Transactions
of the
Shropshire Archaeological Society
with which is incorporated the Shropshire Parish Register Society

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SHROPSHIRE ARCHAEOLOGICAL SOCIETY

CONTENTS

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SHROPSHIRE ARCHAEOLOGICAL SOCIETY
(WITH WHICH IS INCORPORATED THE SHROPSHIRE PARISH REGISTER SOCIETY)

EDITORIAL

NOTICE

During the eighty years or so in which this Society has existed until now, its Transactions have been issued in octavo, and have formed a series of volumes uniform in character. This issue marks a change to quarto, which was decided on at the Council Meeting in July, 1958. The break in continuity may well seem a matter of regret to some accustomed to the previous form. The decision was based on what seem the respective merits of the two forms of publication for a journal of this nature. The deciding factor was the greater scope which quarto may provide for full and satisfactory illustration of the subject matters of archaeological reports, and the reproduction of plans, etc. It is to be hoped that the change will be justified in due course by results, and that Transactions will be the repository of an increasing number of reports and other papers of the sort to which the factor mentioned is specially relevant. It is fair to remark that in recent times as well as the more distant past there have been many more discoveries or investigations in this County than there have been full reports. The Society will continue to hope that it may foster effectively a careful and punctual record of matters within its scope.

For the time being, it is intended to issue three Parts per Volume, instead of the previous two.

To facilitate printing and avoid unnecessary cost, the following points are brought to the notice of contributors:—

It will generally be possible to consider for publication, in the Part then next forthcoming, only such papers as are submitted to the Editor (complete in all details), in sufficient time for consideration by the Editorial Committee towards the end of the year, and hence not later than the 31st October.

Papers offered should have the text in double-spaced typescript. Illustrations, plans, etc., must be submitted at the same time, and be accompanied by a note of the intended captions. If notes and references are numerous, it is preferable for them to be placed together at the end of a paper, rather than as footnotes to each page. Printers' proofs are sent to contributors for checking. They should be corrected clearly in ink, and in accordance with the established customs of proof correction. The process should be strictly confined to rectifying typographical errors, and *not* extended to making new insertions; if any insertions are made, or alterations other than typographical corrections, the contributor may be asked to reimburse to the Society the extra expense involved. Corrected proofs must be returned speedily to printers.

GENERAL MEETINGS

ANNUAL GENERAL MEETING, 1956.—This was held at Shrewsbury Castle, on the 2nd June, 1956, Capt. Sir Offley Wakeman, Bart., presiding. In the Secretary's Report, attention was once again called to the Society's desire to see Gibbon's Mansion, the half-timbered house which formerly stood on Wyle Cop, re-erected on some suitable site. The opportunity now seemed to exist for its re-erection in the space created by demolition of property near St. Alkmund's Church. At the conclusion of his Report, Mr. Beaumont said that he had decided not to take any payment for his duties as Secretary in future; he felt that in present circumstances it should be an honorary appointment. He was warmly thanked for this decision.

After the formal business had taken place, a lecture was kindly given by Professor R. F. Treharne, M.A., Ph.D., on "The Norman Conquest of the Marches". He referred to the unremitting pressure by which in most places this had to be attempted, followed by piecemeal consolidation, by means at first of the motte and bailey castle. The stage was reached for a while at which the marcher lords were forced on to the defensive, and the Palatinate Earls (rarely the king) had to provide the main invasion forces. But the three Palatinate Earldoms never exercised a concerted plan. One of the most interesting features of his lecture was that in which he emphasised the value of Shrewsbury and the line of border castles as bases from which the attacks were launched.

ANNUAL GENERAL MEETING, 1957.—Held on the 8th June, 1957, the President in the chair. Among matters mentioned in the Report presented by Mr. Beaumont was the satisfactory position now attained as regards Old St. Chad's Church, Shrewsbury. Questioned about Bennett's Hall, he recalled that this building was scheduled as an ancient monument, but because of its critical condition the Ministry of Works had authorised its eventual demolition. An attempt, however, was being made to save at all events some features of exceptional importance.

An extremely interesting lecture was given after the business of the Meeting by Dr. E. F. Jacob, F.B.A., F.S.A., Chichele Professor of Modern History in the University of Oxford, his subject being "English Clergy in the Fifteenth Century."

SPECIAL GENERAL MEETING, 1958.—A Special General Meeting was held at the Shirehall, Shrewsbury, on the 15th March, 1958, for the purpose of considering proposed new Rules of the Society. After discussion of each in turn, the new Rules, with some slight amendments agreed on at the Meeting, were adopted. They are printed in this number of *Transactions*.

ANNUAL GENERAL MEETING, 1958.—Held at Shrewsbury Priory School for Boys on the 17th May, 1958, the President in the chair. The Hon. Secretary was able to report a more satisfactory state of the Society's finances, and subscriptions appeared to show a level hitherto unattained. The Society's efforts, in conjunction with other bodies, in attempts to save the Tolsey at Ludlow were touched upon. The Society could happily record honours conferred on its members—the award of the C.B.E. to Sir Offley Wakeman, the election of Miss Chitty as Hon. M.A. of the University of Wales, and of Mrs. Thickpenny as Mayor of Shrewsbury. Officers and Council having been elected, a vote of thanks to the President for his many services and valued support was gladly passed.

The business was followed by a lecture kindly given by Dr. R. A. Mott, D.Sc., F.R.I.C., Superintendent of the Midland Coke Research Station, on "The Early Iron Industry." We are in the happy position of being able to reproduce the lecture, as one of the papers appearing in this part of *Transactions*.

EXCURSIONS AND OTHER MEETINGS

ANNUAL EXCURSION, 1956.—This was held in September, the first place of visit being Lichfield Cathedral. The party had the privilege of being met by the Chancellor, Canon Wallis, and was kindly guided in the exposition of the cathedral's treasures. Short visits were paid to Longdon Church and Blithfield Church. At Blithfield Hall the party was hospitably met by Lord and Lady Bagot, and shown the home of that ancient family. The present house was rebuilt around the earlier hall last century, but the earlier is still to a large degree the core of the building. The other places arranged to be visited were Hamstall Ridware Church, containing work from the Norman period onwards, and Mavesyn Ridware Church, in which is a varied array of monuments of the Mavesyn and Chadwick families.

ANNUAL EXCURSION, 1957.—The Society set out to explore the northern Shropshire March, and to see something of its castle sites, by means of a carefully planned tour under the leadership of Mr. J. R. W. Whitfield.

To make clear the difference between Norman and prehistoric fortifications, Nesscliffe was inspected, where the hill-fort, with its inturned entrances, has been found to have pottery suggesting occupation from the Iron Age into Roman times. The multiple defences of such forts were based on the simple principle of digging a ditch and heaping the earth from it on the inner side; the rampart was faced with dry stone or timber revetting and crowned with a stockade, the entrance being protected by the ramparts' inward swing. Miss Chitty led the party to the cliff edge, to point out the other hill-top earthworks on all sides, and the later Anglo-Saxon defences of Watts Dyke and the greater Offa's Dyke on the horizon.

On the entry of Roger de Montgomery and the Norman lords, much of this area was found waste. The motte and bailey castle was the means of Norman consolidation; in its way, the hill-fort principle used for private instead of communal ends. At Little Ness was seen a small example, its motte placed centrally with a bailey on one side (in which the chapel has become the village church, still partly of Norman masonry), while on the other a larger bailey encloses the houses of the village. The type, in essence a selfish form of defence for an intrusive overlord, has in this instance been developed to defend a village. Another early example (for it can be linked with the knight of the Sheriff's lordship of Oswestry who held the manor in 1086) is West Felton, where a magnificent motte had a wet moat, lined with masonry. One bailey enclosed the Church, the other the castle buildings on the site of the present farmhouse. Knockin, founded by the Lestranges in the 12th century, was a true Marcher lordship. The motte, though impressive, was not as formidable as that of the earlier type; a large bailey enclosed the Church; an earthwork beyond the motte guarded that important adjunct, the manorial mill; a second bailey enclosed, not merely a village, but a borough (chartered by its lord, and not the king, though it had a royal market charter). To see a motte and bailey castle translated direct from earth to stone is unusual; but at Ruyton-XI-Towns, on the rock above the River Perry, there is such. The motte is a square tower keep, with some traces of the hall storey. The bailey can be traced in the foundation of the churchyard wall, and the Church has as fine a Norman chancel as Shropshire can show.

Ellesmere, last visited of this form of defensive site ,was a major Norman castle. It was the work of Earl Roger himself, who trimmed and heightened a glacial mound, used a lesser one at its foot to form the church bailey, and beyond that formed a borough in an outer bailey. In the time of Henry I it became a royal castle, but was eventually added to the Lestrange's lordships. In the Church, the Stanley chapel recalls the days when the lord of Ellesmere, Stanley, Earl of Derby, was instrumental in establishing the Tudors by "abstaining" from the battle of Bosworth. Stanley badges are thick on the chapel roof.

A fitting end to the excursion was a visit to a seat of the Kynastons, who have played so great a part in Marcher history. At Hordley stands their 17th century house, which they left for a new one at Hardwicke. The entrance front, with pavilions and a court, is of old pink brick, with stone surround to door and central windows. It is said to be of the 18th century, but Mr. Whitfield pointed out that it seemed to lack the assured touch of that period and resembles Longnor, so that he would prefer to assign it to the end of Charles II's reign, the time of the Kynaston marriage to a Corbet heiress.

The thanks of our members are due to Major Kynaston, who allowed us to invade his privacy at Hordley, to the incumbents of Churches visited—especially to the Vicar of Great Ness, who showed us the magnificent Flemish 15th century painting, the reredos given by the Darbeys of Coalbrookdale fame; to Miss Chitty, who described and showed the unpublished survey plan of the Nesscliffe hill fort; and not only to Mr. Whitfield as leader, but to Mr. T. W. Rogers, who had undertaken the work of detailed arrangements.

EXCURSION TO CLUN, 1958.—During discussion of the proposed additional activities of the Society it was suggested by Mr. T. Hamar, a member of the Council, that a party should be organised to attend the re-opening of the Clun Museum. It had been arranged that our President, Sir Offley Wakeman, should re-open the Museum on 31st May. A coach load travelled from Shrewsbury and were welcomed at Clun by members of the Clun Town Trust and representatives of local bodies. Mr. F. Lavender, on behalf of the Trust, invited the President to re-open the Museum. Miss Chitty also spoke of the importance of the local collection and mentioned some of the outstanding items contained in it. The visitors were then given an opportunity of examining the collection. Perhaps the most striking part is the large assembly of flakes and implements of imported flint found in the neighbourhood, many of which had been collected by, or under the influence of, Mr. Hamar, who has recorded the find- spots of many on six-inch maps displayed on the walls of the building and indicating particularly the route of a ridgeway along the hills south of Clun.

The party then visited the Castle under Mr. Hamar's guidance, and tea was generously provided by the Town Trust. By a masterpiece of planning the meal was made to coincide with the only heavy shower of the day. After tea Mr. Hamar conducted the party to the motte and bailey site at Bicton ,and to the Stone near Whitcott, which was a "Standing Stone" until about 15 years ago. It was now found necessary to curtail the plan of visits but a call was made at Lower Spoad Farm, to see the remarkable carved chimney-piece.

ANNUAL EXCURSION, 1958.—This was held on 21st July, attended by many members and friends. At Pontesbury the party was joined by Miss Lily F. Chitty, O.B.E., M.A., F.S.A., who led the first part of the Excursion in a short study of the antiquities of the Corndon—Stapeley Hill district in the light of recent archaeological discoveries (see our *Transactions* for 1926, 247-253, and *Misc.* XV; 1929, 64-5; and 1932, 200-3).

At the top of the Hope Valley a pause was made to observe the Hoar Stones Circle on the Black Marsh, with the site of a large perforated stone axe-hammer nearby and that of a small stone hammer near "Hillcrest" above Hemford, not far from Castle Ring.

Before reaching the Cliffdale Mine, the site of the Whetstones Circle was noted on the left, with a ruined cairn beyond it, above the gully where a bronze rapier was found before 1870. On an eastward slope of Stapeley Hill, the Mitchell's Fold Tenement was indicated as the probable site of the three stones called "Medgels fold" in Edward Lhwyd's sketch made in 1698; on the same holding a bronze looped palstave was found during draining about 1876.

Turning right along "The Old Township Road" that crosses the shoulder of Corndon, the party followed the ridgeway up into Mitchell's Fold, a free-standing stone circle on the open moorland of Stapeley Hill (above 1,100 ft.), dominated to southward by the height of Corndon (1,684 ft.) and overlooking a wide expanse of Wales to westward, with the Stiperstones country to the east. Here we were met by Mr. J. D. K. Lloyd, O.B.E., M.A., F.S.A., of Montgomery, the leader of the second part of the Excursion, and by other members who travelled by car.

Miss Chitty then described the remarkable number of stone circles and round cairns concentrated in this area which, together with finds of portable objects of the same period, are related to the ancient trackway, which is a branch from "Yr Hen Ffordd" along the crest of the Kerry Hills, that range being clearly visible towards the south. On present evidence, all may be assigned to the Native Bronze Age, probably not earlier than 1500 and not later than 1000 B.C., during the dry Sub-Boreal phase of climate.

In this hill country, no traces have as yet been found of the Neolithic farmers and axe-traders who had moved along the Severn Valley. The first flint implement from the locality was found recently on the 1311 ft. hill N. of Shelve; it is a plano-convex knife, probably of the Food-Vessel stage of the Bronze Age. The region was probably

opened up by the discovery and exploitation near Hyssington (S. of Corndon) of outcrops of Group XII Picrite, from which axe-hammers were manufactured and traded extensively in the heyday of the Wessex Culture (see *Proc. Prehist. Soc.*, 1951, Paper No. 5). Hill-peat that formed during the wet climate of the Late Bronze Age seals the older levels and weapons of that period are unrepresented.

Miss Chitty narrated in Shropshire dialect the legend of the White Cow of Mitchell's Fold and surmised that the essential elements of the story may have come down from the Middle Bronze Age, when Mitchell's Fold was probably the chief place of assembly, most likely a temple, of a pastoral semi-nomadic community whose livelihood depended largely on cattle and to whom drought might mean famine.

Middleton-in-Chirbury was next visited. Many valuable local records are preserved in the M.S. *Parish Log Book of Middleton-in-Chirbury, Shropshire*, compiled by the late Rev. Waldegrave Brewster, B.A., who was Vicar there, 1872-1901. He also carried out extensive improvements in the Church, to which a visit was paid in order to see his fine woodwork and stone carving (1876-84), including a sandstone capital on the pillar of the N. transept showing the story of "The Milking Fold", executed in 1879. Notes on the Church sent by our President, Sir Offley Wakeman, were read and reference was made to former celebrations at the Holy Well near Rorrington. Middleton-in-Chirbury Parish was formed from Chirbury and Churchstoke in 1845; the foundation stone of the Church was laid in 1841 and the building was opened on Christmas Day, 1842.

At Montgomery Castle, Mr. J. D. K. Lloyd kindly took over leadership. He pointed out the neighbouring site of the Norman motte of Roger de Montgomery. The stone castle on the present site replaced the older defences in the 1220s. He indicated the main features of donjon and wards, and pointed out the difficulties of exactly defining their relationships. The Church was then visited, containing medieval effigies, the canopied tomb of Richard Herbert, and the impressive double screen, part believed to have been brought from Chirbury Priory at the dissolution.

Re-crossing the border, the party reached the scene of excavational work on the site known as the King's Orchard at Chirbury, where Dr. F. T. Wainwright gave a full and interesting explanation of the work he was directing. The object was to endeavour to arrive at some indication as to whether or not this site is really that of one of Aethelflaed's fortresses, which has for so long (but uncertainly) been identified with Chirbury.

EXCURSION TO WROXETER, 1958.—In September a short but pleasurable excursion took place to Wroxeter, where Mr. Graham Webster, M.A., F.S.A., awaited the party, to explain the scope and significance of work in progress there. He explained that the present operations were designed rather as a practice for students than as an excavation proper. Nevertheless, his subsequent guidance over the scene of them, immediately to the south of the main Baths building, indicated something of the many problems arising. He pointed out such items as the line of a water-supply, which appeared to run from an unknown source in the south; the plaster face of a circular shaped building (stone-robbed in antiquity) which offered a most unusual problem as to its character; and the vestiges of a retaining wall at right angles to the Baths, in an area of what appeared to be clearance dumps of considerable depth and extent; a layer of uneven cement running across this presumably represented the means of sealing it as an occasional measure for hygienic reasons. At the end of his talk, Mr. Webster was thanked by the President on behalf of those attending.

CONFERENCE OF RESEARCH GROUPS, 1958.—This Conference, held in October at the Priory School, Shrewsbury, marked a new phase in the relation of the Society as a whole and the various Research Groups which have become affiliated to it, and was intended as a means by which members could obtain a more intimate knowledge of recent field-work of these Groups.

The proceedings opened with a lecture by Mr. Graham Webster, on "The Identification and Dating of Pottery", in the course of which he dealt in outline with many types during the whole period from prehistoric to recent pottery. A useful help was given by handing round sherds of the types referred to. The cordial thanks of those present were expressed on the proposition of Mr. Beaumont.

Reports from the Groups were then given briefly by representatives. Mr. Barker (Shrewsbury) referred to investigations at the earthwork at Uppington; the moated Watling Street Grange; a square moat at Longnor (known to have been in existence by 1298); and to most interesting work at the foot of Roushill Bank, Shrewsbury, where a well preserved section of the town wall had been exposed. Mr. Day (Oswestry) gave an outline report of work, during the last seven years, at the mound at Ysgwennant, Llangadwaladr, Denbighshire, where a great variety of finds had been unearthed. Mr. Gamble (Ludlow) reported on the excavation of the motte at Smethcott, where one of the remaining uncertainties was the existence of a bailey. Mr. T. S. Cole, on behalf of Dr. Houghton, referred to investigations at places by the Roman road west from the site of the bridge at Viroconium. In another room, the Groups had arranged an exhibition of photographs, plans, some actual finds, etc., well set out and affording a most interesting opportunity for inspection.

A PUBLIC LECTURE was kindly given in October, 1958, on "Roman Africa", by M. Pierre Salama (of the Department of Antiquities of Algeria).

MEETING AT CHURCH STRETTON, 1958.—In November, under arrangements by the Ludlow Research Group, was the occasion of a very successful Meeting at the Silvester Horne Institute, at which the number to attend was most gratifying. A lecture was given by Mr. Stanley E. Thomas, M.A., of Leicester University, on "Smethcott". He explained in detail the gradual work of excavation at this motte, one of a very numerous type, but hitherto virtually new to excavation. One most curious feature is a small area of stonework of so far undetermined nature. Thanks to the lecturer were expressed by Dr. Houghton; Mr. Gamble, as Leader of the Ludlow Group, added thanks for Mr. Thomas's important help in basic training in connection with this work, and also appreciation of the farmer on whose land it was taking place, Mr. T. Middleton. A well arranged exhibition of finds from the site was staged, among the most interesting of these being an open-work bronze mounting and a beautiful little silver-gilt brooch or buckle.

COUNCIL MEETINGS

The following notes contain a summary, which is purposely very brief, of such of the items in the Minutes as (generally) may seem of special interest or likeliest to be needed for future reference.

50-51 BULL RING (the Tolsey), LUDLOW.—From June 1956 onwards, the Council took a part, to the utmost of its ability, in the efforts made for the preservation of this interesting building, in danger of demolition for purposes of road widening. It seemed as if these efforts might be in vain, but it came as a great pleasure to learn in October 1958 that demolition had been forbidden by the appropriate Ministry. It was agreed to support proposals for restoration.

TRAFFIC SIGN, BUTCHER ROW, SHREWSBURY.—From February 1956 to October 1958, the Minutes are interspersed with references to requests for a sign to be moved from a position in which it conceals the corner bracket of the Abbot's House. It has occasionally been understood that the moving of it only awaited formal Ministerial approval. (At the time of going to press, the offending sign still stands in the same place.)

BENNETT'S HALL, SHREWSBURY.—In June 1957, the position with regard to this building, threatened by demolition, was reviewed. It reveals striking and unique architectural features of a 13th century stone house. A meeting with Borough representatives and others was reported in July 1958. It is still hoped that means may be found for some outstanding features to be preserved during re-construction.

GIBBON'S MANSION, SHREWSBURY.—In February 1956, it was resolved to request Shrewsbury Borough Council to consider re-erection in the vacant space at the end of Butcher Row.

CELTIC FIELDS ON THE LONGMYND.—A letter from Dr. Houghton was read, October 1956, stating that the Forestry Commission was encroaching on this site. It was resolved to send this information to the Ministry of Works (the site having previously been recommended by Miss Chitty for scheduling).

CATALOGUE OF SHROPSHIRE MAPS.—References to this work of Mr. G. C. Cowley occur from October 1956 to January 1958, when the Secretary was asked to express appreciation to the County Council and the Walker Trust for undertaking publication, and to send a donation of £5. It was agreed (November 1956) to waive any claim in respect of copyright.

PROBATE RECORDS OF THE SHROPSHIRE PECULIARS.—Correspondence with regard to these records, which had been removed to the National Museum of Wales, was reported in November and December 1956. The Council regarded the Shropshire County Record Office as the appropriate place for deposit.

DONATION (WOOLLAM MEMORIAL FUND).—The Secretary reported in September 1956 that Mr. T. W. Woollam had made a donation of £50 to the Society in memory of his father, Mr. C. S. Woollam. It was agreed that the amount be placed on deposit until a decision was made as to its utilisation for some special purpose.

FORMER COUNCIL MEMBERS.—In November 1956, the Council received with regret the news of the death of Miss Rachel Leighton, for many years a member of the Council, and one who had taken an important part in respect of Parish Registers. In November 1957, Mr. Oldham referred to the recent death of Dr. Cranage, a Vice-President of the Society, and of his many distinctions in the Church and in the field of ecclesiastical history. He paid tribute to his monumental work on the architectural history of Shropshire churches, and referred to the many spheres in which he had been so actively engaged.

EXCAVATIONS.—Special references occur to Mr. Silvester's excavations on the site of a Roman villa at Yarchester, Harley (June 1956, September 1957, September 1958), and the discovery there of a mosaic pavement. It was suggested that it might be possible for the pavement to be moved, if the Museums Committee could find suitable accommodation. In March 1957, it was suggested that finds resulting from the excavation directed by Mr. S. E. Thomas at Smethcott should ultimately be returned to Shropshire. Mr. Barker reported in September 1958 on excavations at a part of the old town wall, Shrewsbury, on demolition of some property at the foot of Roushill.

FIELD WORK.—The question of possible grants for excavations were specially discussed, on reference to Mr. Graham Webster, in December 1957; and that of the danger of uncontrolled excavation in October 1957.

AREA REPRESENTATIVES.—A scheme for these to be nominated, with a view to their reporting to the Council any neglect of, or possible danger to, monuments and

antiquities in their areas, was discussed in October 1957. The next month it was reported that the following had agreed to act as such: Mr. Nankeville (Ellesmere); Mr. Bentham (Market Drayton); Mr. V. T. Smith (Newport); the Headmaster, Coalbrookdale High School (Broseley); Miss Wisdom (Ludlow); Mr. C. S. Stanford (parts of south Shropshire).

DEVELOPMENT.—In January 1958 Mr. Webster outlined various ways in which the Society could be brought into closer contact with Research Groups and the general public. Suggestions have been followed, and subsequent Minutes for the year reflect the favourable results achieved by affiliation of the Groups to the Society, and also the extension of the Society's lecture and excursion programme. The election of new members appears to show a considerable accession of strength. In October 1958, the financial aid to Groups was resolved upon, as follows: that an expenses fund be set up; that it consist of the £50 Woollam Memorial Fund; that all future contributions from the box at Rowley's House be paid into this fund; a grant should be intended primarily for cost of labour and essential equipment; grants should not be awarded towards cost of travel or subsistence or expendable small equipment.

TRANSACTIONS.—The new form of issue and other arrangements were decided on in July 1958. The prices to be charged for old numbers of *Transactions* are recorded in July and October 1958.

OLD ST. CHAD'S FUND.—Resolved in September 1958 that the Society is to administer the Accounts in respect of this Fund, upon terms recorded in the relevant Minute of that Meeting.

PARISH REGISTERS.—In February 1956 Mrs. Hayward presented a transcript of the Hope Bowdler Register, prepared with the assistance of Miss Good and Miss George. Mr. Hobbs has made reports on several occasions of transcription of Registers, or parts of them, by him; also (December 1958) that he is attempting to locate certain missing transcripts, which are those of Silvington, Stoke-on-Tern, and Shawbury.

FINDS, ETC.—A report was received from Mr. T. S. Cole (October 1956) of traces of what appeared to be a Roman road (N.W. corner of field 267, O.S. Map Shropshire XXXIV. 4). It was reported (May 1957) that Mr. Bentham had found a Bronze Age palstave at Hinstock; Miss Chitty had requested that a report and drawing be submitted. Mrs. Hayward (June 1957) exhibited the butt end of a ground and polished flint axe, which had been found by Mr. Hartley, Clay Brooke Farm, Eaton-under-Heywood.

VARIOUS.—In May 1958 it was agreed that the National Buildings Record be asked to make a photographic survey of Shavington Hall, and also of Cruck Cottage, Pontesbury, both proposed soon to be demolished. Correspondence with the Ministry of Works has taken place as regards Hopton Castle, and provision for expenses of repair urgently required there. In September 1958 the possibility of the Castle being placed in the Ministry's guardianship was discussed.

RULES

1. The Society shall be called the "Shropshire Archaeological Society (with which is incorporated the Shropshire Parish Register Society)".

2. The objects of the Society shall be, in general, the promotion of archaeological and historical investigation in the County and the preservation of its antiquities; in particular the publication of the results of research and excavation, the recording of archaeological discoveries, the editing and printing of documents of local historical importance, and the transcription and printing of Parish Registers.

