these is the result of documentary research by A. Potts on Daniel Pidgeon's time at the works, whilst the second is a reprint of a most useful Early Description of the Works, introduced by B.S. Trinder, the Editor of Cake and Cock Horse. This issue is obtainable from Mr. J.S.W. Gibson, Humber House, Bloxham, Banbury, price 3s. 6d which includes postage.

(b) The Field Department Newsletter No. 2 has recently been produced, and this issue has an historical rather than an archaeological bias. The newsletter attempts to keep people working on topics related to the Field Department's work in touch. The editors were surprised to find how much work was going on in the fields of local history and industrial archaeology, but would be pleased to receive details of any more work going on within the County.
Newsletter No. 2 contains descriptions of three of the smaller museums in the County :-

(i) Filkins and Broughton Poggs Museum, which contains many items of domestic interest e.g. clock spits and part of a dog spit, together with items from agriculture and craft industries.

(ii) Tolsey Museum, Burford, which displays methods and tools of local quarrying and slating industries along with items from most of the crafts and industries of local importance.

(iii) Banbury Museum, which has examples of agricultural machinery made in the town, and of the plush weaving industry of North Oxfordshire.

The Newsletter is obtainable from the Oxford City and County Museum, who will be pleased to add new readers to the mailing list.