3. Candidates for membership may be proposed by a member of the Society and shall be elected by the Council.

4. The Council shall have power to elect Honorary Members.

5. The subscription of each member shall be paid on election or on 1st January to the Honorary Secretary or Treasurer, and shall be the annual sum of £1 1s. 0d. If any member's subscription shall be in arrears for two years, and he shall neglect to pay his subscription after being reminded by the Honorary Secretary, he shall be regarded as having ceased to be a member of the Society.

6. The management of the Society shall be vested in the Council, which shall consist of the following: the President, Vice-Presidents, Honorary Secretary and Honorary Treasurer, the Shrewsbury Borough Librarian, the County Archivist, and not more than 12 elected members. The officers shall be elected at the Annual General Meeting on the recommendation of the Council, but the President and Vice-Presidents shall be elected for five years and shall be eligible for re-election. Casual vacancies amongst officers shall be provisionally filled by the Council, subject to confirmation at the next Annual General Meeting. Members of the Council (other than ex-officio members), shall be elected at the Annual General Meeting. Members of the retiring Council shall be eligible for re-election and their names may be proposed without previous notice; in the case of other candidates a proposal, signed by four members of the Society, must be sent in writing to the Honorary Secretary not less than fourteen days before the Annual General Meeting. The Council shall have power to co-opt not more than five additional members to serve on the Council for the year.

7. Five members in attendance at Council Meetings shall be deemed a quorum.

8. The Council shall have power to elect Associate Members of the Society who shall be under the age of 21. The annual subscription for an Associate Member shall be 2/6d. Associate Members shall not be entitled to free issues of the Transactions or other publications of the Society, except by special decision of the Council.

9. The Council shall determine what number of each publication shall be printed.

10. Every member not in arrears of his annual subscription shall be entitled to one copy of the Transactions, and copies of other publications of the Society on such conditions as may be determined by the Council.

11. Contributors of papers shall be entitled to twelve free copies of off-prints of such articles as they may contribute.

12. No alteration shall be made in the Rules of the Society except at the Annual General Meeting or at an Extraordinary General Meeting called by the President and Council for that purpose. Any proposed alteration must be submitted to the Honorary Secretary in sufficient time to enable him to give members at least twenty-one days' notice of the Extraordinary General Meeting.

PUBLICATIONS

The following publications of the Society may be obtained at the prices quoted, plus postage or carriage charges (the special prices for Members are indicated in brackets). Applications should be made to the Hon. Secretary for all publications, except Parish Registers.

Shrewsbury Burgess Roll. Ed. H. E. FORREST. Bound 10/6 (Members 7/6). Unbound 7/6 (5/-).

The Lordship of Oswestry, 1393-1607. (A series of extents and rentals). Ed. W. J. SLACK. Bound 21/-. (12/6).

Transactions of the Society (where available). Unbound. Current series 10/6 per Part. Earlier series 5/- per Part. Price to Members, all Parts, 2/6 per Part. Quotations for large numbers of Parts on request.

Printed Parish Registers. From 3/- to 7/6 per Part, according to size of Register. Wellington Register 20/-. *Note*: Applications for Registers should be made to Mrs. L. H. Hayward, Ticklerton, Church Stretton, Salop.

An Architectural Account of the Churches of Shropshire. DR. D. H. S. CRANAGE. Parts 2-9 inclusive, 5/3 per Part; Part 10, 10/6; Shrewsbury Churches (portion of Part 10), 5/3; the Appendix, 1/3; General Survey, 2/6.

The above are subject to stocks being still available.

CORRIGENDA

VOL. LV:—

Page 109. Third line. For "sister" read "cousin"

Page 171. Ninth line. For "25 ft" read "25 in"

Page 174. Seventh line from bottom. For "compilled" read "compiled"

Page 175. Second line from bottom. For "communion" read "communium"

Page 176. Twelfth line. The two press marks quoted should be punctuated thus: 12315. c. 4. and PN. 6261. D6.

Page 176. References, note 2. For "Proctor" read "Procter".

SHROPSHIRE ARCHAEOLOGICAL SOCIETY

1958

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STATEMENT OF ACCOUNT FOR THE YEAR ENDED 31st DECEMBER, 1956

RECEIPTS

		£	s.	d.
To	Balance in hand 1st January, 1956	255	15	6
,,	Members' Subscriptions.	160	2	6
,,	Sale of Parish Registers	6	19	7
,,	Sale of Transactions and other publications...	24	9	5
,,	Members' payments for Annual Excursion ...	21	12	6
,,	Visitors to Rowley's House	15	15	2
,,	Postages refunded		2	9
,,	Dividend on 3½% War Stock	1	15	0
,,	Interest on Deposit a/c West Mid. Sav. Bank	2	10	2
		£489	2	7

PAYMENTS

				£	s.	d.
By	Printing Wellington Parish Register (Balance)			141	14	6
,,	Salary of Secretary to 30th June, 1956 (final payment)			12	10	0
,,	Expenses of Speaker at A.G.M.			2	2	0
,,	Expenses of Annual Excursion:					
	Coach	12	0 0			
	Tea	5	0 0			
	Printing	1	5 0			
				18	5	0
,,	Printing, Postages, Telephone, Adverts, Duplicating			21	19	8
,,	Subscription to C.B.A. 1950-56... ...			3	1	8
,,	Refund of overpayment of subscription...			1	1	0
,,	Balances at 31st Dec. 1956:					
	Current a/c Lloyds Bank	180	18 10			
	Dep. a/c W.M. Sav. Bank	105	2 2			
	Cash	2	7 9			
				288	8	9
				£489	2	7

C. S. WOOLLAM MEMORIAL FUND

Donation from T. W. Woollam Esq.	£50	0	0	By Balance at West Mid. Saving Bank, 31st December, 1956	£50	0	0

Examined with the Cash book, Vouchers, Bank Pass Books and Receipts and found correct.

H. BEAUMONT.
Hon. Treasurer.

JOHN DYKE,
Hon. Auditor.
31st May, 1957.

STATEMENT OF ACCOUNT FOR THE YEAR ENDED 31st DECEMBER, 1957

RECEIPTS	£ s. d.
To Balance in hand 1st January 1957	288 8 9
,, Members' Subscriptions	200 9 0
,, Sale of Parish Registers	17 16 10
,, Sale of Transactions and other publications	6 7 6
,, Members' payments for Annual Excursion ...	14 15 0
,, Visitors to Rowley's House	3 16 5
,, Postages refunded	5 1
,, Dividend on 3½% War Stock...	1 15 0
,, Interest on Deposit a/c West. Mid. Sav. Bank	2 12 5
	£536 6 0

PAYMENTS			£ s. d.
By Printing and distribution of Transactions			172 0 10
,, Expenses of Annual General Meeting:			
Printing and advertizing	6 15 8		
Speaker	1 10 0		
			8 5 8
,, Expenses of Excursion: Coach ...	11 10 0		
Tea ...	5 19 2		
Printing...	1 1 0		
			18 10 2
,, Postages for Archaeological Newsletter...			2 4 0
,, Clerical expenses, postages, telephone, duplicating			24 5 8
,, Printing of stationery, etc.			9 19 5
,, Subscriptions and donations to other societies			1 4 0
Total expenses			236 11 9
,, Balances at 31st December, 1957:			
Current a/c Lloyds Bank	189 2 7		
Dep. a/c W.M. Sav. Bank	109 9 7		
Cash	1 2 1		
			299 14 3
			£536 6 0

C. S. WOOLLAM MEMORIAL FUND

	£ s. d.
To Balance 1/1/57	50 0 0
,, Interest West Mid. Sav. Bank	1 0 10
	£51 0 10

	£ s. d.
By Balance at West Mid. Sav. Bank 31/12/57	51 0 10
	£51 0 10

H. BEAUMONT
Hon. Treasurer.

JOHN DYKE,
Hon. Auditor
14th May, 1958.

SHROPSHIRE ARCAEOLOGICAL SOCIETY

OBITUARY

VERY REV. D. H. S. CRANAGE

Shropshire shares with many other regions the loss to scholarship sustained in the death of the Very Rev. D. H. S. Cranage, B.D., Litt.D., F.S.A., Hon. A.R.I.B.A. Dean Emeritus of Norwich, in October 1957. But perhaps it is Shropshire which may take the most special pride in his work, for he was a native of the County and the author of one of its classics of archaeological studies. Born at Old Hall, Wellington, in 1866, he was Curate for several years of Little Wenlock and then of Much Wenlock till 1902, but he had also travelled abroad widely. On leaving Shropshire, he was for upwards of twenty years Secretary of the Cambridge University Local Lectures and later of the Board of Extra-mural Studies. He was at one time Chairman of the Faculty Board of Fine Arts at the University, and had also served as President of the Society of Antiquaries; for fifteen years he was Chairman of the Central Council for the Care of Churches, and for nine years of the Cathedrals Advisory Committee. This is of course only a very slight summary of his many activities. In his long association with our own Society, he had for many years been a member of the Council. Several books came from his pen, but foremost of all must surely rank his monumental work, *An Architectural Account of the Churches of Shropshire*, published in Parts from 1894 to 1912, which is one that has its place among the most important and authoritative studies of antiquities in Shropshire; it may justly be supposed that it is for this outstanding labour that his name will chiefly be remembered.

M.P.

THE MEDIEVAL DEFENCES OF SHREWSBURY

By C. A. Ralegh Radford, M.A., F.S.A.

The following account does not attempt to make a detailed survey of the fragmentary remains of the medieval defences of the town and castle of Shrewsbury. It is rather an analysis of the historical and topographical background designed to provide a frame into which the recorded and existing structures can be fitted. The outline of the inner ward of the castle is still largely preserved and it seems fitting to give a rather fuller account of these buildings, now that the site has passed into the hands of the town. Data concerning the town walls have been published on many occasions, sometimes with comments that have failed to take into account the general development of military architecture in England; it is probable that more information will come to light from time to time as building is undertaken within the limits of the town.

Shrewsbury lay within the western part of Mercia, which was preserved to the English in the arrangements made by King Alfred at the end of the great Danish war.[1] It was probably fortified late in the 9th century by the Ealdorman Aethelred and his wife Aethelfleda, the king's daughter, who are known to have provided defences at Worcester before the end of the 9th century.[2] The grant of a charter by Aethelred and Aethelfleda in 901 in the city of Shrewsbury (acta est . . . in civitate Scrobbensi)[3] is good evidence that the defences were already in existence. This dating is borne out by the coins. The Saxon laws of the 10th century lay down that mints were to be set up only in defended places—ports or burhs.[4] When in the second quarter of the century, it became normal for coins to bear the name of the mint, Shrewsbury appears on the issues of King Athelstan (925-39); it continues to figure down to the Norman Conquest.[5]

The position and extent of the pre-Conquest defences of Shrewsbury must remain a matter of inference. Topography alone would suggest that the city occupied the high ground and that one end of the rampart ran across the narrow end of the plateau now commanded by the castle. This is confirmed by the way in which the east wall of the medieval town starts from the centre of the inner bailey, implying that the line was in existence before the erection of the castle. The two longer sides must have been delimited by the crests of the steep slopes falling to the valley floor, approximately on the lines followed by the 13th century walls. The fourth side equally imposed by the local topography would then follow the top of the slope above High St. and the upper end of Wyle Cop. The steep slope on this line is at present disguised in Pride Hill, which formed one of the chief streets of the town, but it can be easily appreciated in the narrow lanes between this thoroughfare and St. Alkmund's Church. The defences, as in other burhs thrown up at this date, will have consisted of an earthen bank and stockade, with a ditch in front of those parts where the fall of the ground required it.

The castle of Shrewsbury arose as a result of the Norman Conquest of 1066. It is already mentioned as a royal castle in the account of the rebellion of 1069, during which the natives of Wales and Cheshire laid siege to the king's castle (praesidium regis apud Scrobesburiam).[6] This record comes from Ordericus Vitalis, a local man, and is good evidence that the nucleus of the castle, probably the motte and

inner bailey, were thrown up by the king, immediately after the Conquest and before 1074, when Roger of Montgomery was created Earl.[7] Earl Roger completed the castle, expropriating 51 of out the 252 burgage tenements of the Saxon town.[8] This can only refer to the outer bailey extending as far as Water Lane.

The castle, begun by the king and completed by Earl Roger between 1066 and 1086, was of the normal type of that age. A great earthen mound or motte was thrown up on the west bank of the river, at a point where it commanded the narrow neck of the plateau, which forms the only landward approach to the area within the great loop of the river enclosing the town. This motte was surmounted by a great wooden tower, which stood for nearly two centuries (p. 19). On the northwest and completely blocking the neck of the ridge, was a small inner bailey roughly quadrilateral in shape and covering about 1 acre. The bailey was enclosed with a bank of earth and ditch, the former surmounted by a timber stockade. The defences are largely placed outside the limits of the pre-Conquest burh and would have caused little disturbance to the citizens; they probably represent the royal castle already existing in 1069. The outer bailey lay to the south and was more extensive, the whole area being carved out of the pre-Conquest town. The east side must have followed the older rampart along the crest of the slope. The south rampart certainly lay along the line of the slope above Water Lane. The position of the west side is uncertain, but it probably continued the line of the inner bailey dominating the slope of the main street up Castle Hill. It was this large intrusion into the town that gave rise to the complaints of the inhabitants, who are stated in the Domesday record to be paying the same dues as before the Conquest, although the number of tenements was much reduced by the building of the castle and other causes.

Earl Robert of Belesme only held Shrewsbury for 4 years[9] and the chroniclers do not suggest that he carried out extensive works at Shrewsbury. Two, describing the Earl's flight from the king's court and his desperate efforts to organize resistance, say in general terms that he fortified his castles with banks and walls.[10] Florence of Worcester is more explicit : "Robert of Belesme, Earl of Shrewsbury, . . . began to strengthen . . . against King Henry . . . the castle, which he had on the west bank of the Severn, in the place which is called Brycge (i.e. Bridgnorth) in the Saxon tongue . . . with a broad and lofty wall . . . The aforementioned Earl Robert of Belesme . . . strongly provisioned the city of Shrewsbury . . . with weapons, horsemen and footmen against King Henry. He hastened in every way to complete the walls and towers of the castles of Bridgnorth and Carreghofa, working and building day and night."[11] Robert's withdrawal to Shrewsbury, leaving his lieutenants to stand siege at Bridgnorth, was dictated by the strategic need to preserve his freedom of movement and contact with the Welsh allies. With the fall of Bridgnorth, the "very strongly defended castle in which he placed most confidence" (Ordericus Vitalis), he realized that further resistance was hopeless.

With the fall of Robert of Belesme in 1102, Shrewsbury again became a royal fortress. When the Pipe Rolls become available, under Henry II (1154-89), expenditure on the buildings and defences can be traced in the royal accounts. In a number of cases there are obscurities, owing to the failure of the clerks to apportion the amount between the various royal castles in Shropshire.

Work at Shrewsbury was carried out on a substantial scale at the time of the Welsh campaign of 1166. In the previous year £17 13s. 5d. was spent on work in the Castle of Shrewsbury, followed by £9 13s. 1d. in 1166, when the war involved an expenditure of £18 12s. 4d. on the custody of the defences of Shrewsbury. There is a pause in 1167, but in 1168 £9 12s. 5d. was spent on the castle and in 1169 £8 0s. 7d. was allotted to the king's houses at Shrewsbury and the improvement of the castle.[12] These sums probably do not represent the whole expenditure. In 1164 the sum of £90 9s. 10d. had been spent on the king's works and other services in Shropshire and in payment of his sergeants, or to use more modern terms, his warrant officers and technicians. In 1165 these sergeants in Shropshire received £68 7s. 5d., while there were payments of £6 13s. 9d. to carpenters and £5 4s. 5d. to masons.[13] These years marked the height of the Welsh campaigns, but it may well be that part of the sums paid to masons and carpenters in 1165 and a proportion of the block expenditure recorded in the previous years covered work at Shrewsbury. It seems likely that expenditure at the castle in this period amounted to between £60 and £70. The only other significant payments during this reign were £11 2s. 5d. in 1181, £8 7s. 2d. in 1183 and £8 2s. 5d. in 1187. The last amount is stated to be for the repair of the buildings, the other two for the repair of the castle.[14]. A comparison may be made with the work at White Castle, where in 1184-6 rather over £125 was spent on a small square tower and the wall enclosing the inner bailey.[15]

The wall now enclosing the inner bailey at Shrewsbury is laid out in short straight lengths, a feature characteristic of defences built in the middle of the 12th century. The masonry has been so much repaired and refaced that little remains to indicate its original character, but the base of the walls is quite in keeping with a date in the 12th century. The simple arched gateway with heavy rounded jambs is a simple form that could well belong to the second half of the century ; it is characteristic of work of a rather later date in the church of St. Mary. The earthen motte remained with its wooden tower, but the base of the wall enclosing the flat summit on the side towards the bailey is of the same type as that surrounding the bailey itself. This wall is earlier than that on the river side of the motte, which was erected in the later 13th century after the collapse of the tower (p. 19). It may therefore be concluded that the work carried out under Henry II included a wall enclosing the wooden tower on the motte, possibly to replace the decayed outer stockade.[16] This would in any case be a logical completion of the masonry defences of the inner bailey, which included, at either end, wing walls running up the slope of the motte.

The reigns of Richard I (1189-99) and John (1199-1215) saw little work carried out at the castle. The most substantial sum is £25 6s. 8d. spent in 1201 on the castles of Shrewsbury and Shrawardine.[17] A record of repairs to the bridge of the castle in 1206[18] cannot be apportioned between the drawbridge in front of the surviving gate to the inner bailey and that no longer traceable between the outer bailey and the town.

Records published in the 19th century shew that a wall with small rectangular towers ran from the edge of the natural slope west of Pride Hill along the top of the slope above High St. and Wyle Cop; it was traced for a distance of some 250 yards.[19] The line passed south of the church of St. Julian and the presence of two towers in this area suggests the existence of a postern gate now represented by Fish Street.

The records are imperfect and the wall is shewn at one point as pierced with a door and window. A close examination of the carefully drawn elevations shews that the window is certainly later and suggests that the door represents the enlargement of a smaller opening, possibly a narrow loop. The plan with the irregular line of curtain and small towers belongs to a type of fortification that could well date from the age of Henry II. The line followed is that imposed by the local topography and assumed for this side of the pre-Conquest defences. The evidence suggests that these were replaced, at least on this, the most vulnerable side, with masonry during the second half of the 12th century.

The town and castle of Shrewsbury were surrendered to the Welsh Prince, Llywelyn Fawr, in 1215 in the course of the struggle between John and his barons.[20] On the restoration of the royal power under Henry III a thorough strengthening of the castle was begun. The Pipe Rolls for this period are not published, but some light is thrown on the work by other records. Robert l'Enfant was in charge of the building and the Close Rolls record writs to him for 30 marks in November 1222, for £60 in February 1223 and for further sums of £50 and £30 respectively in July and August of that year, together with 20 marks in October.[21] These writs are directions to pay the sums in question from named sources and it is possible that some of them overlap. It is nevertheless clear that substantial expenditure was being incurred at Shrewsbury Castle in 1223. This work does not stand alone. In 1220 the citizens were given the right to levy dues on merchandize brought into the city and to apply the proceeds to their defences.[22] There are later grants extending this right. The work must have been far advanced in 1231 when permission was given to use the timber from the old defences, together with wood from the royal forests for work on the new line.[23] The Welsh attack of 1234, during which the town was burnt by Llywelyn Fawr,[24] doubtless caused a setback, but the enclosure must have been practically complete by 1242. In that year permission was given to the Dominicans, whose convent lay on the west bank of the river between the English Bridge and the Castle, to link their enclosure with the wall of the city and to have 200 loads of stone which remained over from the building of the walls of Shrewsbury.[25] The Hundred Rolls of 39 Henry III (1255) mention a workshop erected by Richard the Smith in the old ditch of the city for the convenience of the masons at the time when work was proceeding on the king's wall of the city.[26] The reference to the building of this wall in the past confirms the other evidence cited to shew that it was complete before the middle of the century Grants of murage—as the dues on goods brought into the town came to be known—continue to be made until the end of the reign, but money from this source would be needed for maintenance and improvement of the walls. Nor can the letter of the burgesses complaining of poverty and asking to be excused the payment of the rest of a tallage be used as evidence that work on the walls was still incomplete in 1266, as the date ascribed to this letter is doubtful.[27]

The work carried out in the castle in 1223 must have been the walling of the outer bailey, to replace the old defences of timber. The wooden tower on the motte was still standing and the 13th century work on the inner bailey, which is still preserved, was confined to the two circular towers, which form the angles of Castle House. It is doubtful whether these towers can be as early as 1223 and, in any case they alone would not account for the large expenditure indicated by the entries on the Close Rolls.

But there is a substantial stretch of ashlar with a chamfered plinth on the north side of Water Lane. This marks the south side of the outer bailey and, though it lacks closely dateable characteristics, the masonry could well date from the beginning of the 13th century. In any case the wall on this side must have been completed before 1242, as the permission then granted to the Dominicans to link their wall with the wall of the town implies that this part of the circuit was already complete.

The line of the extended town wall, which takes in a large part of the low ground within the loop of the river, is well known and need not be described here. It represents an attempt not only to include the extended settlement, but to link up the two river crossings now represented by English Bridge and Welsh Bridge. The remains of semi-circular towers characteristic of the 13th century have been traced at more than one place on the circuit.

The wooden tower on the motte was still standing in the middle of the 13th century. In 1255 the jurors testified that the Abbot of Shrewsbury (*i.e.* of Holy Cross) had built a mill to the damage of the King's castle and assessed the damage at 60 marks (£40); they added that the whole damage was not due to the Abbot's mill, as the motte had been in a similar state of decay for 30 years.[28] The sequel appears in 1275 when the jurors testified that the great wooden tower of the castle had fallen to the earth in the time of Sheriff Urian of St. Peter and that in his day and in the time of his successors the timber had been so destroyed and decayed that nothing remained, to the great loss of the king and to the damage of his castle.[29] Urian of St. Peter appears in the records as an active servant of the Lord Edward (later King Edward I) between 1251 and 1271[30]. He is particularly concerned with Welsh affairs between 1257 and 1264; his office as Sheriff probably falls between these years.

The erosion of the riverward side of the motte is clear both on the ground and on the map. It has been cut into to such an extent that half of the original circular top has slid down the slope and into the river. The great curve of the river would in any case have led to erosion and undercutting at this point, but the still existing tail-race of a mill situated near the east end of English Bridge (*i.e.* on the river side of the Abbey precincts) shews that the damage must have been accelerated when the mill was built. Subsequently a new wall was built across the top of the motte, along the original diameter, in order to replace the lost outer half of the circuit, which had fallen with the wooden tower.

The hall within the inner bailey is a rectangular structure of several dates with two circular towers at the outer angles. The present Gothic appearance of the lower stage is due to work carried out in the early 19th century, when the house was modernized. But the masonry shews that the form of the openings—two lights with cusped tracery—goes back to a medieval original. There are other medieval details, recut and modernized, including a part of the present main doorway. These details point to a date near 1300; they may be equated with work recorded in the Close Rolls in 1288, when the hall, chamber and other houses of the castle were receiving attention and 1289 when 16 oaks were supplied in connection with this work.[31] The towers are probably of this period. But the window openings are themselves insertions into an earlier wall, represented by the much patched ashlar at the base of the building. This ashlar resembles other masonry of the late 12th century and may be connected

with sums spent on the king's house in the castle in 1186 (£2 11s. 6d.) and 1187 (£13 2s. 5d.).[32]

NOTES

1. F. M. Stenton, *Anglo-Saxon England*, 251-2.
2. W. de G. Birch, *Cartularium Saxonicum*, no. 579.
3. *Ibid.*, no. 587; cf. Stenton, *op. cit.*, 322.
4. II Athelstan 14 (Liebermann, *Die Gesetze der Angelsachsen*, 158-9); Stenton, *op. cit.*, 528.
5. G. C. Brooke, *English Coins*, 56.
6. *Orderici Vitalis historia ecclesiastica*, iv, 5 (ed. Le Prevost, ii, 193).
7. The Editors of *The Complete Peerage* (Vol. xi, app. K) conclude, after reviewing the evidence that Roger was created Earl of Shrewsbury at some date between December 1 and 24, 1074; this was presumably the date at which he acquired the castle. Ordericus Vitalis (Hist. eccl., iv, 4 and 7; Prevost, ii, 178 and 220) twice mentions Roger's acquisition of the earldom, in connection with the events of 1068 and 1071, but the phraseology in each case makes it clear that he is not referring to a creation at those dates.
8. Domesday Book (1086) in *Victoria County History, Shropshire*, i, 310.
9. *Complete Peerage*, xi, 689-96.
10. *Orderici Vitalis historia ecclesiastica*, xi, 3 (Prevost, iv, 70); *Brut y Tywysogion*, s.a. 1100 (Rolls Series, xvii, 68).
11. *Chronicon Florentii Wigornensis*, s.a. 1101-2 (English Historical Society, ii, 49-50).
12. Pipe Rolls: 11 Hy. II (Pipe Roll Society, viii, 89); 12 Hy. II (P.R.S., ix, 59); 14 Hy. II (P.R.S. xi, 92); 15 Hy. II (P.R.S., xiii, 108).
13. Pipe Rolls: 10 Hy. II (P.R.S., vii, 9); 11 Hy. II (P.R.S., viii, 89-90).
14. Pipe Rolls: 27 Hy. II (P.R.S., xxx, 17); 29 Hy. II (P.R.S., xxxii, 1); 33 Hy. II (P.R.S., xxxvii, 63).
15. Pipe Rolls: 31 Hy. II (P.R.S., xxxiv, 196); 32 Hy. II (P.R.S., xxxvi, 29); cf. Ministry of Works: *Official Guide, White Castle.*
16. This form has been clearly demonstrated by the recent excavations at Abinger, Surrey.
17. Pipe Roll: 2 Joh. (P.R.S., n.s., xi, 170).
18. Pipe Roll: 7 Joh. (P.R.S., n.s., xix, 88).
19. *Shropshire Arch. and Nat. Hist. Soc. Trans.*, vi, 257-67 (1883).
20. *Brut y Tywysogion*, s.a. 1215 (Rolls Series, xvii, 282).
21. *Rotuli Litterarum clausarum Henrici* III, 523, 533-4, 553, 559, 565 (Record Commission).
22. *Calendar of Letters Patent* 1216-25, 238.
23. *Calendar of Letters Close* 1227-31, 508.
24. *Cronica Rogeri de Wendover*, s.a. 1234 (Rolls Series, lxxxiv, iii, 71-2).
25. *Calendar of Letters Close* 1237-42, 402-3.
26. *Rotuli Hundredorum*, ii, 80.
27. *Royal Letters of Henry III*, DCLVI (Rolls Series, xxvii, ii, 310).
28. *Rotuli Hundredorum*, ii, 80.
29. *Rotuli Hundredorum*, ii, 106.
30. *Calendar of Letters Close* 1247-58, 87, 375, 390, 600; 1258-66, 98, 343, 366, 469; 1266-72, 588. He is probably the man whose Inquisition post Mortem is recorded in 23/24 Edw. I (*Calendar of Inquisitions*, iii, nos. 280, 281, 376).
31. *Calendar of Letters Close* 1279-88, 516; 1288-96, 22.
32. Pipe Rolls: 32 Hy. II (P.R.S., xxxvii, 63); 33 Hy. II (P.R.S., xxxviii, 95).

MOATED ENCLOSURE AT WATLING STREET GRANGE, OAKENGATES

Emergency Excavations, January, 1958

In December, 1957, it became known through the County Planning Authority, that the owner of Watling Street Grange, Mr. B. J. Ward, intended to fill and level the moat which lies one hundred yards N. of the farm[1].

Watling Street Grange was one of the four known granges of Lilleshall Abbey[2] and is mentioned in the Forest Perambulation of 1300,[3] and also in the Excheater Inquisition of 1353.[4] No further mention in medieval times has been traced, though the Lilleshall Chartulary, which is not immediately available, probably contains further references.

The Site

The moat is square and encloses an area of about 1⅓ acres. The remains of a wall of large blocks of dressed sandstone run E-W across the enclosure 70 feet north of the south side. At the west end this wall curves to meet the moat side, but at the east end it forms a right angle with a wall running southward along the inner edge of the moat. The area enclosed by these walls and the moat is level and higher by about a foot than the general level of the centre of the enclosure, which contains comparatively deep depressions and low banks. The largest depression (A on the plan) was waterlogged during the excavation. The banks lying towards the edges of the moat vary in height from six inches to two feet, and in most cases form rectangular enclosures, and have every appearance of covering the foundations of walls. That this is not always so was shown by excavation.

On the west side of the enclosure, at B, a wide gully suggestive of a watering place slopes down to the water's edge. Elsewhere the inner banks of the moat are steep though much eroded in places.

From C to C a cutting 8 feet deep for a sewer has destroyed a strip 15 feet wide.

The natural subsoil varies from light coloured sand and sandy clay, to stiff red clay.

Excavations January 4-5th, 1958

As only two short days were available for surveying and excavation, trial trenches were cut in places as varied as possible over the surface of the enclosure, a number to section apparent wall foundations, and the others to explore level areas for occupation layers, post holes, or floors.

It is regrettable that time did not permit sectioning the moat, which was waterlogged throughout and would have required pumping.

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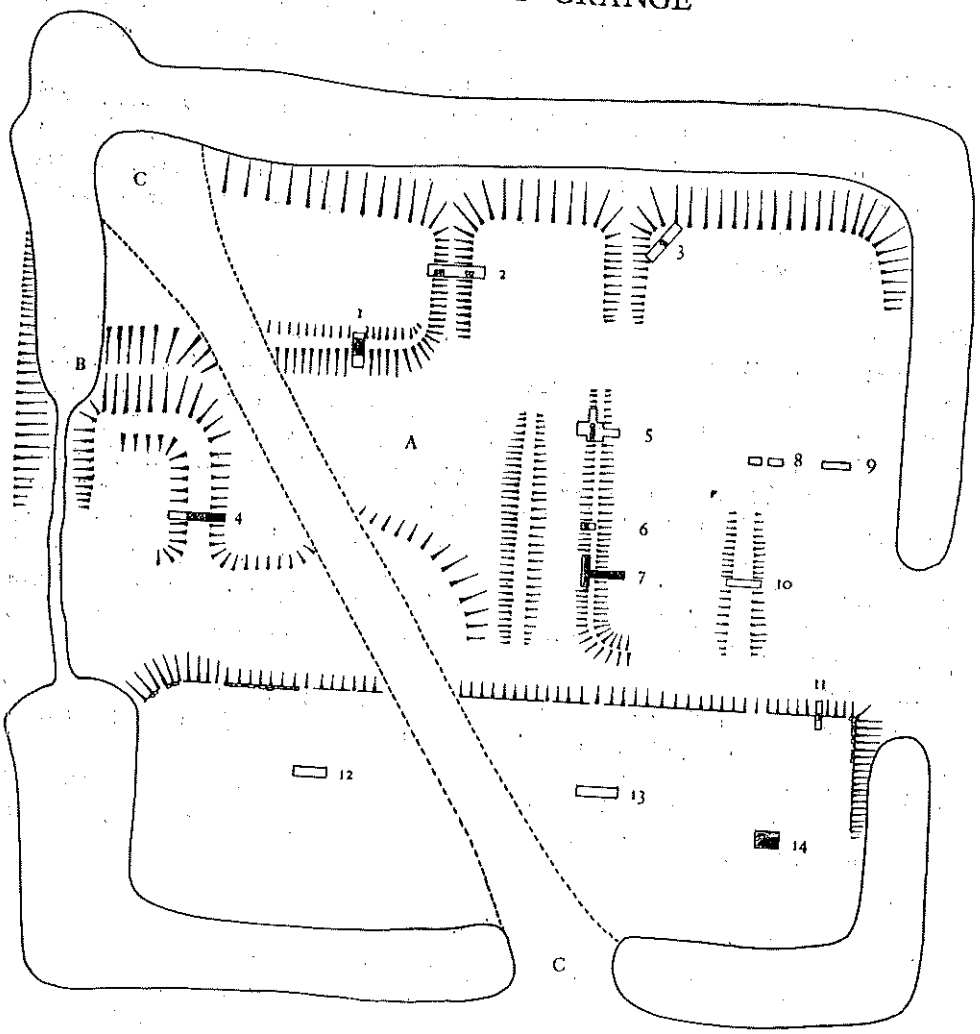
[1]Nat. Grid ref. SJ722113. O.S. 6-inch map Salop 36 SE.

[2]The others are Cheswell, Lilleshall, and Wildmoor. Lizard Grange, Tong, in existence before the Abbey, also belonged to it.

[3]Eyton, *Antiquities of Shropshire*, Vol. IX p.148, quoting Chanc.Misc. 12/10 and Pat. Roll Supp. 6a.

[4]Exch. Inq., Series 1, Fol. 292, Nos. 13, 24, 2 May. 1353.

MOAT AT WATLING STREET GRANGE



EXCAVATIONS · JANUARY 1958

SJ 722113

SALOP 36 SE

SCALE IN FEET

10 0 50 100

P.A.B.

Trenches 1-7 revealed walls of either drystone or mortared sandstone rubble, the wall in trench 1 being overlaid with a mass of small pieces of blue black slag, while the wall in trenches 5, 6, 7 had a bank of ash lying along its eastern side.

A mass of horseshoe blanks lying on a vault shaped structure of brick and cobbles was revealed by trench 4. The structure was small and filled with earth, and lay directly on natural. Its purpose has not been determined.

No floors were revealed by these trenches, nor were there any other finds.

Trenches 8, 9, and 10, cut to explore the more or less level area on the eastern side of the enclosure, revealed, in one case broken modern roof tiles, and in another brick rubble and ash, both overlying natural. There were no other finds.

Trench 11 was a section across the E-W wall which divides the enclosure in two. It proved here to be built of large blocks of dressed sandstone, packed with sandstone rubble at the base, which was lying on natural, here 16 inches below the surface.

A fragment of clay pipe stem was found adjacent to these foundations, on the N side of the wall, immediately above natural.

Trenches 12 and 13 were cut in the level, slightly raised area enclosed by the above wall.

As it seemed that this area was the most likely place for a house or farm buildings, these two trenches were carefully trowelled down to natural. There was, in both cases, a deep layer of humus directly overlying natural, with no trace of floors, postholes, or other evidence of occupation, or any other finds.

Trench 14, in the S-E corner of the moat, revealed a layer of rubble of stone, debris, ash and earth, overlying a construction of three large horizontal flagstones laid end to end, with two flags placed vertically beside them. These adjoined a rubble floor of crude construction.

The debris layer contained quantities of pottery and glass and a clay pipe bowl and other small objects.

FINDS

The Pottery, of which 30-40 sherds were preserved, included trailed slip and combed slip ware, two pieces of a majolica type plate, some thin black-glazed dark-red bodied ware (Jackfield ware?), and much coarse dark-glazed ware as well as some white glazed earthenware.

The only other significant sherd was a piece of hard grey ware with a characteristic green glaze, dateable to the 14C.? which was found on the surface in disturbed soil on the E side of the moat.

The Glass. There were a number of pieces of bottles, including the neck of a sack(?) bottle, and also a number of pieces of thin window glass of varying colours of green.

Other Small Finds included some window leading, the blade of a knife, perhaps a clasp knife, and a 17C shoe buckle. The clay pipe bowl has been dated by Mr. R. James of Rowley's House Museum as having been made between 1650 and 1688 by Maurice Deacon.

These finds, together with a plan and a detailed report, have been deposited in Rowley's House Museum.

SUMMARY

No structures or finds in the enclosure are datable before 1600, though some of the drystone walling may well be earlier[5]. The presence of so many late structures, and considerable evidence of occupation in the 18th and 19th centuries make the survival of traces of earlier, flimsier buildings unlikely.[6]

The almost complete absence of medieval pottery, or other finds, is rather baffling. If the enclosure had been occupied from 1300 to the Dissolution it would have been difficult to have got rid of the evidence so completely.

Two possibilities suggest themselves :

The moat may have been used during medieval times only as an enclosure for cattle and other animals, and the domestic buildings may have been outside, perhaps where the modern farm buildings are, though this seems a curious arrangement. A moat associated with a grange seems to be exceptional in Shropshire. The other three granges of Lilleshall Abbey, and six granges associated with Much Wenlock Priory, as well as many other granges throughout the county, are without moats.

Another possibility which may be worth considering is that the general economic recession of the 14C led to this grange being abandoned. It may be significant that Watling Street Grange is not mentioned in 1535-6 when Robert, Abbot of Lilleshall returned the gross income of the Monastery, or in the Ministers Accounts of 1540-1 (after the dissolution of the Monastery) when Wildmoor Grange, Cheswell Grange, and 'diverse farms' at Lilleshall itself are assessed.

Enquiries are continuing.

Thanks are due to Mr. B. J. Ward for permission to investigate the site, to Mr. J. A. Pagett for documentary evidence, and for help with the pottery, and to Messrs. G. S. Gamble, I. R. Gibbons, W. E. Jenks, J. Snape, T. J. Ewart, J. A. Pagett, J. A. Jerman, C. Lears, R. James, R. Collins, and R. Kirkham for their help in the excavation, and to Mr. J. L. Hobbs, F.R.Hist.S., for his help in many ways.

P. A. BARKER.

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[5]The wall along the SE edge of the moat, in particular, has the appearance of being original. Two or three field walls within a hundred yards of the moat may well have been made of stone robbed from the moat edge, as they are made of similar sandstone blocks, and are the only walls in the area, the other boundaries nearby being hedges.

[6]A plan of the farm in 1804 shows no buildings outside the moat (in the position of the present farm) but three buildings within the enclosure, roughly corresponding to the walls discovered by excavation.

There is, on the same plan, a field 300 yds. E of the moat, with the interesting name 'Wall Ashes Meadow'. (Information from Mr. J. A. Pagett. Plan from a survey by James Sherriff. S.R.O. The Sutherland Collection 38/1-151.)

WATLING STREET GRANGE

A Brief History of the Site from 1551 to 1820

By J. A. Pagett

The details concerning the history of the site are chiefly contained in Leases forming part of the Sutherland Collection in the Shropshire Record Office.

These start in August 1551, when the Farm was owned by William Cleobury of Shifnal and leased to a servant of Richard Leveson.[1] In September of the same year he leased it to William Hampton[2] whose tenancy was confirmed by a Lease of September 1552[3]. In December, 1586, the Leveson family appear as Landlords, Sir Walter Leveson of Lilleshall leasing the property to Edward Barkley mercer.[4] In February 1596 Richard Leveson of Sheriffhales intended to Lease it to his servant but the deal was never completed.[5] The last of these Leases, dated September 1609, is between Sir John Leveson of Halmge Kent and Anthony Salway in consideration of divers good causes.[6] From about 1670 to about 1820 the farm was occupied by the Dawes family[7] under the Levesons or the Sutherlands.

Until 1804 the farm and outbuildings occupied the area inside the moat. At some time between this date and about 1820 the present farm and outbuildings were constructed.[7] [8]

REFERENCES

1 The Sutherland Collection S.R.O. 38/1-159.
2 ,, ,, ,, ,, 38/1-161.
3 ,, ,, ,, ,, 38/1-162.
4 ,, ,, ,, ,, 38/1-163.
5 ,, ,, ,, ,, 38/1-165.
6 ,, ,, ,, ,, 38/1-166.
7 *Account of the Improvements on the Estates of the Marquess of Stafford*, by James Loch, 1820. Appendix IX, p. 87.
8 The Sutherland Collection S.R.O. 38/1-15.

Postscript

Since the above was written the site has been bulldozed and the moat filled in. During the bulldozing, Mr. J. A. Pagett found on the outside of the moat a number of fragments of line-incised tiles, covered with bright yellow and dateable to the early 15th century. There were no other finds.

A NOTE ON EXCAVATIONS AT THE ROMAN VILLA AT LEA CROSS DURING 1956-57

By A. W. J. Houghton

Lea Cross is a hamlet situated near the Rea brook five miles SW. of Shrewsbury. Here in a field, at an altitude of 250 feet above sea level and sheltered to westward by a low ridge, a mosaic pavement 14 feet square was discovered in 1793 and a brief note appeared in the *Gentleman's Magazine*.[1] The engineer, T. Telford made a drawing of the pavement[2] which has been reproduced in the *Victoria County History of Salop*[3]. Unfortunately no plan or sketch of any sort was made and apart from the brief description quoted above no record remains.[4]

In the early Summer of 1956 an endeavour was made to locate the site of the building. The remains of dressed stone walls were found at modern ground level emerging from beneath a hedge bank for a distance of 4 feet to NE. and SE. respectively and adjacent to the N. wall a trench was cut. The wall was found to continue for a total distance of 9 feet at which point it was robbed down to the footings, which there made a right-angled corner with traces of another wall going to the S. A perished cement floor was found contiguous with part of the E. extremity of the remains of the wall. The whole area was covered with about a foot of unstratified rubble containing *tesserae*, wall plaster and fragments of roof tiles. It is possible that this layer was the result of the efforts of the 18th century excavators who had evidently spread their spoil heap evenly back over their trenches, thus producing a sort of flat platform about 40 yards square.

The cement floor was exposed for a total area of about 144 square feet. In this N. part a shallow trench 1 foot wide was found running N. to S. and a circular hole 2 feet in diameter and 9 inches deep which contained stones and burnt bone fragments and in the trench an iron fragment was found which seemed to be part of a collar such as was used to join lengths of wooden pipes.

In 1957 efforts were made to locate the boundaries of the building and to this end trenches were cut about 30 feet to the east of the excavations already referred to. At a depth of 4 feet the dig was hampered by the presence of sewage effluent which came from some houses on the low ridge to the W. but a pitched stone floor was found, covered by a thin layer of rammed clay. To the N. this adjoined a wall of roughly dressed stones set in rammed clay running SW. to NE. Large quantities of burnt wood and cinders were found in this area and the impression gained from the necessarily curtailed dig was that a building of simple construction had been burnt down and that there was evidence of rebuilding. The pottery, both stratified and unstratified, was of the second half of the second century. No coins were discovered. Owing to the sewage contamination the dig had perforce to be abandoned and the trenches were filled in.

Conclusions

The evidence of the mosaic pavement and the hypocaust found in 1793 together with the possibility of outbuildings found in the present excavations suggest the presence of a farmstead of some comfort and moderate pretensions. At Cruckton,[5]

about 1½ miles down the valley towards Shrewsbury another simple building with a bath suite was excavated by Miss E. Sladdin in 1952-4 and there is evidence that at Whitley in the same valley about 1½ miles northwards from Cruckton, is another Roman site.[6]

These three sites are within easy reach of each other and of the great public road running W. from Wroxeter to Caersws with which the Lea Cross site has direct communication by what may be a secondary Roman road going from Stony Stretton via Lea Cross, Exfords Green, Hunger Hill and Allfield to Wroxeter. Thanks are due to Messrs C. W. E. Peckett, P. A. Barker, T. F. Wright, J. A. Jerman and to sixth form boys from the Priory School, in particular R. V. Buckley, M. R. Wells, and D. Hughes, for much hard, and latterly unpleasant, digging. The pottery and other objects found, together with sections, plans and photographs have been deposited in Rowley's House Museum, Shrewsbury.

REFERENCES

1. *Gentleman's Magazine*, 1793, ii, p.1144.
2. Telford, *Autobiography* (1828), p.23-25, plate IV.
3. *Victoria County History, Shropshire*, i, p.258, fig. 34.
4. The Site is indicated on the one-inch O.S. Sheet, 7th Series.
5. Miss E. Sladdin, Personal communication.
6. *Shropshire Notes and Queries*, April, 1893.

THREE ANGLO-SAXON BOUNDARIES

By H. P. R. Finberg, M.A., D.Litt., F.S.A.

In 1911 the Shropshire Archaeological and Natural History Society published a valuable article by W. H. Stevenson and W. H. Duignan on the Anglo-Saxon charters relating to this county.[1] The authors enumerated six documents, ranging in date from 664 to 1004. These they translated into English, adding, in footnotes, identifications of the place-names; but they did not attempt to elucidate the topography of the charters in detail. Since 1911, so far as I can learn, no further work has been done on the subject.

Only two of the charters describe the boundaries of the estates with which they deal. Both are of tenth-century date. These boundary clauses are the earliest written records of the Shropshire landscape that we possess; and in order to complete the work of Stevenson and Duignan, I have tried to follow them out in detail on the ground.

Any one who attempts this task must conform to certain rules. Anglo-Saxon boundaries are usually, but not invariably, set forth as moving clockwise. Naturally the interpretation of any one landmark must be consistent with those immediately preceding and following. The parish boundaries marked on the Ordnance map very often provide useful clues, especially if one looks up the first edition of the 6-inch maps, printed before so many new parishes were created and old ones had their boundaries altered. It must be remembered, however, that the boundaries shown on the Ordnance map are those of civil parishes. The ecclesiastical parish, a much older institution, frequently preserves ancient outlines which the civil parish has modified or blotted out. Hence it is often worth while to consult the tithe maps drawn up in the second quarter of the nineteenth century, maps which, with the accompanying awards, have the further advantage of giving field-names. Estate maps and plans are also useful. Generally speaking, the older the map, the more illuminating it is likely to be, so long as it shows local boundaries in detail. But however much preliminary work one may do with the help of maps, the final stage must always be an actual perambulation of the boundary, for even to the most experienced map-reader things have a way of looking very different on the ground. Finally, in setting down the results, the National Grid reference should be supplied for each landmark. This saves much space, and enables the reader with a map in front of him to follow the perambulation with perfect ease.

The kind of field-work described here brings its own reward. It takes the student into remote and often beautiful country, and offers him instructive glimpses of the landscape as our forefathers saw it a thousand years ago.

In 963 King Edgar by his charter granted to a thegn named Wulfric "a small portion of land, namely, six hides ('mansae') in the province of the Wrekin-settlers, in two places which are called *Plesc* and *Eastun*" (Birch, *Cartularium Saxonicum*, No. 1119). Since both places are covered by the single assessment of six hides, one would expect them to be contiguous, or at any rate close together; and Ekwall,

[1] *Transactions*, 4th ser., I, 1911, pp.1-22.

doubtless for this reason, finds it difficult to believe that they lie some nineteen miles apart as the crow flies.[1] Nevertheless the detailed perambulation leaves no room for doubt that Stevenson and Duignan were right in identifying *Plesc* with Plaish in Cardington, and *Eastun* with (Church) Aston, adjoining Newport.

The ecclesiastical parish of Church Aston comprises the civil parishes of Church and Chetwynd Aston, with part of the borough of Newport. In origin it was a chapelry of Edgmond,[2] and it was called *Eastun* because it lay east of that important estate. Tithe maps, dated 1840, are in the keeping of the rector.[3] The charter boundary is covered by sheet SJ 71 of the 2½-inch Ordnance map. It runs as follows.

1. First to Diuwuc's path;[4]

This is now Pave Lane (760165).

2. to the boundary of the Lil-settlers.

The parish boundary crosses south-westward from Pave Lane to the brook which forms the northern boundary of Lilleshall (752159).

3. Along the brook to Eota's ford.

It then follows the brook to a point where it is crossed by the main road A518; this would be the site of the ford (734169).

4. From Eota's ford to the big alder.

This tree probably marked the spot where the parish boundary leaves the brook and turns northward (733170).

5. From the alder to the great dyke.

There is no sign of this dyke on the parish boundary, which we have followed so far, but there is a well-marked embankment on the west side of Aston Hill (736176).

6. From the dyke to the hoar valley.

This is probably Longford Bottoms (735181).

7. From the hoar valley to the deep moor.

The names *Moor*field House and *Moor*field Lane show that we are moving in the right direction. The charter boundary crosses the ground between Pool Covert and the Shropshire Union Canal (734186).

8. Along the middle of the moor to Æslic's[5] ford.

The cutting of the canal and the building of Newport have made it impossible to identify this and the next four landmarks with any certainty. Æslic's ford probably crossed the Strine Brook somewhere near 735192.

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[1] *Oxford Dictionary of English Place-Names*, s.v. Plaish.

[2] D. S. H. Cranage, *Architectural Account of the Churches of Shropshire*, Wellington, 1901-12, II, p.566.

[3] I have to thank the Rev. S. B. Bailey for permission to consult these maps.

[4] The personal name Diuwuc occurs nowhere else. The termination *-uc* points to a Welsh rather than an Anglo-Saxon origin.

[5] So the MS., but perhaps we should read Æslac, a name for which there is other evidence at this date (*Cart. Sax.* 1112).

9. From Æslic's ford along the moor to the boundary of the religious community.

Hina is the genitive plural of *hiwan*, which means a household, or a community of monks or nuns or their dependants.[1] It is difficult to guess what community can be meant here. Instead of crossing the Strine Brook, the parish boundary turns south-eastward. It now marches with Newport, but, as the name implies, Newport is a town of late foundation, carved out of the manor of Edgmond; it is usually said to have been created by Henry I.[2]

Judging from the previous and succeeding landmarks, this boundary point should be sought about a furlong north of Vauxhall (738190).

10. From the boundary of the religious community to the three dykes.

The parish boundary runs along a feeder of the Strine Brook, and the three dykes may have been artificial water-courses draining into it, at or near 742186.

11. From the dykes to the long thorn.

12. From the thorn to the gap in the dyke.

13. From the gap in the dyke to the broad rean.

These landmarks take us across the built-up area in the southern end of Newport and into the civil parish of Chetwynd Aston. 'Rean', also spelt rein, reen, rhine, is a word of frequent occurrence in the field maps of the district. It signifies a runnel, water-furrow, or large open ditch.[3] Here the rean is a deep ditch which is now crossed by the railway line at 758184.

14. From the broad rean to the boundary sike.

See landmark 9 in the Plaish boundary. In this case the sike is the rivulet which is crossed by the modern road A518 at Parson's Barn (759193).

15. From the boundary sike to the boundary dyke.

This dyke forms the parish and county boundary, running alongside the Strine Brook (760194).

16. Along the boundary dyke to Wiggerd's tree.

The tree probably marked the point (772182) where the parish boundary of Chetwynd Aston leaves the county boundary and turns south-westward over Stockton Roughs.

17. From Wiggerd's tree back again to Diowuc's path.

The starting-point in Pave Lane.

Although *Plesc* is named first in the charter, its boundary is given after that of *Eastun*. The Old English word *plæsc* signifies 'a shallow piece of standing water, a marshy pool, a puddle'. An area of wet grass and sedge beside the roadway at Plaish is enclosed within a semicircular stone wall about three feet high, projecting from the garden wall of Plaish Hall. The enclosure has an entrance in the middle, arched over by a wrought-iron lampholder, now empty. Its purpose is obviously to protect the wayfarer from stepping into the 'plash' from which the hamlet takes its name. In wet weather the pool has been known to flood the whole roadway.

The grid references in the notes which follow are all to be found on sheet SO59 of the 2½-inch Ordnance map. In tracing the boundary, I have also consulted the tithe maps and awards of Chatwall (1841), Plaish (1844), Cardington (1847), and Broome (1848).[4]

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[1] A. H. Smith, *English Place-Name Elements*, Cambridge, 1956, I, p.247.

[2] Ekwall refers a coin struck c.1050 at "Niweport" to the Shropshire Newport, but Mr. R. M. Dolley, of the Department of Coins and Medals, British Museum, attributes most of the Newport coins to Newport Pagnell, Bucks. In the *British Numismatic Journal*, XXVII, 1955, pp.92-99, Mr. Dolley considers, only to dismiss, the possibility that a coin of Ethelred II which he believes to have been struck at Bridgnorth, and of which the obverse die reads NIWAN, emanated from the Shropshire Newport.

[3] The MS. has *ræne* here and *rære* in the next landmark. Stevenson and Duignan leave the word untranslated.

[4] These are in the custody of the vicar of Cardington, the Rev. W. P. McFerran, whose kindness I gratefully acknowledge.

The charter boundary runs as follows.

1. First from Plaish to the brook.
Moving eastward from the 'plash' (Grid reference 530964), we reach the brook just below Holt Farm, at or near 537962.

2. From the brook to the plank bridge.
The brook is crossed at Yewtree Farm (543959), and the plank bridge was either here or a furlong south-west of the farm (541956).

3. From the plank bridge to the high street.
'Street' in Anglo-Saxon charters means a paved road, often one of Roman origin; and 'high' in this context, as in so many High Streets up and down the country, means 'chief, important'.[1] Here the reference is to the road which runs north and south through Plaish (532951).

4. From the high street to Straw Well.
The tithe award gives the clue to this landmark. It shows that two damp fields on the edge of Plaish township were named *Straw* Moor (525952).

5. From Straw Well to the little dyke.
The exact position of the dyke cannot now be ascertained, but it was probably on or near the road leading up to Chatwall (?515961).

6. From the dyke to Hoar Valley.
This is the valley between *Hoar* Edge and Chatwall (515975).

7. From Hoar Valley to the stone quarry.[2]
In his geological report on the Roman town of Uriconium, Mr. T. C. Cantrill states that some of the building stone for that town was quarried from Hoar Edge; and there is a paved road, locally known as the Devil's Causeway, running from Chatwall through Ruckley to Watling Street, which looks as if it may have served as a quarry road.[3] The quarry of the charter may have been the one at 524983.

8. From the stone quarry up to the heath.
The place-name Broome commemorates this heath. We follow the line of the Cardington parish boundary to 530986.

9. From the heath to the sike.
"In place-names *sic* was often used of a stream that formed a boundary."[4] So here: the rivulet on the Church Preen–Cardington boundary is reached at 530980.

10. Along the sike to the common lea.
This is Bowman Hill, the lower slope of which was being grazed by sheep when I saw it (530975).

11. From the common lea to the brook.
537962 again.

12. Thence back to Plaish.

The charter which remains to be considered (*Cart. Sax.*, No. 1315) is dated 975. It is a grant by King Edgar to a thegn named Ealhhelm of three hides of land ("man-

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[1] A. H. Smith, *op. cit.*, I, p.237; II, p.162.
[2] Reading *stan hiwete* for the meaningless *stan hifete* of the MS.
[3] *Archaeologia Cambrensis*, LXXXVI, 1931, p.94; *Trans. Shrop. Arch. and Nat. Hist. Soc.*, LV, 1954, pp.42-44.
[4] Smith, *op. cit.*, II, p.122.

siunculae") at *Eastun*. This is Aston, near Wellington, a township of 1,389 acres[1] in the civil parish of Wellington Rural. For ecclesiastical purposes it is, or was, attached to Uppington, and its name is due to its geographical situation east of that village. The charter boundary is covered by sheets SJ 60 and 61 of the 2½-inch map.

1. First to Wulfheard's tree.

Looking northward from Aston, the tree would stand out on the skyline at 610105.

2. From the low along the lea to the street, on the king's boundary.

The "low" is Overley Hill, on which the tree of the first landmark grew. The "lea" recurs in the modern names Over*ley*, *Lea* Rock, *Lea*ton, and the "street" is the Roman Watling Street, which the charter boundary, like the parish boundary today, reaches at 615106. The "king's boundary" must be that of the royal manor of Wrockwardine.[2]

3. From the street to Ebba's moor.

The tithe map of 1841 shows the boundary of Aston crossing the road to Little Wenlock about 2 furlongs west of Buckatree Hall and running in a south-easterly direction over the site where there is now a reservoir (637095). This must be the swampy ground once known as "Ebba's Moor."

4. From Ebba's moor to the boundary of the religious community.

On the expression *hina gemære*, see the note on landmark 9 of the Church Aston charter. If we follow the boundary of the modern civil parish, it brings us round to the point (641091) where Wellington Rural adjoins Little Wenlock. This parish belonged in 1086 to the lately refounded priory of Much Wenlock, five miles away on the other side of the Severn; but the identity of name—both places are called Wenlock in the Domesday record—strongly suggests that both had belonged to St. Mildburg's original foundation. The accepted history of this abbey is that it was founded as a nunnery or a house for both sexes in the third or fourth quarter of the seventh century, destroyed in the Danish conquest of Mercia about 874, refounded as a house of monks by Earl Leofric between 1017 and 1057, deserted by 1080, and finally refounded as a Cluniac priory before 1086.[3] But there are good reasons for doubting the truth of this account. A charter of 901 shows the church of Wenlock exchanging lands in Easthope and Long Stanton with the viceroy of Mercia.[4] We know from Domesday Book that the church obtained a reduction of its assessment for Danegeld in the reign of Cnut (1016-35).[5] Of Earl Leofric and his wife we read in Florence of Worcester merely that they enriched the monastery at Wenlock, and several other churches, with precious ornaments.[6] It may well be, therefore, that the history of St. Mildburg's foundation took much the same course as that of the contemporary house at Gloucester, which, founded as a family monastery in the seventh century under an abbess of royal birth, lost this character after a generation or two when the founder's kin died out, but remained in being as a college of secular clerks. If so, Much Wenlock may not have become derelict until Shropshire was laid waste by William the Conqueror, only ten years or so before its refoundation as a Cluniac house. On this showing there is no difficulty in understanding that the boundary of Little Wenlock could be described in 975 as "the boundary of the religious community." It may be added that the name Wenlock is the Welsh *gwyn-loc*, meaning 'white monastery'.

5. Then along the boundary of the religious community to the burial-place.

We follow the Little Wenlock boundary to Willowmoor, a 'burial-place' marked by a number of tumuli (643085), where in 1835 many broken spears were found. On modern maps the wood called Hazle Hurst is included in the parish of Little Wenlock, but this clause in the charter, if my interpretation is correct, gives it to Aston.

[1]Kelly's *Directory of Shropshire*, 1906, p.293.
[2]In 1066 Wrockwardine belonged to Edward the Confessor.
[3]Eyton, *Antiquities of Shropshire*, III, p.225.
[4]Birch, *Cart. Sax.*, No. 587, translated by Stevenson and Duignan, *loc. cit.*, pp.4-6.
[5]*V. C. H. Shropshire*, I, p.312.
[6]*Monumenta Historica Britannica*, ed. Petrie, 1848, p.609.

6. From the burial-place to the Wrekin.
Climbing the southern face of the great hill.

7. Then along the Wrekin to the boundary of the men of Uppingham.
Uppingham is now Uppington.

8. Then along the boundary to the well.
We follow the Little Wenlock boundary to a point slightly south-east of the summit (629078), then turn north-westward between Needle's Eye and Raven's Bowl, over the crest of the Wrekin and down the northern flank, following what is now the boundary of Wellington Rural to a well some four furlongs east of Woodgreen (618089).

9. Then from the well to the moor.
The low-lying damp ground near Aston Coppice (612093).

10. Then from the moor to the brook.
Not the Bell Brook. We continue in the same direction, along a runnel which is shown on the tithe map as forming the boundary of Aston here (609095).

11. Then along the moor on the dyke to the Upping(ton) boundary.
Still continuing north-westward (603097), and following the Uppington boundary over the fields.

12. Along the dyke to Watling Street.
The modern road A5 diverges a little to the north of Watling Street, but the charter boundary keeps to the original line of the Roman road.

13. Then from the street to the lea.
At 605104 the boundary moves northward from Watling Street and takes in part of Over*ley* Hill (*cf.* the note on landmark 2).

14. Then along the lea until it comes again to the stone at the low at Wulfheard's tree.
It then returns to the starting-point, marked by a boundary stone somewhere near *Lea* Rock (611106).

AN EIGHTEENTH CENTURY STEWARD AND HIS WORK

By E. M. Jancey, M.A.

In an article of the preceding number of the *Transactions*[1] some account was given of the investments made in land by the Hon. and Rev. Richard Hill during the early years of the eighteenth century. He consolidated and increased a great estate centred on Hawkstone with which his family had been long connected. There is no evidence that Hill ever visited Shropshire during the years in which he was concerned with these properties, which were given into the charge of local stewards or agents whose actions he directed from his houses at Richmond or in Cleveland Court, St. James. His own orders and enquiries, except for an occasional draft or jotted note have not survived, but a considerable number of the letters written by his stewards in reply to them form part of the Attingham Collection, now deposited in the Salop Record Office by the Lady Berwick and the National Trust. These letters reveal a whole way of life among the tenants on Hill's estates and demonstrate the importance of the steward's position in eighteenth century estate management and agricultural economy, particularly on an estate where the landlord was an absentee yet of great wealth, which he was ready to invest in improvement and expansion.

Much of Hill's business was supervised by the Reverend Richard Price, husband of Hill's sister, Sarah, and vicar of Drayton. He was also Rector of Hodnet, to which he had been presented in 1702 by Hill and Sir Richard Vernon.[2] He had been much concerned in the affairs of Hill's brother John, who died early in 1713, and whose son was Hill's own heir. This circumstance probably led to Price's continuing to do for Hill himself the kind of business he had done for his brother. A few letters have survived from Price, in which he frequently refers to Mr. Ball and Mr. Dicken who acted as Hill's regular stewards. Ball was in charge of estates in Whitchurch, Ightfield and the Prees area. Dicken managed those in Weston Lullingfield, Burton (in Condover), Wem, Marchamley, and Weston-under-Redcastle. For Thomas Ball's work we have the evidence of a short series of letters, one of which gives an interesting account of the perambulation of Prees Manor, and a few rent rolls. For that of John Dicken, in addition to the rent rolls he prepared, a much longer series of letters has survived. It is not known when he entered Hill's service. The earliest evidence of his work is a rental of 1711. A bundle of vouchers to his expenses dates from 1712. The letters begin in 1713. There are gaps in the series which leave the years 1714-1718 ill-documented. From 1719 until 1724 there is a good sequence with some gaps partly due to Dicken's visits to London, then nothing for 1725, and then again a fair number for 1726 and 27, the year in which Hill died. There are over 140 of these letters, written in a small neat hand, old-fashioned for its period, which wastes no space on the paper. Their physical form matches their contents, for they are packed with detailed information about the many duties which fell to Dicken as Hill's steward.

For the first few years, these letters are dated from Wollerton, where Dicken's family had been established for some time. In the Hearth Tax Roll of 1672 Rowland Dicken, senior, is entered as having one hearth, William and John Dicken, two

[1] T.S.A.S. Vol LV, part II, 1955-56.
[2] Introduction, Hodnet Parish Register, Shropshire Parish Register Society, Lichfield, Vol. XI, part I.

hearths, and Rowland Dicken, junior, three. The prevalence of the Dicken family in the Hodnet area makes it impossible to discover a great deal of John Dicken's own origins. He was not, however, a landless man. We learn a little about his status from his marriage settlement which has been preserved in Mr. Bygott's Collection, now deposited in the Salop Record Office. Himself a gentleman, son of a gentleman, Thomas Dicken, he married in 1718 Triphena, younger daughter of Samuel Watkis, gent., of Aston in Wem, member of a family which, according to Garbet in his *History of Wem*, was of long standing there. She brought a portion of £800 to the marriage, £400 of which was contributed by her father, the other £400 being her own money bequeathed by an uncle. The settlement is a complicated one, as part of Dicken's estate was shared by his father whom he had to buy out—a circumstance which suggests that at this period the Dicken family's landed possessions were modest. They had an estate at Wollerton which included the house in which Thomas lived, lands there and in Marchamley, on part of which John Dickens had erected a brick house and outbuildings which he later told Hill had cost him nearly £400 to build, and three water-corn mills. Thomas Dicken also had on lease for lives from Sir Robert Corbet of Adderley some land in Tern Hill. John Dicken had acquired in 1718, the year of his marriage, on a lease from Hill, a messuage and some land in Tilley, Wem. This is probably the property referred to by Garbet as that mortgaged to Hill in 1709 by one Simpson, whom he ejected. Dicken's widow lived there after his death.[1]

In 1726 Dicken proposed to sell the Wollerton estate. The history of this transaction which was abortive, yields a little more information about Dicken's status as a landowner. At the time of his marriage it had obviously taken most if not all the property he had to meet his wife's portion with a suitable jointure and provision for the younger children, but since that date he had acquired an estate at Buerton in Cheshire, of much greater value than the Wollerton estate, and wished to purchase further properties in that county. Nevertheless, he had not sufficient money to do this unless he sold the Wollerton estate which he offered to Hill at 25 years purchase, the rent standing at £80 10s. Although the land lay in the centre of Hill's lands, and could supply timber where timber was otherwise scarce and had mills at which Hill could oblige his tenants to grind their corn, Hill was reluctant to meet this price. Dicken's title was intricate, encumbered by the marriage settlement, and, said Hill, a friend was always preaching to him the danger of breaking settlements, so that he declined Dicken's final acceptance of his last offer which had been £1,920 14s. 4d. Dicken, having sold the Wollerton estate, wished to settle part of Buerton to the same uses, thus breaking his marriage settlement for which he would need an Act of Parliament. He finally achieved this aim in 1728, when he sold part of Wollerton to his brother Thomas and part to Hill's nephew, Sir Roland, for £1,850[2].

All this implies that Dicken was not wealthy, but that he steadily improved his position. His possession of property was probably of value to him in his position as Hill's steward, giving him a measure of independence and authority among the gentry and tenants of Hill's estates and assisting him to share with his master a landlord's point of view in policies of estate improvement and acquisition.

[1]Garbet, *History of Wem*.
[2]S.R.O. Mr. Bygott's Collection, Wollerton Deeds.

His duties as Hill's steward were many and varied. In carrying them out he was efficient and careful. Perhaps the best way to demonstrate the multiplicity of duties which fell to him is to examine one particular letter as an example—almost any letter would serve the purpose—which gives an account of his recent activities. On 19th August, 1721, Dicken wrote from Drayton where he was then living, having moved from Wollerton to Wem, and then, probably after his marriage, to Drayton. He said he had had the ague, which had then left him, "haveing only five fitts but those pretty severe ones". He had been at Weston Lullingfield to survey the whole estate, in the company of Rowland Downes, one of Hill's tenants from Longford, and his letter goes on to make certain recommendations about the better management of that property. From Weston he and Downes went to Houlstone "and viewed the tenement in ye holding of Adam Downes wch lies in a very low wet country but there is a deal of course Land for ye rent I find that Mr. Chambre has promised Adam Downes that in case he would pay your honour twenty pounds per annum clear of all taxes and repairs he should not be hindred of it dureing his life", but Downes will not pay the Land Tax which is 32 shillings a year. "I believe the Tenement is worth what Mr. Chambre proposed but Downes is an old lame man and his wife old soe not capable of manageing as others might doe". The house is covered with Grinshill slate, the weight of which will cause the timber to give way, and if not taken off will bring the building to the ground. Downes promises to thatch it instead. On Saturday morning Dicken and his companion went from Wem to Yorton to see John Eames' tenement, proposed to be sold. They found it a good corn farm, but not so well manured as it ought to have been. Its only want is mowing ground, "but that may be helped by laying down a piece with clover every year", and he goes on to discuss how the tenement might best be used. He has received some interest due on a mortgage, and assures Hill that his security is safe on Clayton's estate, even though Clayton has been outlawed, as the security was prior to the outlawry. Dicken on the day before (*i.e.* 18 August) paid Mr. Price £100 for Hill's use. He had been told at Salop Assizes that Mr. Cotton had produced a particular of an estate he proposed to mortgage to Hill as security for £400. This mortgage is to be considered when Cotton's agent in the matter comes to Drayton to discuss it. Dicken has heard that a Mr. Whittingham would not take under £630 for his tenement in Longford "so that I have now done thinking of it". He intends to go to Hawkstone next Monday when he will give Hill's directions to John Holford the gardener.

It will be seen from this letter that much of Dicken's attention was given to the consideration of land for sale and its value to Hill's estate. That he was working for a master who was intent on increasing his estates increased Dicken's work in many ways. He told Hill of properties coming on the market, and then, if Hill were interested, surveyed them and investigated the title. If such properties were bought, their administration was frequently added to what he had in hand and this often involved considerable re-organization for the improvement of the estates as a whole. In the earliest rent-roll he prepared, Dicken included a column with the heading "From whom purchased" which indicates the speed with which land was acquired and income from rents mounting. To buy was to improve, and the motive for improvement was to add to the rent income. This policy is fully implied in a letter about an estate at Hadnall which came on the market . . . "the land has been much damaged

by hard tillage without manure. There is indeed a good compass of Land for ye rent but it will require a deal of Improvement before any Advance in the rents can be made."

The steps towards the purchasing of lands were made slowly and carefully. Dicken familiarised himself with those in his area and gave an account, often a useful and interesting indication on land condition at this period. His description of the Hadnall estate of Mr. Berkeley, for example, from which a quotation has already been made, is full and detailed. He went to see it in March 1722 and found the Hall to be "a small old house with an addition of two roomes upon a floor some yeares since built, but those neither ceiled plaistered nor glazed. The outbuildings are also small and out of repair. There are some good timber trees standing in the hall yard wch are ornamentall and the mote garden and walks may be made very pretty, but at present much out of order, As to the other messuages they are not all in soe good repair as Mr. Sutton reported. The land lies convenient and might be laid into two farms . . ." In October of the same year he went to Hawkstone to see the land which a Robert Morris proposed to exchange with some of Hill's—a piece of about 7 acres "which lies indeed very well amoung your honour's lands and has a water pit in it and then he took me to ye lands wch he would have in exchange which are two of ye principallest peices of Land that belong to Mrs. Staunton's tenement . . . and lye up to Marchamley town side and he proposed to exchange foot for foot soe farr as his peice and another little Croft wch he has at Whirley Lane would measure and then he would purchase of your Honour the remainder of those two fields and that in ye mean time and till Mrs. Staunton dyed your honour should have his land at an yearly rent. This and nothing else will satisfye him which I shall never advise your honour to agree to (your Land being much ye better in Nature). I always thought he would have an advantage if he did exchange but now I have seen what he offers at I can terme him noe better than a cunning man".

A knowledge of men was as important as knowledge of an estate for sale. Of particular interest to the intending purchaser in judging the nature of the proposed transaction was the reason for selling. In indicating these reasons Dickens' letters often have great value in shewing the class of landowner who needed to sell at this time. In April 1723 he reported on a property at Wolverley in Wem belonging to a man, like himself a professional steward, and, obviously, like himself, the possessor of only a moderate estate. "One Mr. John Wickstead of Namptwich an agent to Lord Cholmondeley is abt to sell an estate he has in Wolverley in the Parish of Wem wch lies near adjoyning to the Estate late Sr Cha: Addam's. The Tenement is let at £45 per annum part whereof vizt the house two Cowhouses and two small Crofts thereto adjoyning of abt three pounds per annum are Copyhold and pays eight pence per annum Cheif rent to Ld. Newport. The barne stable one Cowhouse &c and all the other Lands are ffreehold I viewed the same on thursday evening wth Mr. Wickstead and yesterday wth Richd Griffiths of Weston Lullingfield and think the same a midling bargain as things now goe. The Lands lye very contiguous to the house and buildings and are mostly very good wth sufficient moweing ground for such a farme and there is some little timber thereon. The stable and one Cowhouse are just new built wth bricks & very well finished and the house and other buildings are in very good repaire". It is worth above £42 p.a. in rent "He asks twenty four yeares

value but I believe will take a good deal less for ye same he saies he was offered 37 yeares value abt three yeares agoe at which time he had noe thought to part wth it but his eldest son haveing lately miscarried in his marriage & he having 12 or 13 younger children and being likewise in debt is now resolved to sell this estate and makes your honour an offer of the refuseall of it . . ."

When Hill was sufficiently interested to consider more closely the case for buying an estate, Dicken often prepared or found others to prepare, a particular of its value with notes as to the possibility of increasing the rent income from it. If this stage was satisfactorily achieved, it was then Dicken's duty to examine the title of lands to be sold or the security of lands to be mortgaged. This was sometimes a complicated task, particularly when an assignment of mortgage was taken over. In the case of the property of John Henshaw, for example, who had some tenements in Longford, Dicken had to assure his master that, though heavily in debt, Henshaw was not likely to become bankrupt and that the risk of taking an assignment of one of the mortgages might safely be made. The danger was outweighed by a probable future advantage. "I think if your honour is pleased to comply you will be sure to have the whole estate in case it comes to be sold as I doe presume it will." An estate acquired from the Minshull family caused great anxiety as Hill had purchased it of an elder brother who had not taken proper steps to extinguish the rights of his younger brothers and sisters, one such brother not being of the age of consent when the conveyance was made, as Dicken discovered from a search in the parish register. Hill's need for a collateral security in this affair was the greater as this younger brother whose interest in the estate might be claimed as still alive was lunatic. Dicken attended the court in Drayton at which the Commissioners declared the young man lunatic, and wrote off to Hill that he would look up the titles at Hawkstone and give his opinion on the matter.

When a purchase was finally decided upon, it was often Dicken's responsibility to see that proper assurances were made in the deeds and the conveyance completed in a manner that assured Hill's title. The deeds were then laid up in the muniment room at Hawkstone, with all the other "writings" which Dicken from time to time consulted. All this demanded a considerable knowledge of conveyancing law and practice, as well as of the even more complicated laws of debt and trespass for the recovery of loans. Dicken's grasp of some of the complicated affairs that came in his charge is often masterly, particularly in that of the estates of Mr. Clayton who had been outlawed, presumably for debt, and some of whose properties were mortgaged to Hill, who in 1723 bought his manor and estate of Stanton upon Hine Heath. There is no evidence that Dicken himself had a legal training. His profession was certainly that of a Steward skilled in Husbandry and land management, not that of attorney using a knowledge of the law in the field of estate stewardship. The position of steward, however, always involved some knowledge of law, if not that of ordinary conveyancing practice, at least that of manorial administration. His profound acquaintance with manorial custom and land tenure is often illuminating for the manors with which he became concerned, though there is no clear evidence that he himself ever acted as Steward of a Manorial Court—and this suggests that he was not, in fact, a qualified lawyer. He was, however, fully aware of the differing manorial customs which might affect his master's rights. When Hill bought the property at Wolverley

from Mr. Wickstead and designed that they should be held by his nephew Rowland Hill, Dicken was careful to write in 1723, "As to the Copyhold part I think your nevew Mr. Rowland Hill who is already a copyholder of the manor of Wem had best be admitted tenant to ye same when he comes next into this Countrey for if a man has twenty Copyhold estates in that Manor purchased at some many severall times yet upon his death there will be but one herriott due to the lord and tho this Copyhold there be never soe small the like herriott will be due at his death".

If the acquisition of properties involved Dicken in much careful work, the administration of them demanded no less. Hill was deliberately investing part of a large fortune in estates, but he was not sinking money into land without seeking a good return for his capital. In order to get a good return he was prepared and anxious to improve his land so that it could produce as high an income as possible.

At this period there were two main moves in the re-organization of land-holding thought to make an estate capable of yielding a bigger rent. One was enclosure of the commons. In 1720 Hill was anxious for the enclosure of the Common at Weston Lullingfield to go forward. Dicken went there and believed that "all the freeholders will agree to enclose ye Common there provided your Honour will consent to some of their proposalls Vizt. They to allow your Honour only a tenth of ye whole as Lord and to divide afterwards according to every mans estate wch I think too little for a Lord's share". Dicken undertook to do his best to assure Hill's rights, but this matter of enclosing Weston Common foundered eventually for a time on the question of lordship. The other move was towards the discouragement of small holdings, as tenants could not live by them sufficiently well to carry an adequate stock or pay a good rent. The possession of capital in the form of stock was proof of a tenant's worthiness for a good holding, and effort was made to make a commodious farm for a suitable tenant with a good stock. In many cases holdings were re-arranged and, re-distributed in large units, this re-distribution often taking place after the purchase of property which had been bought because of the possibilities it offered for the creation of fairly large farms in this way. Dicken looked out for property which could be bought to be used in this way. In August, 1722, he was treating with the executors of William Griffiths for a lease of a tenement in Longford. The whole tenement was worth £34 p.a., of which £10 was long since sold out for the term of the lease . . . "there is only one life in being, a woman of about 60 but very hearty". Dicken offered £60 and for 3 guineas more believed they would take it, but he refused to give it and thought they would descend to what he offered. The reason for his anxiety to get it is then made plain. With part of another tenement it might make a useful farm for Hugh Thomas "becuase I find it so difficult to turn off any tenant and here would be noe damage done to any one". Hugh Thomas was, indeed, a problem at this time, and this Longford tenement would save turning off Richard Brown, as would have been necessary if a project at Horton were continued, of making a large tenement there for Hugh Thomas.

This policy of creating larger holdings, with its attendant problem of disposal of the tenant of the smaller unit thus dispossessed is made very clear in the management of the estate at Weston Lullingfield. The substance of that estate was laid into two tenements by breaking two holdings and adding them to two others. This, Dicken explained, would cause some expense, but he hoped the charge would be made

up by the advance in rent. He let one large tenement so created to Richard Griffiths, the other to a Thomas Shore, if he should agree "& if he and I doe not agree I can set those Lands to one that I believe will make a better Tenant, for I doubt Shore is full weak to hold so large a farme but he saies his ffather will come with him and bring a sufficiencie of stock of Cattle to manage it wch if soe he may doe well and ought to have a preference" (Shore having held one of the smaller holdings now broken). In 1723 Dicken's asked Hill's directions about Richard Wood of Burton (in Condover) who had rebuilt a barn at his own charges. He had to have a new barn as he could not manage with the old during the term of his lease, which is that of his father's life, and some sum could be allowed him. "The tenement is indeed worth more but the old people liveing with Richd Wood make the bargain dear to him at the present rent. And in case the sd farme is hereafter laid to Robt Brown the sd barn will be of great use to him he not haveing any more building than what is necessary to his own farme."

That the holdings are too small is the reason Dicken gives in June 1722 for the slow payment of rents on an estate at Weston-under-Redcastle . . . "I endeavour all I can but cannot bring up the Redcastle Tenants to any better paymts. There is £4-15 yet oweing Lady Day Rents 1721 which I accounted wth your Honour for and I doubt it will be noe other way while that Estate is let into soe many hands". That it was an estate on mortgage and not in outright possession was a hindrance to drastic re-organization. "I think it would not be convenient for your honour to make any alterations dureing ye Continuance of your Mortgage".

The Collection of rents was not always an easy business. Dicken's diligence in this duty had early commended itself to Hill. In 1713 Price wrote "I spoke to Mr. Dicken of what you once wrote of the Consideration of his Trouble in gathering your Rents & as I did desire it on the account yt you were adding to yr Business of dealing with Sir. R. so he desires it may be let alone til that is done yt he may know what his Business will be & then he is for Referring it to your Honour yet I shall with Submission to you and making you acquainted with it make a proposal & afterwards an Agreement with him to his Satisfaction for I find he is very diligent in your affaires".

This letter refers to the lands which Hill eventually acquired in Longford and Moston from Sir Richard Vernon which were added to the properties in Dicken's charge, with all the attendant increase of work which obviously was to Dicken's advantage as his salary was increased in proportion. His salary was apparently based on the rents collected from each group of properties, they being treated as separate units. He was answerable for the money coming to his hands, and from it made payments on estate expenses, so that repairs, for example, came out of rents, and any surplus was forwarded to Hill by bills of exchange.

Hill, a very wealthy man, knew, like many rich men, the value of small sums and was anxious to receive his due—though not more than was his due—and the full value for his tenements. Much of Dicken's letters are concerned with explanation of financial details.

Unfortunately, although some of his rent rolls have survived, the accounts that would supplement and complement them, are missing, though we know from his references to them that they must have been lengthy and complicated documents. A few bundles of vouchers to Dicken's expenses on estate accounts show to some extent

the nature of out-payments. The letters give only hints as to the real financial system, but they contain much evidence of Dicken's diligence and of the conditions under which rents were paid. In April 1713 Dicken went to Weston Lullingfield to demand from John Griffiths his half year's rent due on Lady Day. "I staid there till after eight of ye clock at night & he not paying I made an Entrey". In 1720 many of the tenants had fallen into arrears.—One William Fox had been a very slothful tenant, "but he hath lately turned over his farme to his eldest son upon Marriage who I hope will prove a better tenant otherwise I will sharpen him"—In August 1722 he sent up a bill for £150, all he could raise, "for money is got very scarce". In February 1722/3 he explains the distraint he has had to make upon one Thomas Gittins, for whose misfortunes he was sorry. Gittins' tenement was sublet to him by Ikyn, one of Hill's tenants who had given Dicken an order upon Gittins to pay rent to Hill, which Dicken had accepted. Ikyn would never have paid it "he being a scrawling man". Dicken therefore said he was compelled to distrain Gittins for the rent. The history of this transaction is illuminating, for Dicken, who was not loathe to use his own initiative in some cases, here felt responsible for having accepted a security which, to save his own credit, had to be discharged even in an instance where he felt some real hardship was likely to be done. It also suggests that Hill exacted his due rents with some precision. The outcome was that Gittins was to go at Lady Day 1723 "let who will come there", wrote Dicken, "I will take care to secure the rent that shall become due to your honour". Neither Hill nor Dicken, however, were as heartless as would appear, for in a letter Dicken wrote, "I confess there is noe obligation upon your Honour to allow Tho. Gittins anything but the man's misfortunes have reduced him to an object of charity and as such your kind gift will be very acceptable." There are other indications of gentleness by landlord and steward to tenants in real distress. Dicken proposed to set a small cottage in Longford, formerly yielding a rent of 6d. and later of 12d. to a poor man whose father would give him the money if he could get a lease for 3 lives, for which he would pay 9 guineas and a shilling a year. It would have been possible to set the cottage for 15 shillings a year, but Dicken wrote "it will be of great service to ye poor man, he being a Parishioner there and unless he can have ye lease his Father will not give him ye money".[1]

In advocating the consolidation of small holdings into large farms and getting rid of smaller tenants, in favouring the use of such crops as clover, and in encouraging enclosure, Dicken appears as a steward modern in his age with a grasp of the approved trends in land-management.[2] The particular value of his letters, besides shewing such a steward at work, lies also in its demonstration of the extent to which the management of the estates of an absentee landlord was in this case a partnership between landlord and steward. Hill was anxious to improve—the move to enclose Weston Common, for example, came from him, and he was anxious to consolidate his estates, to buy properties which lay intermingled with his own so that he had possession of blocks of land in the areas in which he was interested. Dicken had a keen grasp of his master's ambition and worked to further it wherever possible. As Hill's side of the correspondence is missing, it is sometimes difficult to discover to what extent

[1]The reference to his being a parishioner means that he had his settlement there and could properly claim parish relief if his circumstances deteriorated.

[2]See the account in G. E. Fussell's book, *The Old English Farming Books from Fitzherbert to Time* of Edward Laurence's *The Duty of a Steward to his Lord.*

Dicken accepted and was allowed to take complete responsibility, or how far the qualities he exhibits—qualities which when listed would make him a perfect example for a Steward's Vade Mecum—were demanded by Hill. Certainly for the wealth of detail in his letters we must be grateful to Hill whose queries needed full answers and who sometimes asked for fuller information than he had been given.[1] In the final event, of course, the decision was always Hill's, but the decision was made on the basis of evidence supplied by Dicken and often according to the advice he was not afraid to give. For the relationship between the landlord and steward in this enterprise of estate building the whole tone of Dicken's letters is illuminating. He addresses Hill as "Honoured Sir" and signs himself Most obedient and most devoted servant, according to the manner of the day, and assures Hill, in the phrase of the day, that he will use his best endeavours in his service, but he never writes obsequiously. He is rather the specialist, writing with the authority of what he knows. For knowledge of local conditions Hill had to depend on Dicken, whose comprehension of the way of life on which the prosperity of an estate must depend was far keener than his master's This understanding is often apparent in statements made by the way, explaining what may or what may not be done, of what is possible and what impossible. When Hill wished to buy some land at Whixall, Dicken wrote that the Common there is enclosed "except a large peat moss out of which most of the poor people in the neighbourhood gett their liveing by getting and selling the peats soe that there is no possibility of any purchase to be made thereof". He indicates at times the economy on which the whole was built. One man could not pay money due until his tenant paid him, which the tenant could not do until he had sold his cheese. Other tenants could not pay their rents until after the next fair day, when presumably they would receive cash for the sale of stock.

Hill's own estate works were a source of employment to tenants and labourers in the district, much valued to a class which thus gained subsistence for their families at lean times of the year. The most considerable expenditure, and therefore distribution in cash amongst a number of agricultural workers and tradesmen was the improvements of Hawkstone House itself and its immediate demesne. This work was begun in 1719. Mr. Oswald has given an account of these in articles in *Country Life*. Those to the house consisted largely of the addition of pedimented porticos on the north and south sides and on the west or entrance front. Those to the grounds included the planting of avenues to form stately approaches to and vistas from the house, the making of formal gardens on the east front, and the laying of a great paved fore-court at the entrance front.

For these improvements Dicken acted as Clerk of the Works. As steward he was familiar with the natural resources of the estate and its region for the necessary brick, stone and timber and for the labour force required. He was responsible for much of the expenditure, again as his position meant that he had money in hand from rents coming in to him. When these supplies were not sufficient they were supplemented from moneys from the accounts kept by Mr. Price. It is noticeable, however, that Hill did not usually send money from London for these purposes—

[1]As an appendix to a letter of 8th May, 1721, Dicken has made a list of Hill's queries His answers to them indicates Hill's sharp eye for detail.

the embellishment of the house was paid for out of the local estates, so that much of the expenditure was ploughed back into the payment of local labour.

Dicken rode over to Hawkstone from time to time to report to Hill on the progress of the works and transmit Hill's orders to the skilled craftsmen engaged on them, particularly to William Price the Mason and Joseph Holford the gardener.[1] In his dealings with these men Dicken's duty was to make his master's orders clear, not to give orders himself, and to report to Hill the difficulties and decisions made by these workmen who were responsible to Hill, not to Dicken whose office was merely that of intermediary.

William Price was probably the mason of Wem mentioned by Garbet as having been said to have given "flags and the work in consideration of his having been cured of the rheumatism" by bathing in "a noted mineral spring which has a strong tincture of alum" in Tilley, Wem. Unfortunately nothing more is known of him, of his training, or of other work done by him. He built the Hill family vault in Hodnet Church under Hill's instructions, and carried out these extensive works at Hawkstone, but a large part of what he did there has been swept away by later alterations. The first piece of work on which we know Price was engaged was the building of the North Portique, for which he had obviously submitted a plan in the early summer of 1719. Hill wrote an answer commenting on this plan, the only letter of his relating to the house which has survived, and this one has had a chequered history, for it appeared in a London Sale-room in 1954. It is now deposited in the Salop Record Office. Mr. Oswald has quoted extensively from it, but it may be worth while to quote from it in full here as it shews that Hill employed no architect, but, having himself a considerable working knowledge of architecture, relied on his understanding of the plans sent to him by this local mason. The letter, dated July 11, 1719, was probably written to Dicken.

"Sir,

I just now receive yr lre of ye 8th with ye enclosed plan of ye portique according to wch I desire Wm Prees may proceed as fast as he can. while he is going forward with his pillars and pilasters, I desire ye carpenter may be employed to prepare his timber for ye beam, or ye beams, wch are to run cross ye pillars & pilasters, to support ye floor of ye pedement room, wch is to be over ye portique, those beams must be of very good & strong stuff, to support a brick wall wch must be at least, brick & half thick! pray let Wm. Prees know, that I desire ye case or molding, round ye window of the pedement room, may be of grinsell stone. I send yo herein a rude plan, to express my meaning, wch I hope Wm Prees & ye carpenter will understand

"pray tell Wm Prees, that if his pilasters are but 6 inches broad, tis too too little: and I wish he could double that breadth at least, for ye pilaster marqued A. but I submit".

The works went on very slowly, with many interruptions. By May 1720 William Price had finished his share of the work on the North "portique", but could not proceed with the other (south) "portique". which was then about 3 feet high, as the

[1] I can here take the opportunity to correct an error in my preceding article in *The Transactions* for 1955-56, where I incorrectly called Holford John, and gave him as the carpenter. The chief carpenter was William Renshaw.

scaffolding was still needed by the bricklayers and carpenters on the north side of the house—a fact which suggests the piece-meal and rather haphazard manner in which the work was done, no concentrated effort being made to finish a concerted scheme, and Price filled in his time by making "peers" for gates in the gardens. The north portique was finished by the end of July. In the meantime the gardeners had been laying out a parterre garden behind the house when the weather permitted; when it did not, they diverted their attention to an area beyond, sloping up the hill, where diagonal walks were laid out, and all the time, the scheme for paving before the house was being carried on. This paving was a great anxiety to Dicken, who throughout the year 1721 was concerned with the getting of "pepples" and paving stones. Hill asked him whether any of his tenants in Longford were sufficiently industrious to get money with their teams by carrying "pepples". Dicken's answer to this, in May 1721, has a note of desperation . . .

"Your tenants at Longford are very industrious by getting money wth their teames and every Sumer carry a great many Iron piggs from ye ffurnace to fforges or to the River Seavern and were last year engaged in that Carriage that they could not carry Stones but some of them will this Sumer as will also your Tenants in Moston this sumer but last Sumer there were noe Stones gathered there As to your Tenants at Willaston there are very few paveing stones in that neighbourhood but where any Stones are to be had I will there employ your Tenants to Carry them. As to the getting of pepples out of the Rivers in the neighbourhood I cannot yet say much to that but if possible will try that method,"

By December 1721 nearly 120 tons of "pepples" had been carried in the course of summer, and when people had ploughed their barley ground, Dicken intended to get more gathered. The works seems to have been in a suspended state in that year. It is possible that Hill was reluctant to spend a great deal of money in the luxury of embellishing the family mansion at a time of financial crisis. The Paving was continued, though throughout its course this part of the works was bedevilled by interuptions due to bad weather, to labourers needing to leave to get in their harvest, by alterations and extensions in the designs by new stables and outbuildings needing new causeways for approach. Joseph Holford the gardener had been the main supervisor, though a man specially skilled as a paver had come from time to time to lay the stones, referred to once by name as J. Griffiths. In 1722 there is evidence of renewed activity in the house works. William Price had been brought to a halt by June of that year, and wished to know if he should continue. He had a bill for some £20 unsettled for putting the finishing to 6 pairs of "peers, for some stone steps, and for stone for laying the floor of the south portique", but there was much other work unfinished, and he was clearly rather confused. Hill must have sent down fresh orders. Dicken wrote on 16 June, 1722, that Price "cannot well give any bill yet of works since the last reckning because part of his worke is done and part undone and till he has finished the same there can be noe proper acct given in". Price continued to finish coping walls in the garden, though he was unable to find suitable stone on Hawkstone hill and "would willingly have done wth Grinshill stone" the coping more in sight. The south portique is a problem, and one is left to assume that it remained unfinished until the next year, 1723, when we hear that in February the carpenter, Renshaw, had set his men to get ready for the Portique to be begun as soon as the weather

would permit for the roof of the house to be broken open "the mason being also in great forwardness with his stone" and by June 8th it was up and covered. Even then the floor was not laid until May 1724. By August of 1723 Hill had therefore achieved two new portiques of which one was still unfloored, a considerable amount of paving in the vicinity of the house[1], a parterre garden, and some new stables and outbuildings. He proposed completing some more paving work, and planting an avenue as an approach to the front of the house, but there is a suggestion, that, this done, he would call a halt, for Dicken writes: "I have not payd any money this year at Hawkstone but what has been expended abt the new Portique, the new farme house, the pulling down and removeing the old buildings, and for paveing stones. I shall observe not to pay Jo. Holford's wages nor any more nor anything else but what is done by your particular directions", though Madam Hill, John Hill's widow, who seems to have lived at Hawkstone in all these years' long confusion, paid for some garden works herself.

Holford was continued in employment, however, and at the end of the year described the formal garden behind the house in an explanation of plan forwarded to Hill, though unfortunately we have not the accompanying plan.

Early in 1724 Hill's attention was directed principally, according to the reports in Dicken's letters, to the construction of a vault for his family in the Church at Hodnet, and William Price was chiefly engaged on that work in the spring of the year. In March Dicken reported: "The men have sunk great part of your vault at Hodnet and Wm Price the mason woud begin to lay the foundacion last Saturday. The same will be larger than we thought of. It will be near fourteen feet long by almost Eleaven wide wthin. Jo. Holford is constantly wth the man to looke after them. Madam Hill caused two new Coffins made one for her late husband and the other all the family bones are put into. Your honour was pleased to say you would send down a marble stone to lay upon the steps or entrance to into the vault which you may order down as soon as you please. the steps will be six foot wide and the marble stone may be as large as you please. Wm Price will cover all the rest of the vault with square Grinshill flaggs wch will discover how farr the same goes and to deter any body from offering to break up any of that ground."

This vault cost £38 7s. 9d., the stone mason's bill being £7 2s. 4d. of the total.

In April, Joseph Holford was back at his proper work of supervising the gardens, completing the avenue on the west approach, advising on a suitable place for a horse-pond, and suggesting the best ways of leading water under the avenue for use in water-works in the parterre garden. Hill, in fact, had decided to continue with his improvements, for by June he had instructed William Price to make a drawing for the front of the house so that embellishments could be made there. "The stone worke now in the front was done wth Dunge stone" (stone from the hill to the south east of the house) "and lookes but something black and dirty". Price prepared two drawings, one as the front then appeared, and one shewing a design with fluted pilasters and corinthian capitals with the addition of a pediment, and Dicken added, "Wm Price

[1]The paved courts must finally have appeared as a walled court before the house, and a large outer court floored with pebbles encircling a grass plot in the middle. See Mr. Oswald's article in *Country Life*, April 3, 1958. Vol. CXXIII, No. 3194.

saies the Pilasters to ye East are after the Dorick order, as also the North & South Portiques but he thinks the best front ought to be according to ye draught."[1]

Mr. Oswald has given an account of the building of this west front, for which Price received £120, and for which a special carver "an absolute workman" was imported to carve the capitals. It was finished by November 1725.

Dicken had his own problems over this west front, in finding timber suitable for the large beam required. He had hoped the oaks at Wem Brockhurst would provide it, but in the end it was sought from Captain Corbet's woods in Preston Brockhurst, they containing the best timber "in our part of the country."

In reporting on the Hawkstone improvements, particularly in referring to the garden works, Dicken frequently refers to "Mr. Chambre". This was Francis Chambre an attorney, member of the family of Chambre of Petton, where he eventually went to live, though when we first hear of him he was living at Ellesmere. He married Elizabeth, one of the daughters of Hill's brother Robert, and was engaged by Hill on much family business. He was an agent in arranging the marriage of his sister-in-law, Anne Hill (Nancy) with Leighton Owen Griffiths, whom he recommended as having an estate of £430 p.a. and £3,000 worth of timber ready for the axe, all out of debt "all wch I believe to be true having been for many years concerned in his affairs. He is withall a Gentleman of good learning, honest and very sober, and of a good family". Hill finally consented to the match, awarding his niece a portion, allowing her a jointure of £150 p.a. which she was prepared to accept if Hill thought it fitting. Her uncle also gave her £100 for wedding clothes.

Letters from Chambre to Hill have survived from the year 1721, but only in any quantity from 1725, where fortunately they supply a gap in Dicken's correspondence. He writes detailed accounts of the garden works at Hawkstone. In these, he clearly carried more responsibility than Dicken. and was free to give orders in a way that Dicken did not. By 1725 Holford was under Chambre's superintendence, for in 1724/5 Dicken writes that he "hopes to have your honours directions by Mr. Chambre as to what workes you will please to have done this year". In December of that year Chambre paid his wages. Dicken's own activities as Clerk of the Works would not naturally include surveyance of the garden planting, and his reports of the progress of that side of the work are probably only a reflection of his intent to tell Hill of whatever comes to his attention on estate matters generally.

In 1725 Chambre had difficulty in dealing with Holford.[2] In April 1725 he found Holford with a very large number of men and teams about making a large deep pool where the brick pits were, contrary to Hill's directions. He rebuked him and ordered him to choose 4 labourers and to make up his accounts to that day with John Dicken, hired a team for him at 3/4d. a day, and ordered him to call for money from no-one but himself, to keep him out of his wild notions. These labourers were promised work all winter in the new plantations, and therefore their wages were kept low all

[1] This statement indicates and bears out the evidence of a drawing dated 1720 and reproduced in *Country Life*, that the house, before embellished by Hill, had originally been built fairly recently (that is towards the end of the preceding century) or even in the first decade of the 18th century.

[2] The Reader's sympathies are with Holford. Chambre seems at times unpleasantly irritable and he may have been resented because he was not a professional steward but a lawyer acting out of his own sphere.

summer. An account of Holford's labour expenses for the year 1724-1724/5 has survived in Mr. Bygott's collection, and shews that at certain times of the year he certainly had a large body of men working under him paid at a daily rate of 8d. His own wages were £12 a year. William Price seems to have worked on a daily payment of 1 shilling and eight pence though apparently paid by contract for main work.

Chambre went over to Hawkstone every week, or fortnight at most, to superintend the business, which in 1725 includied the laying out of a fir walk leading from the garden behind the house, for which Hill had sent a draft, but which could not be carried straight because of the lie of the land. Much other planting was done, a new orchard made, and nurseries for young trees established. A good many trees were bought, as a nursery-man's bill, paid in December, shews. 60 elms were bought to plant the slope, 230 Scotch firs, as well as other elms, walnuts, and apple trees of the following sorts—nonpareils, golden pippins, holland pippins, golden pairemain, golden renets, pairemains, organge pippin, "whelers rosets" and "paire rosets". It was difficult to persuade Holford to set acorns, seeds, plants, and suckers to avoid this expense of buying trees in the future, and Chambre feared they would not have the ground appointed for a nursery filled. In the Dunge, now turned into a kind of wilderness, he found cause for complaint that the skreens or seats had been finished but not according to directions. "Your workmen have been soe used to their own ways there that directions signify nothing if not agreeable to their own fancy and interest".

In this year, Hill's plans were obviously moving towards completion. Wrought iron gates, procured from Mr. Robert Davies of Wrexham, celebrated for the beautiful gates at Chirk Castle, were hung in the "middle court", but they have since disappeared, swept away in later improvements to the gardens.

By 1726 the reader of these letters gets the impression that nearly all that was planned had been achieved, the last avenues planted and the final arrangements made in the formal gardens behind the house, though in that year one piece of work which had long been a problem was embarked upon. This involved the best way to use a great rock which stood in the way of one of the diagonal walks sloping up the hill south of the pasture. Hill had always wanted it turned into a cave, but William Price the mason, according to Dicken, had advocated a summer house, as making a pleasant object for a walk from the house. In July 1726 Hill had written in a draft on one of Dicken's letters, "I am obliged to Mr. Price ye stone mason for his thcughts concerning my awkward rock, with wch I know not what to do, & therefore only resolve at present to hide & cover it with trees & leave Rowly" (his nephew & heir) "to doe what he will with it". From Chambre we learn, however, that he did not leave it, but that it was hollowed to form a cavern, and in January 1726/7 had a noble look, the beauty of which would be seen a great way.

The garden works had lacked Joseph Holford during 1726 for he had been ailing for some months, and in March of that year he died. It was necessary, wrote Chambre that his place should be speedily supplied, but he could hear of no-one locally, and thought Hill's suggestion of sending some-one from London might do very well. William Price the mason had taken over certain aspects of Holford's work in lining the pools on which Holford had been at work before he left in his illness,

and Price was probably still at work about the estate throughout the year. He was surely the mason who set up the iron work for Hill's own monument when Hill was brought for burial to Hodnet in July 1727.

Whether Dicken, Chambre, Price, continued to serve the new master, Sir Rowland Hill, is not known, but it is likely, as the young baronet certainly completed various transactions on which his uncle had been engaged, but Dicken could not have served him for long as he died in 1733. It is not clear, either, whether Dicken continued to manage the Weston Lullingfield for Thomas Hill, another of Hill's nephews on whom that estate had been settled on his marriage and in 1722/3, since which date Dicken had kept a separate account for that property.

The letters from Dicken cease in July 1727, with one to Thomas Hill relating to his uncle's accounts, information necessary for the executorship of the will. The new heir at Hawkstone was not an absentee landlord and would not have needed the long and detailed letters his uncle demanded from his loyal, devoted, diligent stewards, whose letters have left such a clear picture of their daily life.

CASTLE FOREGATE FLAX MILL, SHREWSBURY (1797-1886)*

By W. G. Rimmer

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Shrewsbury's most conspicuous link with the Industrial Revolution is the *Old Factory* in Castle Foregate, known nowadays as the Maltings. This mill was built in 1796-97 for spinning flax yarn and twisting it into thread. Ninety years later, it ceased production when the firm of Marshall & Co. of Leeds and Shrewsbury, for long the foremost flax spinners in Europe, went into liquidation. At an auction in November 1886, the machinery of this Shrewsbury mill and a bleach yard, a few miles away at Hanwood, fetched a pittance of three thousand pounds; and several years later, the land and fabric passed to other owners. These sales concluded both the activities of a business which Bagshaw in 1851 described as "the chief manufactory at the present time in Shrewsbury," and also the local flax trade, for linen was a product "formerly extensively manufactured here."[1]

The purpose of this article is to consider how machine spinning began in Shrewsbury; how the performance of this mill compared with Marshall's other mill at Water Lane, Leeds; and finally, because the *Old Factory* loomed so large in Shrewsbury's industrial profile, to raise some general questions about the town's slow development during the nineteenth century.[2]

I.

In 1793 after six years of experiment, John Marshall, not yet thirty, developed a method of spinning flax by machinery at Leeds which promised to be a commercial success. In order to expand the production of coarse yarn rapidly, he had to persuade other people to finance his schemes out of their pockets. Hitherto he had turned to relatives and friends for money when the need arose, but this time he wanted more than they would provide. And with both his house and mill heavily mortgaged, he looked round in the autumn of 1793 for new partners. Flaunting the improvements recently made and soon to be patented by his chief mechanic, Matthew Murray, Marshall persuaded Thomas and Benjamin Benyon of Shrewsbury, customers of some two years standing, to take "a half share of the trade, advancing a capital of £9,000 which was equal to mine."[3]

The Benyon brothers, though living a hundred miles away and with their own business to look after, did not turn out to be the passive partners Marshall sought. They were the youngest sons of a Shropshire barrister who came from an established local family, and since 1780 they had been in business putting yarn out to weavers in the vicinity of their native town.[4] Like John Marshall both were unitarians and very ambitious; and confronted with the prospect of a declining woollen trade in the town, the Benyon brothers showed more than average enterprise by seeking business opportunities elsewhere.[5] So they joined forces with Marshall, whose yarns they bought and by whom they were attracted on account of his technical achievements and standing in the flax trade.

On the basis of their own experience, they may well have perceived an opportunity for spinning flax by machinery in Shrewsbury. One would expect such a development.

Like Leeds, Shrewsbury was both a regional market and finishing centre for woollens, and also a town of drapers, an increasing number of whom dealt in linens as the eighteenth century passed by. The Shrewsbury draper like his counterpart in Leeds dealt mainly in Irish goods, supplemented by cloth woven in nearby villages out of local flax, and also in the case of Shrewsbury, from flax brought by river from the South-West. To use machinery and increase local production would be an obvious step in view of the transformation taking place in textile production elsewhere in Britain. When they joined Marshall, the Benyon brothers had this in mind. As a result, although they sold their woollen business and moved to Leeds, once they became the dominant financial partners in Marshall's firm, they pressed for a third mill at Shrewsbury as soon as Marshall had completed his immediate programme of expansion at Leeds. This proposal led in time to the dissolution of the partnership. For Marshall saw the business passing out of his hands, something he had never intended should happen, and he staunchly opposed the scheme.[6] But he could not prevent it; and although he invested no capital in the Castle Foregate mill before 1800, concentrating instead on retrieving his position at Leeds, he had a quarter share in the new concern.

Business politics apart, Shrewsbury appeared, superficially at least, to be a promising location for further expansion. If it was to offset the decline in its woollen trade, the town needed new industries. There were five thousand families in the borough many workers skilled in finishing textiles, and there were handloom weavers in the vicinity of the town. The river Severn navigable for craft of sixty tons and the new Ellesmere canal provided adequate water transport for flax coming from Ireland and the south-western counties; and final products could be sent downstream—yarn to carpet weavers at Bridgnorth and Kidderminster, thread to Bristol and Liverpool and thence by sea. Furthermore the town had a local supply of iron and coal like Leeds. So that all things considered, flax yarn which could be spun mechanically within twenty years of cotton spinning, had a strong claim to be amongst the new industries of Shrewsbury. And following the example of a few successful pioneers, the accumulated wealth of the town's merchants might have been transferred to more profitable uses. Thus the Benyons were trail blazers, trying as Howell said "to benefit their native town."[7] If more had followed in their footsteps, Shrewsbury like Leeds might have grown a forest of chimneys in the early nineteenth century.

II.

It was the intention of the Benyon brothers that Thomas should remain in Leeds and safeguard their interests at Water Lane, whilst Benjamin returned to his native town and managed the mill to be built in Shrewsbury. This scheme had matured by 1796, for in May of that year, the partners ordered a 20 h.p. engine from Boulton and Watt to be delivered at Shrewsbury the following March, and in the autumn they purchased a suitable site, fronting the Ellesmere canal in Castle Foregate, thus securing a situation similar to that at Water Lane.[8] But the new mill was to be unique in one respect. Early in 1796, Mill B in Leeds had been lost through fire, and this stirred the Benyons to ask a fellow townsman, Charles Bage, to design a fireproof mill at Castle Foregate, and in return they offered Bage an eighth share in the Salop concern. This was a prudent tactic on Benyon's side for just as Marshall had Murray's

technical advice, the Benyons needed their own adviser. But whereas Murray was a mechanic who could be hired for a wage, Bage, a gentleman who came from a family of paper manufacturers in the Midlands and had a wine business of his own at Shrewsbury, had to be offered something more. So he joined the firm as a junior partner; and the fact that Marshall decried Bage's business ability and Bage himself in letters to William Strutt emphasised technical matters and belittled business administration, shows how well he adjusted to his special subordinate position.[9]

Bage's knowledge of fireproofing was derived from Strutt's work at Belper, "how much we are obliged to you for teaching us to make buildings fireproof."[10] Using iron columns and beams cast at Hazeldine's foundry in Shrewsbury, Bage constructed a five storey mill, two hundred feet long and covering 3,460 sq. yards of floor space, much larger than anything so far built by the firm.[11] On 16th February, 1797, the partners wrote to Soho asking for the steam engine ; "From the late favourable weather we have enabled to get forward with the building much better than we expected and have now nearly completed it."[12] But five months elapsed before the engine arrived, and it was not installed until early September.

There are no records showing the operation of the mill at this time. It probably had seven hundred spinning and two hundred twisting spindles. The annual profit at Salop estimated on the basis of Marshall's quarter share was—

1799	...	£728
1800	...	£788
1801	...	£3,472
1802	...	£6,676
1803	...	£4,362

Thus after five years, profits brought a 7% return on investment, and in addition each partner earned 5% interest (debited as a production cost) on his capital. As a start, considering the lean early years at Leeds, this performance was very satisfactory. And in 1798-99, a *Cross Building* was added at the north end of the mill and provided with power by a 40 h.p. steam engine made in Leeds by Fenton, Murray and Wood. Transfers of capital from Water Lane to Castle Foregate in 1800-01 suggest that a considerable amount of machinery was being bought for the extension, but the new wing was not fully equipped because at this juncture Marshall left his partners. He had never had much enthusiasm for the Shrewsbury venture, and felt with some justification that spinning yarn at Leeds would have enhanced the power and increased the profits of the business more than a thread mill at Salop. Certainly a pound invested at Water Lane yielded nearly twice as much in profit as a pound invested at Castle Foregate. But this was only to be expected. The Salop mill had only just commenced production and it ran below capacity. At the same time, Marshall believed that so long as mill spinners could make only coarse yarns, thread making would not be a very rewarding enterprise. Dwarfing the economic aspects of the case, however, was Marshall's desire to free himself from the authority of the Benyons. He wanted to keep the Water Lane mills for himself and dispose of Castle Foregate to the Benyon brothers. But this did not materialise. "I would have confined myself to the Leeds concern if the Benyons would have given me fair value for the Salop factory; but as they would not do that, I was determined to show how it would answer with good

management, for I thought the thread manufactory which we had there might be made profitable."[13] So Marshall took both mills.

At the separation in 1804, Castle Foregate was worth £64,000 and Water Lane £74,000. Benyons and Bage took their share in cash and machinery, and started afresh near to Marshall at Meadow Lane in Leeds and at the Canal Terminus in Shrewsbury. Thus, if the enterprise of the Benyon brothers brought mill spinning to Shrewsbury, the town's second flax mill was the result of Marshall's impatience with his partners. In both instances, a mill was built owing to highly personal factors, so much so that mill spinning which should have developed in the town, came almost accidentally. By 1806, the two flax mills employed eight hundred workers, about 8% of the town's occupied population.[14].

Having been frustrated by the Benyon brothers, Marshall resolved never to enter again into a partnership with men of capital. After 1804, he was in a position to finance expansion out of profits, and for the next twenty years until his younger sons were old enough to manage the business, he depended on employees whom he promoted to junior partners. At Water Lane, he put John Hives in charge and at Castle Foregate, William Hutton, formerly the chief clerk at Leeds who "having married early had saved nothing."[15] When the latter's health failed in 1810, Marshall sent Robert Atkinson, the new chief clerk at Water Lane, to share the management at Castle Foregate, and when Hutton died in 1814, Atkinson took charge there. These "confidential servants" allowed Marshall to "bring into full activity the experience and knowledge of the manufacture which [he] had gained, unclogged by the interference of partners whose view differed from mine," and he "could with propriety relax a little from [his] attendance on business," without any fear that his position would be undermined.[16] By renting the fabric and fixtures to the firm at 10% of their initial cost, by supplying virtually all the working capital at 5% interest, and by drawing between 6/9 and 10/12 of the total profit, Marshall ensured for himself a predominant and unassailable position in the business. Unable to secure a foothold for their sons, Hives and Atkinson withdrew in 1821, and established their own firm in Leeds. Marshall replaced them by his sons, and they in turn deputed the everyday management of the mills to senior employees. But their deputies never became partners. At the Castle Foregate mill, William Whitwell and Peter Horsman took charge for a generation. The former joined the firm as a book-keeper in 1806, earned the handsome salary of £400 twenty years later, and made sure that some of his relatives had well-paid posts in the mill. The latter started in 1819 at a salary of £270, and earned £400 in 1826 when he managed the production side. Horsman left in 1848, Whitwell two years later, and their places were filled by Edward Parry, whose skill lay in finishing yarns. He joined the firm in 1846, became general manager at Castle Foregate with a salary of £400 in 1851 and retained that position until the firm closed a generation later. No member of the Marshall family resided in Shrewsbury, and as a result of these managerial arrangements, the mill and town derived much less benefit than Leeds from the interests and influence of the mill owners. Their executives may have been very capable business men but they lacked social standing and wealth with the result that they made little impact on the affairs of the town.[17]

III.

By 1806, Marshall had overcome the financial difficulties involved in separating from the Benyons, and owing chiefly to wartime price inflation, he soon had sufficient profits to replace the machinery which Benyons and Bage had taken away with them. Sometime in 1807 he decided to expand output at Castle Foregate, rather than at Water Lane. The former had spare floor space and even more important used Irish flax, the supplies of which were less imperilled by war than the Baltic flax used at Leeds. Between 1806 and 1814, the number of spinning spindles at Salop rose (mainly in 1807-8 and again in 1810-11) from seventeen hundred to twenty four hundred, and the number of twisting spindles from eight hundred to seventeen hundred. As a result, Castle Foregate approached Water Lane in scale by the end of the war. Several other changes were made at this time. Hackling machinery which had been introduced at Water Lane in 1809 to displace scarce skilled workers was installed at Shrewsbury two years later; in 1811 there were 11 machines at Castle Foregate, in 1812, 16 and in 1821, 26. In 1808, a dyehouse was built on the west side of the yard, and in 1811 a 60 h.p. engine was installed at the south end of the mill. In the same year, a flax warehouse, an apprentice house and a gas plant—probably the first in Salop—were erected on ground to the north of the Cross Building. Investment in fabric and machinery at Castle Foregate between 1806-14 came to £25,000 and £5,000 respectively. In addition Marshall spent £10,000 on a bleachyard at Hanwood, a few miles south of the town. There he bought a small four storey water mill with 1,640 sq. yards of floor space for chemical bleaching so that Hanwood was an adjunct to the Castle Foregate mill like the New Wortley bleachyard in relation to Water Lane.

With this increase in capacity, output at Castle Foregate rose from around 35,000 bundles of yarn in 1806, to 41,000 in 1808, and to 49,000 in 1815, half the amount spun at Water Lane. But two-thirds of the yarn spun in Salop was subsequently twisted into thread for sale, and only one third was sold as yarn for rug weft, candlewick, warp and line yarn, shoe twine, and *K* yarn for Kidderminster carpet weavers.

In eleven and a half years, between July 1804 and the end of 1815, Castle Foregate's profits averaged £7,600 a year. This represents a return of £3.5 a spindle at Shrewsbury, compared with £6.7 a spindle at Water Lane. Such a discrepancy seems to confirm Howell's verdict that Shrewsbury was in "an unfavourable position for commercial transactions."[18] And in view of the town's slight industrialisation, it is important to find out why the profits of this mill were so much less than at Marshall's other mill in Leeds. In this way, we can see whether the relative stagnation of the own during the nineteenth century can be attributed to its location.

To discover why profits were lower at Castle Foregate than at Water Lane, we must compare the costs and prices of the products made in both mills.[19] The average cost of a bundle of yarn produced at Castle Foregate between 1813-15 was 25/6d., and at Water Lane 23/2d. Salop yarn therefore cost 10% more to produce. The biggest item of expense was raw materials. The average cost of flax in a bundle of yarn was 16/1d. at Salop and 16/11d. at Leeds. Flax costs were higher at Water Lane because of the heavier yarns spun there, on average 11 to 12 leas compared with 20 leas at Castle Foregate which made lighter yarns suitable for thread. Thus a ton of flax was stretched into 100 bundles of yarn at Leeds and 150 at Salop, making

flax costs much less at Castle Foregate. The actual saving was a good deal less than these figures would lead one to expect because in order to spin lighter yarn, a more expensive flax had to be used. After the war in 1815, 43% of the flax spun at Castle Foregate was Dutch, 33% English, 18% Irish and 6% Russian ; and the average price of all this flax was £110 per ton. At Water Lane, 94% of the flax came from the Baltic, and its average price was £85 a ton. This diminishes though it does not cancel out the advantage which Castle Foregate had with regard to raw material costs over Water Lane.

The labour cost per bundle was also slightly in favour of the Castle Foregate mill. At Salop it averaged 2s. and at Leeds 2/3d. Average annual earnings at Water Lane were higher than those at Castle Foregate. Leeds spinners earned £21 each in 1815, and those in Salop £18 6s. 0d.; hacklers at Water Lane got £27 10s. 0d., and at Castle Foregate £22. Earnings were higher at Leeds for several reasons. First, a longer working year; in 1815, the Water Lane mills ran for 355 days, and Castle Foregate for only 323. Beyond this, higher earnings at Leeds must be accounted for by differences in the age and sex composition of the Water Lane labour force and also by differences in basic wage rates. Unfortunately there is insufficient evidence to verify these possibilities. However it is clear that the higher earnings at Leeds were accompanied by higher productivity, and this would tend to reduce the cost of labour at Leeds. The heavy yarns made at Leeds could be spun more quickly and spindles there averaged 14.7 leas per year compared with 13.4 for those at Salop. Thus, despite the fact that Castle Foregate spinners tended $12\frac{1}{2}$ spindles compared with an average of 10 at Leeds, weekly output per head at Leeds was 5.1 bundles and at Salop only 4.7. One might conclude therefore, that the slightly lower labour costs at Castle Foregate were the result not of higher productivity but of lower average earnings.

The reason why average costs at Salop were higher than at Leeds was not owing to labour or material costs but simply to overheads. At Leeds, general expenses averaged 4/1d. per bundle and at Salop 7/-. In spinning only—neglecting preparing and sales—Salop overheads were 7d. a bundle higher than at Leeds until 1821, despite a 20% fall in spinning overheads at Salop soon after the war. Overheads at Leeds came to £15,740 in 1811 and at Salop £15,167; but the yarn output at Water Lane was twice that of Castle Foregate. By some measures, Castle Foregate was the larger plant; for instance it had steam engines rated at 100 h.p. compared with 48 h.p. at Water Lane; its rent was £2,700 compared with £2,100 ; and interest on capital was £7,500 against £6,210 at Leeds.

This comparison obviously cannot be pressed too far. For most of the yarn at Castle Foregate was subsequently twisted into thread, and total fixed costs should be averaged on the basis of both spinning and twisting processes. In 1815 there were as many spinning *and* twisting spindles at Castle Foregate as there were spinning spindles at Water Lane. Nonetheless, in a negative sense, certain observations can be made. First, coal—a small percentage of total costs—did not cost very much more at Salop than at Leeds; the annual fuel bill came to £23 per horse power at Leeds in 1811, and £24 at Salop. Second, the difference in overheads (and from his accounts Marshall obviously thought that they did exist in the manufacture of yarns) may be accounted for by the markets served by Castle Foregate and the extent to which the plant was utilised. Most of the yarn produced at Water Lane was sold fifteen miles away at

Barnsley. The yarn and thread made at Castle Foregate went farther afield, some possibly to the U.S.A., though there is no direct evidence of trans-Atlantic sales before 1825. Thus the Shrewsbury account books show that two-thirds of Castle Foregate's capital was used to finance stocks and sales, a much higher proportion than at Water Lane. Moreover it is clear that there was no pressure on space at Castle Foregate before 1830. The Benyon brothers had built an enormous mill between 1796 and 1800, and Marshall found himself taking over a fabric far larger than he could use. In 1806, it housed some 2,500 spinning and twisting spindles; it later accommodated over three times that number without undue pressure on space. If Castle Foregate had been utilised to the same degree as Water Lane, and if its markets had been as close, it is probable that average fixed costs would have been the same in both mills.

On the sales side, we must consider not only yarn but also thread prices. Between 1813-15, the average selling price of Salop grey yarn was 2/- a bundle higher than at Leeds simply because it was lighter yarn. And to some extent this off-set the difference in overhead costs between the two mills. Even so yarn profits were only 8½% of revenue at Castle Foregate compared with a margin of 13% at Water Lane. More important is the price of thread. To turn yarn into thread cost (in fairly equal proportions for labour and overheads) from 5/6d. to 6/- a bundle; and thread fetched a price of 6/- or 7/- more than a bundle of yarn. Hence the margin on thread tended to be higher than on yarn at Salop. (One would expect this in view of the range of yarns sold by the Castle Foregate mill.) The higher profitability of thread explains why Marshall doubled the number of twisting spindles there between 1807 and 1814, and Marshall's accounts show that he believed thread production to be more profitable than yarn production. Nonetheless his accounting methods can be criticised, and we should not be surprised that Benjamin Benyon at the Canal Terminus mill, found thread production barely profitable. Charles Bage, his partner wrote to William Strutt in 1814, "If you cotton gentlemen would be so good as to give up thread, we might look to it; but you have complete possession of the ladies, and we are not likely to dispute the prize with you."[20]

To sum up: despite Marshall's initial opposition to the Shrewsbury mill, he decided in 1804 that it could be run profitably by his standards. His operations there were unexpectedly favoured by the war, and he extended the plant until it was on a par with that at Water Lane. Factor costs were no more expensive than at Leeds, though thread making proved more profitable than yarn production. After the war, however, Marshall called a halt to expansion at Castle Foregate, and the four later mills built by the firm, beginning in 1816, were all at Water Lane, Leeds. We must therefore ask why Marshalls' concentrated more on production at Leeds and incidentally dealt such a blow to Shrewsbury's industrial prospects. But before doing so we must consider the post-war fortunes of the business in more detail.

IV.

For five years after the war, 1816-21, the fortunes of the Castle Foregate mill sank to a low ebb. Profits averaged less than £3,000 a year, a third of the wartime level. However apart from one exceptionally poor year of trade, yarn production remained around 50,000 bundles, so that lower profits (both at Water Lane as well as at Castle Foregate) were the result of prices falling faster than costs.

Average costs fell from 24/- to 18/- a bundle, between 1815-20, whilst the size of yarn spun at Castle Foregate changed little compared with that made during the war. The main cause of falling average costs was a decline in the cost of flax by 4/- a bundle. After the war both the cultivation and trade in flax increased, causing its price to fall sharply. Labour costs remained virtually unchanged at just over 2/- a bundle. So that the other substantial reduction was on overheads, which fell by 2/- a bundle. This fall occurred immediately after the war, when amongst other changes the cost of financing stocks and sales fell considerably, thereby reducing interest charges. However, whereas costs fell by roughly 6/-, prices fell more than 9/-, reducing the profit margin on a bundle of yarn from 2/4d. in 1813-15, to 9½d. in 1816-21. The average selling price of yarn at Castle Foregate declined from 28/- in 1815 to 22/- the following year and 19/- in 1820. Thread prices fell too, though proportionately less. No. 25 thread sold at 50/- a dozen in 1815, 37/- in 1822, and 27/- in 1826. This price competition was started by newcomers who entered the trade after the war so that in 1820 John Marshall wrote that "the trade has been overdone by many new adventurers entering into it."[21]

Water Lane mills also suffered from a period of dwindling margins, profits there falling to 1/6d. a bundle. Consequently John Marshall was under considerable pressure to improve the business. One response, chiefly exploited in the 1820s, was to spin lighter yarns. After 1816, Marshall who had relied hitherto on basic techniques developed twenty years earlier, sought mechanical improvements with this end in view. First, however, we may consider a different short-lived response to the situation, namely the introduction of power loom weaving at Castle Foregate.

Canvas stocks first appear in the Castle Foregate ledger in 1811, the year of Atkinson's arrival. As no looms appear in the annual inventory, yarn was probably put out for weaving. In April 1813, when Atkinson assumed control, weaving began inside the mill. Bleached canvas cloth, 36 inches wide, woven out of heavy 14 to 16 lea yarns, was produced. In eight months of 1815, 562 pieces were made and sold at a loss of £136. The following year 3½% of the yarn produced went to the mill's weavers who made 796 pieces, each fetching on average a profit of 2/11d. on a selling price of £3 7s. 0d. In 1816, twenty-six weavers made 1,204 pieces, and for the first time the ledger shows a comparison between hand and machine labour costs. The wages paid to weavers by Marshall & Atkinson in 1816 were £425, the labour cost of weaving by machinery; the same output woven by hand would have cost £643 in wages. Then in 1825 the inventory has an entry, "8 old power looms."

It is not surprising that Marshall tried to retrieve the firm's fortunes in part by mechanical weaving. Spinning finer yarns and weaving by machinery were the two outstanding technical problems which required solving. In 1788-89, Marshall had set Matthew Murray to adapt Cartwright's patent loom for linen weaving. But Murray did not succeed. Others subsequently took up this challenge, including Charles Bage, Marshall's erstwhile partner who left Benyons in 1814 and devoted himself to making a power loom. In June 1816, he wrote to William Strutt,

> Being no longer a spinner, and having little else to do, I have been constructing a loom on a plan quite new, and am about to try it with a four horse-power engine. Linen has not been advantageously woven by power looms, and having the weakness of other projectors, I flatter myself I shall succeed better.[22]

In July, he added an interesting footnote as to how the new method would yield a profit.

> The profit must depend on the saving of wages, which in linen makes a large proportion of the cloth.[23]

Two years later in August 1818, he claimed that he had succeeded.

> After many attempts and successive alterations and improvements, always pursuing the same principle I have produced the only loom, as far as I know and believe, that answers for linen . . . At present I have 10 looms only in motion; and supposing the trade as a trade to pay nothing, the saving of wages will be a reasonable profit. But comparibus annis the trade must do something.[24]

We do not know who designed the looms for Castle Foregate, nor the principle of their operation. But it would not be surprising if Bage's method was in some way implicated. The power loom weaving account which runs from 1816-22 shows that the main saving and the whole of the profit on cloth was derived from lower labour costs. Then when Atkinson departed in 1822—the year of Bage's death—power loom weaving was discontinued.

To return to 1816, further expansion that year was confined to handloom weaving. By 1820, the mill had 51 weavers many of whom had been making canvas since 1816, when 3,516 pieces were made compared with 2,087 four years later. Weaving remained a minor activity and was discontinued not because it proved a commercial failure (for canvas profits averaged about 7% of revenue and compared favourably with current yarn margins at Salop), but because new horizons encouraged concentration on yarn and thread production. Nonetheless the experiment is interesting, both on account of its technical achievement and also because it indicates a particular response to the post-war competition.

Marshall had frequently grumbled about the lower level of profits after 1815 and blamed Atkinson for the situation at Castle Foregate. "I was desirous of separating from Atkinson, because the Salop concern, under his management had become less profitable than before, or than it ought to have been."[25] So Atkinson and Hives, with an eye on the future of their own children, left Marshall and established their own firm at Leeds.

V.

With their departure, the fortunes of the Castle Foregate mill improved. Between 1821-32, annual profits at Salop averaged £7,500, equal to the level prevailing at the end of the war. The recovery, based on the manufacture of lighter yarns, belongs chiefly to the years 1823-7; after 1828, when other spinners produced medium yarns, and when Marshall's postponed further innovation at Castle Foregate in order to transform the Water Lane mills, profits slumped.

The improvement at Castle Foregate was due not to Atkinson's departure but to an increase in output coupled with the application of new methods to spin lighter yarns. The output of yarn at Salop increased from 50,000 in 1821 to 85,000 bundles by 1826; and between 1827-30 it averaged 75,000. Moreover, whereas in the early 1820s only half the yarn was made into thread, after 1824—apart from a small quantity of *K* yarn—it was all turned into thread. Accordingly, thread production rose from less than 20,000 dozens in the early 1820s to 44,000 by 1826, and averaged 37,000 between 1828-32.

Such an expansion required additional plant. The number of spinning spindles, which had been constant since 1814, rose after 1821 to 3,408 by 1827; and the number of twisting spindles reached 2,821 in 1832. The new machinery made little demand on extra space because the iron frames which replaced wooden ones in the mid-1820s carried about three times as many spindles. Only twelve extra frames were installed so that no problem of accommodation arose before 1830. On the other hand more power was needed and the main change at this time was the installation of a 56 h.p. engine at the north end of the mill in place of the 40 h.p., and the modification of the 60 h.p. engine three years later. Also in 1824, the mill began to buy gas from a company in the town at a very favourable low tariff.

More important in raising profits was the introduction of gill frames. This method of preparing, first introduced at Water Lane in 1819 and at Castle Foregate in 1820, enabled spinners to make medium yarns. By 1827, 175 bundles of yarn were obtained from a ton of flax at Water Lane compared with 100 before 1820. At Salop, spinners made 155 bundles per ton at the end of the war, and rather less in the early 1820s when more emphasis was placed on weaving. By the mid-1820s when gill-frames influenced the composition of output, a ton of flax made 165 bundles of yarn. Likewise whereas in 1819, 43 dozen of thread had been made from a ton of flax, in 1827 the quantity was 82, and in 1832, 109 dozens. The recovery of the Castle Foregate mill in the 1820s was based therefore on the manufacture of lighter threads. Profits increased proportionately more than additions to plant and labour. The latter rose by a fifth, spinning spindles by two-fifths, and twisting spindles by two-thirds. Between 1816-21, profits per bundle had averaged 9½d., between 1828-31, 1/4½d. Prosperity thus came from both an increase in output and a rise in profit margins.

Costs fell sharply to the mid-1820s, then gradually increased. Thread prices on the other hand fell slowly, for the most part after the mid-1820s. Between 1820-26, average costs fell 6/6d. a bundle, and subsequently rose between 1827-31 by 3/6d. Overheads remained fairly constant around 5/-, reductions in rent and interest being off-set by the start of systematic depreciation. Labour costs fell a few pence after 1828 when, in response to a period of dull trade, James Marshall employed fewer men and reduced their wages.

> Spinning—Reduced the scale of wages for 4 sides 3d.—now 4 of 30 spindles 6/-, of 40—6/3, of 50—6/6. The line sorters [men] who now have 21/- [each] might now be reduced to 16/- and one or two of the 4 men left roughing set to sort: one might replace Davies as jobber in the yard at 12/-: . . . Agreed that Hayes should keep the place at 18/- instead of 21/- and Johnson 20/- instead of 24/-. Edwards remains at 25/- the highest wage; has one overlooker at 14/- in Number 5 under him and one lad at 6/9 in No. 9. Mechanics—Reduced some of the rates. Filers—Cawood from 30/- to 27/-, one or two others 27/- to 25/- making 27/- the highest for filers and 25/- for joiners.[26]

It was the change in raw material expenses that most influenced the trend of costs. The average cost of flax per bundle was 13/5d. between 1816-20; 7/8½d., 1824-27; and 8/1d., 1828-31. Initially this fall was due to a prolonged fall in European flax prices. The mill's average price of flax per ton was £94 between 1816-20, and £56½ between 1824-27. Thereafter, between 1828-31, it rose gently. But Marshall offset this rise by making lighter yarns.

On the sales side, average yarn prices hardly fell, remaining around 17/- a bundle in the 1820s. On the other hand the prices of thread sold by the Castle Foregate mill, fell, especially after 1825. For instance, thread No. 25 was 40/- in 1821, 32/9 in 1825, and around 29/- in the early 1830s. Only the finer counts held their price; after 1824, the firm made No. 50, which cost more in labour, a great deal less in flax, and sold for nearly twice the price of No. 25. Their problem in the later-1820s was the competition of cotton goods. In this clash, the Water Lane mill suffered more than Castle Foregate. Barnsley weavers, unable to sell linens, asked for less yarn. And though spinners like Marshall were prepared to lower prices faster than costs fell and make hardly any profit, the volume of sales also diminished. On the other hand, the Castle Foregate mill lowered its prices and almost maintained the volume of its sales. For the first time the Salop concern declared larger annual profits than the Water Lane plant. Nonetheless Castle Foregate's profits were meagre, averaging just over £4,000 a year between 1827-32 on an outlay of nearly £100,000. Presumably after similar experience, the Benyons decided to close their mill at the Canal Terminus.

This new competition from cotton goods encouraged flax spinners to explore two avenues of escape. Either they could reduce costs and compete, in which case they wanted a cheaper fibre, or they could spin still finer yarns and widen their markets. Leeds spinners concentrated on the second alternative.

VI.

Marshall and his sons stopped improving the Castle Foregate plant in 1827. For the next six years they were pre-occupied introducing wet-spinning and expanding the Water Lane mill where they spun yarn as fine as 400 leas.[27]

In 1829 when alterations at Leeds were well under way, James Marshall who was in charge of the firm's machinery, decided to try wet-spinning at Castle Foregate.

> Examined the frames to see which should be broken up to make room for wet-spinning. Total 2,640 spindles.
> Of tow 6 wood frames . . . Total 840 spindles. I think the best place for wet-spinning will be No. 3. There are the greatest number of wooden frames: it will be convenient for either line or tow and there will be room for a good number together . . .
> I have no doubt that wet-spinning would make the tow threads as good as our present line.[28]

The following year he wanted to apply the new method generally to twisting;

> Examined several times the thread twisted wet. We all agreed that it was perceptibly and decidedly better than the dry twisted . . . Decided to *alter* all the twisting to twist wet, and to try heating the water and go on with that also if requisite. The iron frames only require the front roller turning the other way round . . . The wooden ones may be brought in to the same shape by turning the U plate up.[29]

So began the task of transforming the Castle Foregate mill. It was a slow job. By 1831 only "two of the line spinning have been broken up. 5 are likely to go soon."[30] In 1833, there were fewer than 2,000 wet spindles. "We have now in No. 3, 9-120 frames and 4-100 wet spinning. There is space when the room is filled for . . . 3,380 spindles."[31] By 1836, however, the transformation had been effected, as the following table shows.

	Wet Spindles	*Proportion of all Spindles*
1832	600	17½%
1833	1,780	46%
1834	2,960	68%
1835	3.500	74%
1836	3,740	77%

In 1837 only 140 dry line spindles and 400 old tow spindles remained, the latter on account of a decision taken two years earlier. "I have for some time had this in view but deferred not knowing how much wet-spinning we should have . . . I think we shall keep present dry-spinning for some years."[32]

From 1831 to 1837 then, there was a turnover and net increase in spindleage. By 1837, Castle Foregate had nearly 5,000 spinning spindles; and the number of twisting spindles had been increased by 1,000, with the result that there was "rather an over-proportion of twisting to the spinning."[33] The steam engines *in situ* provided sufficient power and only extra shafting was required to drive the new frames. Yet, despite the fact that in 1837, there were 26 fewer frames owing to the installation of a larger type, the extra preparing machinery required in fine spinning called for additional floor space. In 1831, James Marshall stated:

> We must provide more space for line and tow preparing as we proceed with our wet-spinning. One plan is to raise the mill and cross building each a story . . . Another is to raise No. 10 only, make it hackling, transferred from No. 5, and No. 8 carding . . . contemplating the possibility of using top room in Flax Warehouse as carding if necessary at a future time; and the garret of No. 9 when ceiled and with sky-lights as the line sorting and line stock room—the last place is on the whole most eligible.[34]

A year later one of these proposals had been put into effect.

> The garret of No. 9 is now roofed and ceiled and makes a good sorting room. Decided to put the expense of this . . . to my Father's building account.[35]

There were other alterations. The dyehouse was "decidedly crowded with its present work. We can either add to end next No. 6 or the opposite . . . The former is more compact and the building being so low would not materially obstruct the light from No. 6."[36] From the Building Account, it seems that both extensions were carried out between 1837 and 1845.

As a result of this conversion, profits at Salop averaged nearly £16,000 a year between 1833-50. This improvement was achieved without any increase in output because wet-spinning is a slower process requiring more spindles to maintain a given level of production. As James Marshall wrote, sometime in 1835,

> We produced the same number of Dozens per wk. in 1827 from ¾ the spls. spin^{g} and twist^{g} as we now have. There are no doubt many reasons for this: thread 1/3rd. finer: time reduced from 72 to 66 hours per week: wet twisting introduced.[37]

In the 1850s yarn output was no higher than the level reached in the mid-1820s. Bigger profits came therefore from wider margins. Unfortunately, the detailed record of the Castle Foregate mill ends in 1833 when less than half the spinning spindles were wet, so that we can only indicate in a general way the factors bearing on costs and prices.

Costs probably fell. Despite rising flax prices, a ton of raw material was made into at least five times as many bundles of yarn, and this reduced raw material costs. Labour costs remained fairly constant, and overheads though higher at Salop than at Leeds because output was smaller, probably remained fairly constant too. The great improvement in the situation of the 1830s was that prices did not fall too rapidly. Unlike the previous decade when output was destined chiefly for home consumption, the industry now had an international market. Spinners could raise output without fear of overproduction. And the more progressive made even lighter threads which brought a proportionately bigger margin of profit. At Castle Foregate the price of a medium thread, such as No. 25 was 29/- a dozen in 1831 and 22/6 twenty years later; No. 50 fell from over 50/- to under 40/- in the same period. Thread No. 100, which cost little more to produce than No. 50, was introduced in 1837 and sold for 108/- a dozen; in the late 1840s it was 90/-, still leaving a handsome margin. No. 200 introduced in 1839, sold for 276/- a dozen then and 240/- a decade later. Thus the fortune of the Castle Foregate mill rested on a buoyant thread market, in which prices at the light end of the trade fell relatively little, although after 1850, thread-prices remained steady for a different reason, namely rising costs.

Thread making proved so profitable at Salop, that when Marshall's sons considered the future of the Water Lane mills in 1836, James put forward plans to introduce thread making at Leeds. By 1842 there were slightly more twisting spindles at Water Lane than at Castle Foregate; two years later there were twice as many twisting spindles at Water Lane. And when, at the time of the founder's death in 1845, his sons decided to concentrate thread making, power loom weaving and yarn spinning at Water Lane, the Castle Foregate mills were relegated to a subsidiary position. The fate of the Castle Foregate mill was thus determined ultimately not by its efficiency or profitability, but by the desire of John Marshall and his sons to develop the Water Lane mills in their native town, Leeds, which was for a generation after 1815 the foremost flax spinning town in Europe.

VII.

No further expansion took place at Castle Foregate. After reorganisation of the 1840s, the Salop mill finished thread and twisted yarn sent from Water Lane. Flax dressing came to an end early in the 1850s and tow spinning by 1855. (Between 1851-5, the production of tow yarn was only 7,000 bundles a year.) Hackling and preparing machines were replaced by patent thread polishing machines which account for most of the £7,500 spent on machinery between 1850-3. Nearly four thousand line spindles continued in operation, producing on an average 50,000 bundles a year between 1851-60, mainly "in order that there may be no delay in executing orders which are urgent."[38] But apart from boiler replacements, a new dyehouse and a boundary wall, there were no changes in the fabric. On the other hand, the appearance and function of Hanwood changed considerably. The stock checks of the 1820s depict a small rural bleachyard with heifers grazing in the fields, carts bringing coal from Shrewsbury, a water wheel turning the stocks and press, eight handlooms for making canvas, and a bleacher's house with twelve beds. Between 1851-4, a 20 horse power engine was installed, a gas house built, a new dry and dye house erected, and the mill enlarged; and in 1865-8, two six-roomed and eight five-roomed cottages were put up to accommodate the 140 persons who then worked there.

Hanwood was developed for two reasons. First, the site offered sufficient water to cope with the increased volume of bleaching and dyeing that arose when Castle Foregate became a finishing mill. Second, the construction of the railway at Hanwood made it a suitable shipping point for finished goods. Besides the eleven new bleaching machines, four thread polishing machines were installed in 1852, and later ten, so that final operations could be performed there. In a sense, therefore, the additions at Hanwood were an alternative to extensions at Castle Foregate.

The partial integration of the Water Lane and Salop mills, the one producing yarn and the other twisting and finishing thread only became practicable when railways came in the mid-century. The main line south from Shrewsbury ran through Hanwood, and a siding of the Crewe to Shrewsbury railway entered the mill yard at Castle Foregate. A further reason determining the actual form which this division of labour took, was the concentration on processes with a low labour cost at Water Lane owing to a persistent pressure on wages at Leeds. Conversely, Castle Foregate and Hanwood concentrated on processes involving relatively high labour costs. In the 1850s wage *rates* were lower at Castle Foregate; female operatives who would have earned 6/- a week at Leeds, got 4/6d. at Salop. Yet despite this, *average* wage rates at Castle Foregate were higher than at Water Lane, denoting the high proportion of skilled workers engaged in finishing. Marshalls used skilled Shropshire labour for finishing because it cost less than its counterpart in Leeds.

No records survive to show the performance of the Salop mills after the mid-century. Even if they did, they could no longer be compared with those for Leeds. After 1850, the Castle Foregate accounts show a chronic loss—in thirty-six years £227,000, compared with a profit of £104,000 at Water Lane—simply because thread and yarn passed through the books at Water Lane without loss, and subsequent losses on sales were registered at Salop. As costs of making linen goods rose, cotton gained more and more of the domestic market; and thread sales also languished. In the 1840s, when Marshalls' thread spindles increased 70%, thread sales doubled, but between 1851-64, Salop thread sales remained constant around 81,000 bundles, no higher than the level of the mid-1820s. Marshall's sons, unwilling to face facts and unable to solve the problems which confronted them, allowed the business to languish at both Leeds and Salop. The third generation, when they assumed control early in the 1870s, tried to meet the situation by reducing and renovating the plant. The number of hands at Castle Foregate which had been between 600 and 700 since 1850 fell to 300 by the late 1870s. The number of spinning spindles was halved to under 2,000, and twisting spindles fell from 4,000 to 2,500. At the same time, the spindles and preparing machinery operating in the late 1870s, and suitable for spinning medium and coarse yarn was new and up-to-date; and two new 30 horse power Corliss engines replaced the old ones in 1874. But the effort came too late, and in 1886 Marshall's grandsons gave up the business, and disposed of their tangible assets.

VIII.

In conclusion we may enquire whether the story of this mill sheds any light on Shrewsbury's economic development?

We have seen that it was founded on the initiative of two native sons, and taken over by their Leeds partners, with the result that a second mill was built. Although

Marshall's business flourished there during unusual wartime circumstances, the mill was less profitable than his plant in Water Lane. This, together with the fact that the Marshall family were committed socially and politically to Leeds affairs, meant that Castle Foregate took second place to Water Lane in their schemes. Inventions such as hackling, gill-frames and wet spinning were introduced first at the Leeds mill; and after 1845 the Salop plant was integrated with production at Leeds, finishing thread twisted at Water Lane. Hence, for reasons of a social and political rather than of an economic nature, the Castle Foregate mill was not developed by its owners as much as their plant in Leeds.

A study of the Castle Foregate accounts (between 1813-33) shows clearly that with respect to location, the mill laboured under no special disadvantage compared to the Water Lane mill. Material costs were no higher than in Leeds. Gas, for instance, was cheaper. In 1834, James Marshall wrote: "Our agreement [with Shrewsbury Gas Company] was renewed last year for another turn of 7 years at 5/- per m. Their price to the town is 12/6d."[39] At Manchester, large consumers paid 7/6d. and at Leeds only slightly less. There does not seem to have been any marked difference in the cost of coal. True, "with respect to Engine coal"—James complained—"the supply is in three hands who have a practical monopoly: we get 3d. a ton under the price at the wharf; and an advantage in weight in taking it out of the boats."[40] But this was not so much a complaint about its high price as an example of James' endeavour to reduce costs. Until near the end of the French war, the supply of Leeds coal was a statutory monopoly granted to Middleton Colliery; only in the 1820s was the local coalfield developed so rapidly that the legal price granted to Brandling's colliery was undermined.[41]

One cannot of course be dogmatic about a period when prices moved sharply and suddenly, and when local market arrangements varied enormously. But there is no evidence of any substantial difference in raw material, labour and transport costs between these mills in Shrewsbury and Leeds, that is to say, differences which are not offset by different performances. Indeed the Marshalls *expected* comparable performances and similar costs in both places.[42] The real disadvantage at Castle Foregate in the early nineteenth century was higher average fixed costs, and these were caused by unused capacity and its product-market. The unprofitability of later years was due simply to the fact that Castle Foregate registered losses on goods made at Leeds, a matter of internal accounting practice. Indeed, between 1820 and 1840, the records show that in the later 1820s and again in the early 1840s, Castle Foregate yielded a higher return than the larger, better equipped Water Lane mill in Leeds. That the Marshalls kept the Salop concern for so long is a reflection of the fact that it paid them to do so. It could be argued that the Marshalls were exceptional businessmen as regards both the scale and efficiency of their operations, and that as a result, the cost structure of Castle Foregate cannot be considered typical of Shrewsbury conditions in general. But both Marshall and his sons complained that the management of their Shrewsbury mill was not vigorous. And more important, the story of Castle Foregate shows that by comparison with Leeds, a thriving centre of new factory industry, factor costs at Salop were not so lop-sided as to deter a determined man of enterprise from setting up there in business.

Yet there was only one other big mill in the town, the flax mill set up by Benyons and Bage in 1804. Between them these two firms employed 8% of the town's working force in 1804 and took a tenth of the town's gas in the early 1830s. The Benyons' mills at Leeds and Shrewsbury grew until the 1820s. Thereafter they languished.The competition of cotton goods in the late 1820s accelerated the fate of the Canal Terminus mill, and in 1861, the great mill at Meadow Lane closed down when the firm, a shadow of its former strength, was declared bankrupt. But the second generation of Benyons failed not because flax spinning was unprofitable but because they were poor businessmen. The mill at Leeds was left high and dry, and that at Salop closed because "the spirit of discord affected its proprietors."[43] The Benyons, like the Marshalls, failed finally because they became part-time or conservative entrepreneurs. Consequently the rise and decline of both flax mills in Shrewsbury was determined by the social interests and business capabilities of their owners as much as by the location of the town and the real profitability of the mills.

Even so, other ventures launched in Shrewsbury very early in the nineteenth century came to grief. The promise of industrialisation waned so much that in 1842, McCulloch could write

> The prosperity of the town does not depend solely on its trade as it is a favourite place of resort for people of small income or who have retired from business.[44]

Again, as early as 1816, Howell enigmatically suggested that the town had "an unfavourable situation" for commerce. Yet Shrewsbury had hitherto been a great regional centre. Since the progress of the flax mills was determined by highly personal factors, we must look for more general barriers to industrial growth, in order to account for the general failure to industrialise the town. Furthermore, since the experience of the Castle Foregate mill shows that Shrewsbury had no special cost disadvantage compared to Leeds, the obstacles to industrialisation at Salop were probably of a *social* nature.

Why then did new forms of industry flourish in Leeds but not in Shrewsbury? These towns had a great deal in common in the mid-eighteenth century. The economy and prosperity of both depended on their positions as regional centres, finishing woollens made in surrounding districts. Both had approximately the same population, and in the second half of the century a great deal of public building was undertaken in both towns, transforming them into worthy provincial capitals. Yet in the early nineteenth century, they were following different paths of development. The population of Leeds doubled in the last quarter of the eighteenth century and by 1800 the town had twice as many people as Shrewsbury; and this trend continued throughout the nineteenth century. Second, although textiles remained the backbone of the Leeds economy until the 1840s, the woollen industry shifted into newer forms of factory organisation, and other branches of the industry—worsted and flax—took root in the town after 1780.

Both of these factors, population increase and new industry are not unrelated to one another. A growing population is a solvent that washes away old ways and encourages the development of new ones. Skilled craftsmen, masters and merchants operating under the *domestic* system of production clung to their old positions, status and methods as long as they could. But craft skills and the gild system had

lost their importance in Leeds by the early nineteenth century. As masters sought to expand output and break production bottlenecks, skilled manual workers were replaced, sometimes after a struggle or delay, by unskilled machine-minders. Simultaneously the new owners of capital in Leeds were preparing to mount an assault on the corporate political bastion behind which the old merchant oligarchy protected its interests. By contrast, Shrewsbury's woollen industry was declining and in the absence of a fast growing population, all the parties involved in domestic production not only wanted but were also able to cling to their old ways and reject new techniques and organisations which would have undermined the position of many of them. Those who had formerly accumulated resources and power used them to put off the evil day of change and perpetuate old ways, and had much more success in this respect than their counterparts in Leeds.

Many reasons spring to mind to explain why this was so, and two arise out of the story of the Castle Foregate mill. First, entrepreneurs of new industries may have found difficulty in securing labour if domestic craftsmen were reluctant to work in mills and were under no pressure to do so. It is significant that whilst the Castle Foregate mill is close by the town, Marshalls built an apprentice house there and rows of workers' cottages, as if the factory hands formed a separate community; they did not do this in Leeds. Benyons too had a house for apprentices who worked at the Castle Terminus Factory in Cadran Place. Only a close study of Parish Registers would reveal the extent to which Marshalls and Benyons relied on "outside" labour. Although industrial stagnation may have lowered the level of earnings in Shrewsbury below what could be secured elsewhere, were local craft workers persistently hostile to mills and workshops, and did this deter new industries? Second, in Leeds, capital and enterprise in the town's "new industries" were associated with "new men", entrepreneurs who were *outside* the town's established merchant oligarchy by virtue of being dissenters, immigrants, people of humble birth and so on. By 1800, there was the embryo of a new social structure in the town. By comparison, it seems that in Salop, dissenters and ardent reformers like the Benyons were unable to knit together a new social hierarchy alongside the old and thus accumulate sufficient power to force changes at a political level as their counterparts did in Leeds. They were too few and the established interests too strong. And perhaps partly as a result of such social factors, Shrewsbury missed the experience of industrialisation which affected the lives of so many Englishmen in the nineteenth century.

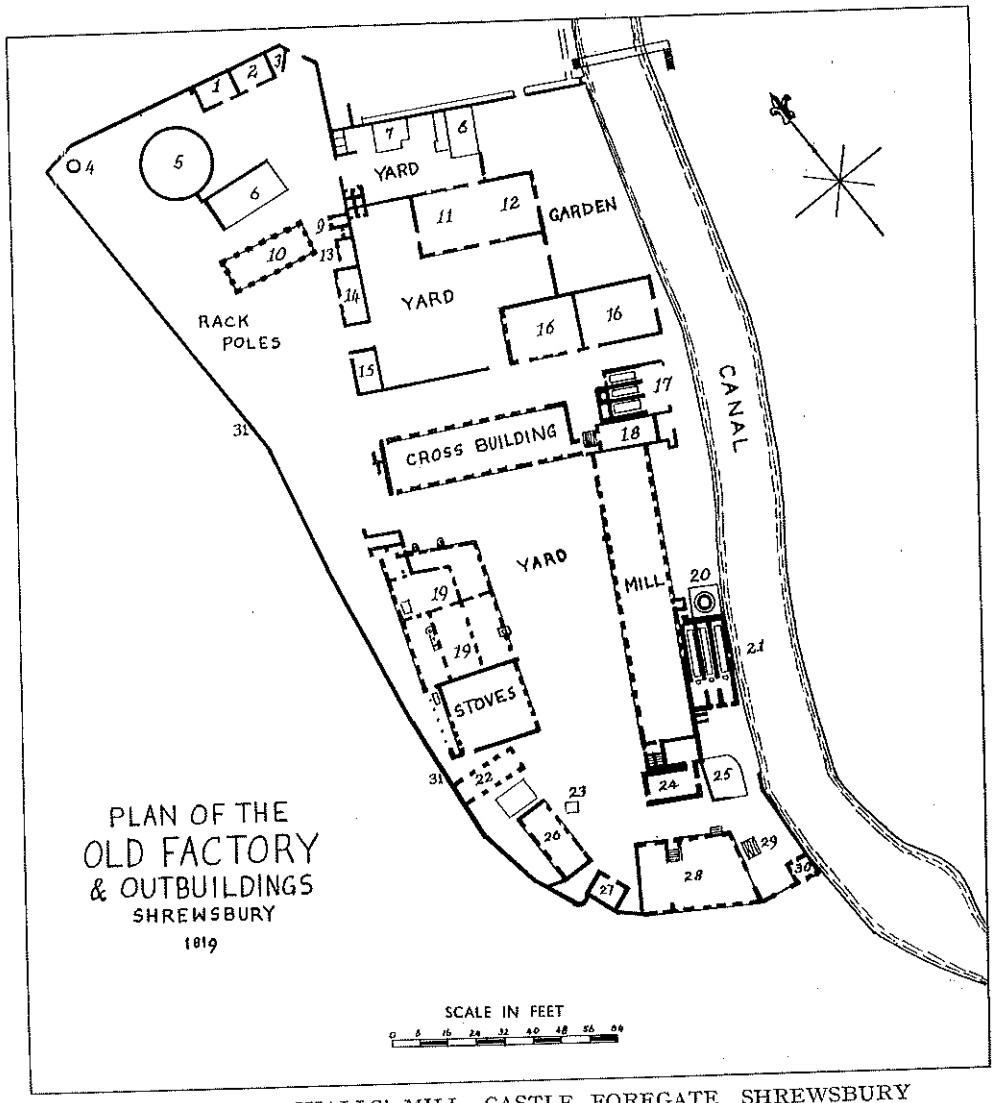
NOTES

* I would like to express my thanks to Mr. L. C. Lloyd who very generously provided much local information and assisted generally in the production of this article.

1. S. Bagshaw. *History, Gazatteer and Directory of Shropshire*, 1851. p.71. See also H. Edgerley, *The Stranger in Shrewsbury*, 1831. p.10.
2. An account of this pioneer firm and full reference to the evidence are contained in a forthcoming book, *Marshalls of Leeds, flaxspinners*, 1787-1886. I have therefore usually omitted documentation except for direct quotation.
3. John Marshall, Autobiography, p.9. Unless otherwise stated references to Marshall documents relate to the Marshall Collection, housed in the Brotherton Library, Leeds University.
4. Familiae Minorum Gentium, Vol. 1, p.413-4; William Phillips, *Shropshire Men* (S.P.L.M.S. C57), Vol. 5, p.62; (A.B.R.) p.23. Members of this family had been traders and office holders since the seventeenth century, and this may explain how the younger sons could start off in business. Unfortunately, the fortunes of this family are obscure, and it would be very useful to know more about them. T. J. Howell, *The Stranger in Shrewsbury*, 1816, p.141-2, suggests that the Benyons "possessed ample fortunes" and gave up the "enjoyment of those pleasures

to which their station in society gave them command" in order to bring industry to their native town.

5. By 1793, the Benyon brothers had assets worth £13,000. How much came from inheritance, how much was borrowed, and how much earned from trading, we do not know. For the decline of the woollen trade, see the Victoria County History, *A History of Shropshire*, p.431.
6. Marshall, Autobiography, p.12.
7. T. J. Howell. *The Stranger in Shrewsbury*, 1816. p.141-2. He also writes, "To the indefatigable perseverance of Messrs. Benyons is Shrewsbury indebted for the erection of its first manufactory of any size."
8. Marshall and Benyons—Boulton and Watt, 2 May, 1796, in which they state "We shall begin the building immediately" and on 13 May, 1796, "The mill we propose building will be at Shrewsbury", (Boulton and Watt Collection, Birmingham Public Library.) For the purchase of land, see Leases and Titles, Shrewsbury Public Library.
9. Marshall, Autobiography, p.12-13; the Correspondence between Bage and Strutt (1796-1822), passim, (MS 2657 Shrewsbury Public Library); and J. Morris. The Mayors of Shrewsbury, Trans S.A.S. 4th Ser., IX, p.8-9.
10. Bage—Strutt, 28 October, 1811.
11. Bage—Strutt, 4 January, 1797; T. Minshull, The Salopian Guide, 1804, p.47-8; see also, H. R. Johnson and A. W. Skempton, *William Strutt's Cotton Mills*, 1793-1812, *A Study of Early Fire-Proof and Ironed-Framed Buildings*, to be published in a forthcoming Transaction of the Newcomen Society. The Castle Foregate mill is there referred to as the "first multi-storey fire-proof iron-framed building."
12. Marshall and Benyons—Boulton and Watt, 16 February, 1797. See also, 16 June, 1797, 2 July, 1797 and 11 September, 1797.
13. Marshall, Autobiography, p.14.
14. J. H. Howell, *The Stranger in Shrewsbury*, 1816, p.141-2. For the construction of Benyon's mill, see Bage—Strutt, 29 August, 1803. Up to this point, flax-spinning had made as much progress in Shrewsbury as in Leeds which was soon to become the foremost flax-spinning town in Europe.
15. Marshall, Autobiography, p.15.
16. *Ibid*, p.16-17.
17. In Leeds, the Marshall family participated in many reform movements and for a generation they were the most important Whigs in the town. They played no corresponding role in the affairs of Shrewsbury.
18. J. H. Howell, *The Stranger in Shrewsbury*, 1816, p.141-2.
19. The following comparison is based on accounts taken from Books 6 and 7 (Marshall Collection). Other years might be taken, but the findings would be substantially the same.
20. Bage—Strutt, 27 September, 1814.
21. Marshall, Autobiography, p.17.
22. Bage—Strutt, 27 June, 1816.
23. Bage—Strutt, 14 July, 1816.
24. Bage—Strutt, 11 August, 1818.
25. Marshall, Autobiography, p.22.
26. Notebook written by James Marshall, entitled "Salop". p.13, 16, 20. The reductions were made in November, 1829.
27. A flax fibre is composed of small *ultimate* fibres, held together by a gummy substance. Hitherto, spinners had drawn out and twisted the long fibre, but by passing a sliver through steam, the ultimate fibres could be drawn and spun into a fine yarn.
28. Notebook written by James Marshall, entitled "Salop", 1829. p.4-6.
29. *Ibid*, p.28-29.
30. *Ibid*, p.16.
31. *Ibid*, p.42.
32. *Ibid*, p.71.
33. *Ibid*, p.42.
34. *Ibid*, p.33.
35. *Ibid*, p.37 (21 Nov., 1832).
36. *Ibid*, p.87.
37. *Ibid*, p.72.
38. James Marshall—H. C. Marshall, 11 March, 1853.
39. Notebook written by James Marshall, entitled "Salop". p.61.
40. *Ibid*, p.58.
41. W. G. Rimmer. *The Middleton Colliery, Near Leeds.* 1770-1830, Yorkshire Bulletin, 1955. p.41-57.
42. See for example, the letter of John Marshall, jr.—John Marshall, 15 March, 1827.
43. C. Hulbert. *History and Description of the County of Salop*, 1837, p.312-13.
44. J. R. McCulloch. *Geographical, Statistical and Historical Dictionary*, 1842. Vol. 2. p.681-82.

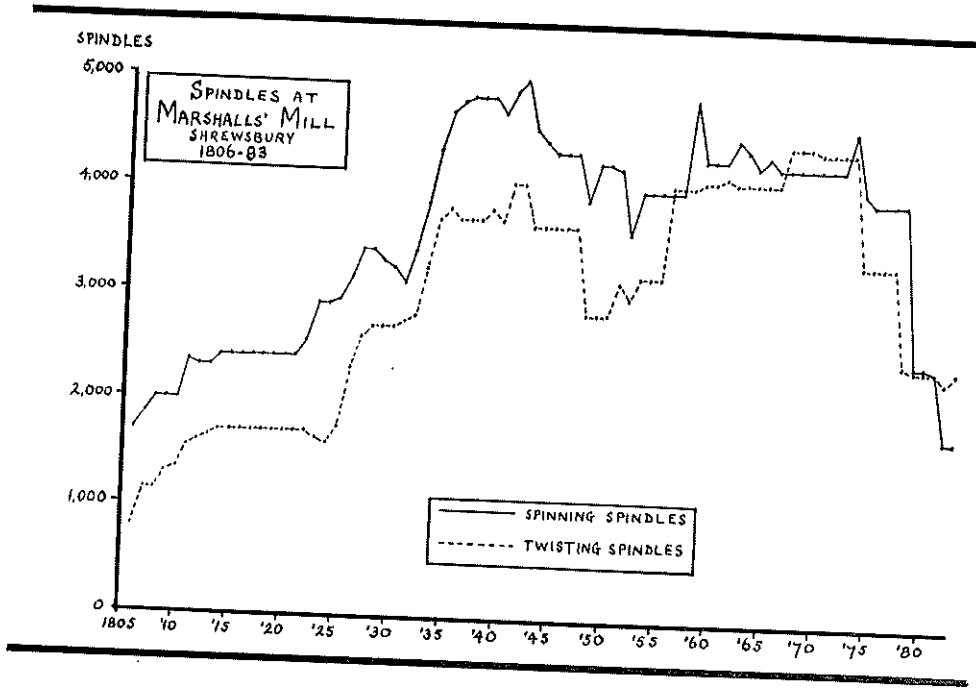


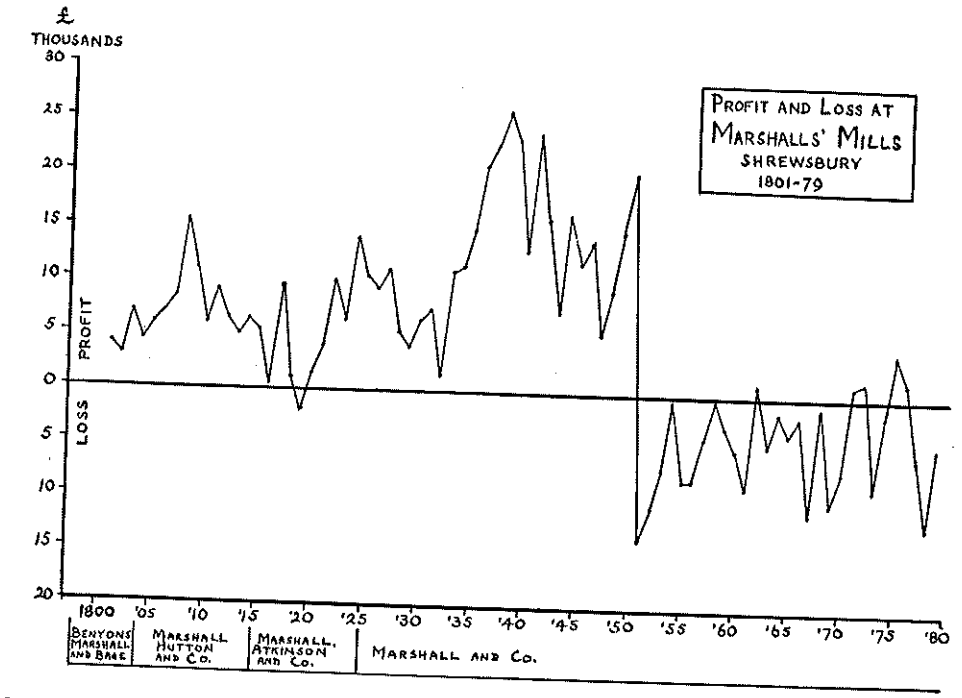
PLAN OF MARSHALLS' MILL, CASTLE FOREGATE, SHREWSBURY

(Reconstucted from plan dated 1819, by courtesy of Messrs. William Jones (Maltsters) Ltd.)

1. Retorts (1811.
2. Coal Store (1811).
3. Lime Store (1811).
   (In 1835 a new gasometer, pit and pipes were installed, and in 1853 this became the Joiner's Shop).
4. Kiln.
5. Gas Holder.
6. Wood Shed.
7. Stable.
8. Wash House.
9. Fire Engine.
10. Drying Shed (1854).
11. Apprentice House (1811.)
12. Dwelling House (1811).
13. Waste Room.
14. Thread Room.
15. Gas Holder.
16. Flax Warehouse (1811).
17. Boilers.
18. Engine House (36 h.p. engine; new engine, 56 h.p., 1821).
19. Dye House (1797-9). Extended 1810, 1827; new dye house 1840; extension to new dye house 1841; new dye house 1854.
20. Chimney (1840).
21. Boilers.
22. Wood Shed (1852).
23. Well and Pump (1840).
24. Engine House (60 h.p. engine) (1816).
25. Coal Yard.
26. Blacksmith's Shop.
27. Stables.
28. Offices, Warehouse and Packing Shed.
29. Weighing Machine (1837).
30. Lodge.
31. Boundary Wall (1812).

Cross Building (1798-9).
Mill (1796-7).


SPINDLES
5,000
4,000
3,000
2,000
1,000
0
SPINDLES AT MARSHALLS' MILL SHREWSBURY 1806-83
SPINNING SPINDLES
TWISTING SPINDLES
1805 '10 '15 '20 '25 '30 '35 '40 '45 '50 '55 '60 '65 '70 '75 '80


£ THOUSANDS
30
25
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PROFIT
LOSS
PROFIT AND LOSS AT MARSHALLS' MILLS SHREWSBURY 1801-79
1800 '05 '10 '15 '20 '25 '30 '35 '40 '45 '50 '55 '60 '65 '70 '75 '80
BENYONS MARSHALL AND BAGE
MARSHALL HUTTON AND CO.
MARSHALL, ATKINSON AND CO.
MARSHALL AND CO.

THE SHROPSHIRE IRON INDUSTRY

By R. A. Mott, D.Sc., F.R.I.C., F.Inst.F.

(*Lecture to the Shropshire Archaeological Society*, 17 *May*, 1958)

The Shropshire Iron Industry developed most notably during the 18th century, at the end of which the production was the largest of any county in Great Britain. The pattern of its development spread to Scotland, South Wales and South Staffordshire, so that, by 1856, when the Bessemer process of steel-making was introduced, Great Britain made more pig iron and wrought iron than the remainder of the world. The pattern of iron-making developed in Shropshire had, by this time, spread to France, Prussia, Belgium, Westphalia, U.S.A. and Russia, so that a development in this county had, perhaps, a more remarkable effect than that of any other human invention.

The English development of the basic Bessemer process of steel-making in 1879 led to a great expansion of the German, French and Belgian steel industries and reduced their dependence on this country. In England, the basic process of steel-making (also applied to the Siemens open-hearth furnace) made possible the utilisation of the Cleveland, Lincolnshire and Northamptonshire beds of ironstone, found in beds up to 12 ft thick: their high phosphorus contents had hitherto made them unsuitable for making wrought iron. These cheaply mined ores made the mining of 2 in. beds of ironstone in the coal measures uneconomic and the iron-making industries in Shropshire, Staffordshire, Scotland and S. Wales either ceased to expand or even languished.

To-day, about half the ore used in the British iron industry is rich ore imported to ironworks near coastal waters, whilst the inland ironworks use the cheaply mined Lincolnshire, Northamptonshire and Oxfordshire ores. The iron-making industry in Shropshire is represented by one works (Lillesall), and that in South Staffordshire by only three; the South Wales industry, previously based on the northern outcrop of the coal measures, has moved to the coast to use imported ore. However, the iron industry in Shropshire was developed for the making of foundry iron, and founding is now carried on without the additional process of iron-making, by using pig iron made elsewhere. The original Coalbrookdale works, where this great development in iron-making started, is now an iron foundry and still specializes in the production of thin castings, which was one of the original achievements, so that we have a comparatively modest works still carrying on the trade which was introduced a quarter-millenary ago. Fortunately, we have some of the original records from which its early history can be traced. The original blast furnace which was used still exists; the first iron bridge ever successfully erected still spans the Severn at Ironbridge. Now there should be written a story of these early developments which is worthy of the influence which these works and this county had on iron-making all over the world.

Unfortunately, many inaccurate accounts have been given of the Coalbrookdale developments. The specious claims of Dud Dudley[1] to have smelted iron ore with coal (*ca.* 1619) and to have refined it to bar (wrought) iron with coal have only within the last 35 years been questioned and disputed.[2] In our present period of confusion and doubt, one thing is certain: we have shed the pompousness of our Victorian predecessors and have made real progress in historical criticism. The collection of original sources in County Records Offices and Libraries, the discipline of checking

original statements or accounts and the reappraisal of earlier assessments is producing more reliable accounts of early industrial development. The foundation of a remarkable collection on the history of the iron trade has already been laid by the presentation to Shrewsbury Library of most of the earlier records of the Coalbrookdale group of companies. It is to be hoped that this collection will be augmented so that Shrewsbury will be a natural starting place for anyone interested in the history of the iron trade. Members of this Society could, no doubt, help to augment the value of this collection.

On the present occasion it is proposed to trace the general development of the Shropshire iron industry, with particular reference to its greatest phase, which occurred during the 18th century. Since so many fallacious accounts have been given of the start of the coal-iron industry, the basis of some of these misconceptions will be discussed.

Early indications of iron-making in Shropshire are not very definite, though in 1341 arrows, with an iron head tipped with steel, were supplied by Shrewsbury, Stafford, York, Gloucester and the Forest of Dean, the latter being a centre where iron-making occurred in Roman, Norman and later periods, and the iron was of the best quality made in England, the ores being lower in phosphorus than in most other areas. Many of the manors where charcoal blast furnaces were erected had belonged to the Abbeys before their dissolution in 1537, a step which was followed in many areas by the greater development of the coal trade. The Severn, because it could be used by sailing trows, offered cheaper transport than any other river and the development of the coal trade of the Coalbrookdale area facilitated commercial transactions in other commodities.

It is well known that the charcoal blast furnace, producing molten iron, was first introduced into Sussex at the end of the 15th century and that, for almost a century, the Weald of Sussex, Kent and Surrey was the only area where cast iron was produced in England. Although cast shot and guns formed the chief cast product, cast firebacks and gravestones (thick castings) were also produced. Most of the pig iron, however, was converted into wrought iron in the forge, in a "finery" and a "chafery". Before the charcoal blast furnace was introduced, wrought iron was produced in one stage in a bloom smithy, being then reheated and hammered to shape in a "string hearth". Originally, both the bloom hearth and the string hearth were operated by by foot-operated bellows but, in the second half of the 14th century, the water wheel had been applied at least to operate the bellows of the bloom hearth and, in the second half of the 16th century, to operate a heavy hammer.

By the end of the 16th century the iron industry of the Weald had passed its prime and, although it remained of appreciable size until the end of the 17th century, its subsequent decline was rapid.

The first charcoal blast furnace outside the Weald was built in Cannock Wood by Lord William Paget in 1562. The second was built in 1564 by George, 6th Earl of Shrewsbury, at Shifnal, Salop, with a forge on the Lizard. The third may also have been built about the same time by Robert Dudley, Earl of Leicester, at Cleobury Mortimer, Salop. Then followed four built in Monmouth and Glamorgan, in the period 1565-75, followed by one at Whitchurch, Hereford, built by George, the 6th Earl of Shrewsbury, and three more in Monmouth. George, the 6th Earl of Shrewsbury, had as his chief seat Sheffield Castle, in the manor of Hallamshire, where he had

built two furnaces (at Kimberworth and Wadsley) by 1585, so that he had then built four furnaces. Other furnaces in Shropshire were built at Lillesall (1591), Bringewood (1601), Coalbrookdale (1638), Bouldon (1644), Willey (1658), Leighton (1662), Ifton (1666) and Charlcot (1670).

The Development of the Iron Industry at Coalbrookdale

The Old Blast Furnace at Coalbrookdale, which may be considered to be the most famous blast furnace in the whole world, was built in 1638 by Sir Basil Brooke, Lord of the Manor of Madeley, after he had worked charcoal blast furnaces in the King's Forest of Dean over a period of 20 years to 1635. Sir Basil also developed the cementation process of steel-making in Gloucester. There are indications that he tried to introduce this at Coalbrookdale for, after the Civil War, his manor was described as "chiefly coal, lime and steel works" and a "Steel House" is mentioned in the lease of 1734, though it was then used for malt-making. Sir Basil Brooke, an ardent Royalist, died on 31 December, 1646, the estate being then in the hands of his relatives, the Cludds of Orlton; in 1653 the sequestered estate was bought by John Wildman, who acquired so many more that it was probably merely for disposal to others. It presumably reverted to the Brookes on the Restoration in 1660, no doubt much encumbered with debt, and Basil Brooke, great grandson of Sir Basil transferred it to trustees to pay his debts.

The tenant of the furnace in 1651 was Francis Wolfe, who sheltered Charles Stuart after his flight from Worcester and before his famous hide in the Boscobel oak. Subsequently, we know only that the furnace was leased, in 1696, to Shadrach Fox, who is said by Hannah Rose to have cast cannon balls, but, when the pool dam burst and the furnace blew up, he gave up his tenancy.

At the beginning of the 18th century, there were, in addition to Coalbrookdale, other charcoal blast furnaces making pig iron at Leighton, Kemberton and Willey, and charcoal forges making wrought iron at Moreton, Longnor, Pitchford, Sheinton, Upton, Gt. Wytheford, Tern, Caynton, Sambrook, Lizard and Norton, *i.e.* 11 forges, all within 10 miles radius of Coalbrookdale. Insufficient pig iron was made to supply all the forges and additional supplies were brought up the Severn from the Forest of Dean furnaces; we know that Laurence Wellington, who held the Coalbrookdale forges, was supplied with Forest pigs in the period 1696-1704. Thomas Dorset was also supplied with Forest pigs in 1710-16. Since Thomas Dorset (with Richard Corfield) let the Coalbrookdale furnace to Abraham Darby in 1708, and since Corfield held Pitchford and Sheinton forges and Dorset was at Leighton furnace in 1732, the sub-lease of the Coalbrookdale furnace clearly came from partnerships which held rights to the main furnaces and forges of the area.

Laurence Wellington of the Coalbrookdale forge apparently also owned or worked collieries, for it was his son John who supplied coal to Abraham Darby, but when this Wellington died in January, 1709, his executor, Thomas Dorset, tranferred the holding to Richard Hartshorne.

An account of the first 15 months of Abraham Darby's tenancy of the Coalbrookdale furnace is available[3], but few have bothered to study it systematically. There are also records for Coalbrookdale for the years 1718-1738,[4] cash records to 1749[5], and

certain other sources, now in Shrewsbury Library. For the Horsehay furnaces there are records for 1754-62[6], 1767-74[7], 1794-98[8] and 1798-1807.[9].

In addition to Raistrick's book,[10] which covers the whole enterprise, the present writer has dealt with the periods 1708-9[11] and 1718-1763[12], giving records of production and the technical basis of the developments made.

Three earlier assessments have confused some subsequent writers and they should be considered critically.

Abiah Darby (1716-94), widow of Abraham Darby II (1711-63), in a letter published in full by Ashton[13] and in part by Raistrick[10] said "About the year 1709 he came into Shropshire to Coalbrookdale, and with other partners took a lease of the works, which only consisted of an old Blast Furnace and some Forges. He here cast Iron Goods in sand out of the Blast Furnace that blow'd with wood charcoal; for it was not yet thought of to blow with Pit Coal. Sometime after he suggested the thought, that it might be practable to smelt the Iron from the ore in the Blast Furnace with Pit Coal: Upon this he first try'd with raw coal as it came out of the Mines, but it did did not answer. He not discouraged, had the coal coak'd into Cynder, as is done for drying Malt, and it then succeeded to his satisfaction . . ."

"About 26 years ago my Husband conceived this happy thought—that it might be possible to make bar iron from pit coal pigs. Upon this he Sent some of our pigs to be tryed at the Forges, and that no prejudice might arise against them he did not discover from whence they came, or of what quality they were. And a good account being given of their working, he erected Blast Furnaces for Pig Iron for Forges. Edward Knight Esqr a capitol Iron Master urged my Husband to get a patent, that he might reap the benefit for years of this happy discovery: but he said he would not deprive the public of Such an Acquisition which he was Satisfyed it would be; and so it has proved, for it soon spread and Many Furnaces both in this Neighbourhood and Several other places have been erected for this purpose."

This second statement of Abiah Darby has been considered critically by the writer,[12] who concluded that it was supported by an analysis of the accounts of the Horsehay furnaces. As the (second) wife of A.D.II, Abiah Darby may be expected to have had firsthand knowledge of the events concerning him which she recounted. This cannot be said of her statement concerning A.D.I, which she acknowledged she obtained from "A person now living, whose father came here as a workman at the first beginning of these Pit Coal Works"; in truth, little of the first statement can stand the challenge of ascertainable facts.

For example, Abraham Darby had no partners; he paid rent only for the single blast furnace from Michaelmas 1708; and he made the first entry in his accounts on 20 October, 1708. There were three small forges, the Upper, Middle and Lower. The Middle forge was taken over from Captain Stanley in 1720 and used for making bar or wrought iron using charcoal as the fuel; in 1708-9 the Upper Forge was, as in 1718-1738, tenanted by Cornelius Holland (or Hallen). The bellows and hearth of the old furnace had been replaced by December and on 24 December they celebrated the warming up of the furnace by the usual feast. A furnace usually required 3 weeks for warming up before it cast, but one which had been out of action so long would probably take longer, and the entry for 25 January, 1709 (N.S.) for the dispatch of "a parsell of new pigs 4 tons 5 cwt 2 qr 0 lb. at £6 0s. 0d. per ton" and four backstones

(fire backs) probably represented the first cast, 4 weeks after the furnace was warmed up.

There are no entries for wood (except for bellows boards and, later, building), but the entries shown in Table 1, and made by the time the furnace had cast, can be attributed to the purchase of mineral coal.

TABLE 1.—*Entries in the Accounts*[3] *attributable to the purchase of mineral coal*

1708	18 Dec.	By Cash pd Jno Welington in Coper	£03-00-00
	24 Dec.	By Cash pd Jno Welington by his man Jno Barckby	01-10-00
1709 (N.S.)	3 Jan.	By Cash pd Richd Dorrall for Charcking Coles	00-06-00
	29 Jan.	By Cash pd Tho Wellington in part for Caridg	10-00
	29 Jan.	By Cash pd Tho Welington	00-10-00
	28 Feb.	Tho Dorset & ye Executors of Laurance Welington	Dr
		By Cash pd Lurance Welington in part for Cole bought of his brother Jno	02-00-00
		By Cash pd Roger Cock in part for Caridge of Coles	15-00

Laurence Wellington, gentleman, of Coalbrookdale (?-1708), according to Hannah Rose (the daughter of Abraham Darby I's first workman), held the three forges at Coalbrookdale and lived at the house White End. John Wellington, his eldest son, was buried at Madeley Church on 12 January, 1709 (N.S.), as shown by the parish registers, leaving a brother Laurance, to whom payment was made on 28 February for "coles"; it can be presumed that the payments of 18 and 24 December were also for "coles", some of which were "charcked" (*i.e.* coked) on 3 January.

The company which supplied "coles" became, in subsequent entries, "R. Hartshorn and T. Dorset", "R. Hartshorn & T. Dorset exors of L. Wellington" and "R. Hartshorn & Co.," and from 1718 to 1723 Richard Hartshorne was the sole supplier of "coal", which is then undoubtedly mineral coal, the big coal entered to the Old and New Blast Furnaces being all coked. There is, in fact, an erased entry in the accounts of 1708-9:

to Aprill ye 30 1709 "to Coles reseved by Roger Cock from Dorralls pitt 9 stack 7 loads"

which shows, by the unit of measurement, that the "coles" received for carriage by Roger Cock from Dorralls pit were mineral coals.

There are no entries for purchase of wood or charcoal but there is a passing reference to the employment of a "wood coller" for 17 days, probably for making hurdles to shield the coke heaps. It cannot be doubted therefore that, in 1709, when Abraham Darby restarted the Coalbrookdale furnace, he used only coal (coke) in the furnace.

The next assessment which has caused much confusion is that of Samuel Smiles,[14] who devoted a chapter of his book to "The Darbys and Reynoldses". Smiles graduated as a doctor at Edinburgh in 1832 and augmented his income by journalism; he settled in Leeds where he was, at first, editor of the "Leeds Times" and, later, Secretary of two railway companies.

Against the background of subsequent historical writings his books must be dubbed "journalistic", with a weighty emphasis on the human problems and an insufficient appreciation of the technical problems about which he wrote. He acknowledged help from one of the Anstices of Madeley Wood Furnaces, from whom he apparently obtained the "Blast Furnace Memorandum Book" of Abraham Darby which nobody else has referred to. That part of his story dealing with the Reynolds (11 out of 19 pages) can be checked. The remainder is necessarily fragmentary and the only part which cannot be checked from other sources is his references to the "Blast Furnace Memorandum Book". Some of the details given are misleading, the implication that bakestones, grates and cart bushes were cast "in course of time" after a date of 1713 being incorrect, since the Coalbrookdale Accounts 1708-9[3] show that these were cast by March 1709 (N.S.), 10 weeks after the furnace was first warmed. The only novel material given by Smiles are the statements that the fuel used in the furnaces appears to have been at first entirely charcoal, that the favourite charge was five baskets of coke, two of brays and one of peat, that the production in 1713 varied from 5 to 10 tons a week, and that as many as 150 pots and kettles were cast in a week. Elsewhere he says brays is small coke (breeze in modern terminology) but the "brayes" in the "Coale-yarde" in the Stock of 1718 amounted to "35 doz. att 30/-", the unit and the price showing it to be small charcoal. The use of peat is confirmed[4] by the presence in the 1718 stock of "Turfe valu'd att £30-0-0".

Early in the 18th century, the word "coles" could mean either mineral coal or charcoal and some confirmatory evidence is necessary to obtain the exact meaning. The charcoal ironworkers did not buy "cole" (charcoal) but wood, which was contracted for several years ahead. In due course the wodmen of the ironmaker cut the wood and corded it (stacked it in statute cords: $8 \times 4 \times 4$ ft.); after standing for, say, 6 months it was "coled" or converted into "cole" (charcoal) and transported to the furnace. The details of such a series of transactions can be traced in the records of the Coalbrookdale Co. in 1720 and are recorded in Tables 2, 3, and 4.

TABLE 2.—*Details of purchase, cutting, cording and coaling of wood and carriage of charcoal.*

Wood (*Stock Book* 1718-27, *p.*145, 12 *Feb.* 1721 (*N.S.*))

	£-s.-d.
OLD BLAST FURNACE Dr to Richard Baldwin & Comp[a]	
378 Cord 5 foot of wood yard long makes 284 Cord of 4 foot Wood at 15/- Cut[s] 47 Cord 4 foot of under Wood at 2/2	220-6-3
Forge for Timber out of Burgin's Wood	3-0-0

Cutting (*Cash Book* 1718-32, *p.* 40, 24 *August* 1720)

OLD BLAST FURNACE Pd Sundreys for Cutt[s] Wood in Full viz

Bird for 69 Cord 5 foot att 18d 24/5 Matthews for C F 109-4 24/3, Plimer for C F 71-3 17/-, Morrall for C F 44-1 2/8 'tis in full m[o] p[d] 'em in p[tt] att severall times 3-8-4

(Payments detailed 31 May; 20 June; 9, 11 (mentions Burgin's Wood) and 23 July total 22-3-0
or approximately 1/6d. a cord for 295 cords 5 feet (3 foot wood) which, with 47 cord 4 foot cut by Baldwins at 2/2, are equivalent to 62 c 6 f of 3-ft wood, making a total of 358 cords 3 ft of 3-ft wood.

Cording (*Ibid.*, *p.* 40, 24 *August* 1720)

OLD BLAST FURNACE Paid Thom^{s} Plimer for cording 363 cord at 4d. 6-1-0

Coaling (*Ibid.*, *pp.* 43, 44, 47)

£-s-d

OLD BLAST FURNACE 13 Oct. 1720 Paid Thom^{s} Plimer for Coal^{g} Wood in ptt 10-0-0
22 Nov. 1720 ,, ,, ,, in acco^{tt} for Coal^{g} Wood 8-0-0
16 Jan. 1721 (N.S.) ,, ,, ,, wth £18 p^{d} him before
in full for coal^{g} 90-7 (d L) of coals 5-9 (d b) of Brayes at 4/3
and for carry^{g} 28-5 (d L) of 'em from Burgin's Wood at 2/-
and for fill^{g} 4^{ds} & c 10/3 5-16-6

Carriage (*Stock Book* 1718-27, *pp.*140-1)

OLD BLAST FURNACE Sam^{l} Barnfield carry^{g} Charcoal from Burgins Wood att 2/-

	d - L
4 weeks ending 25 Sept. 1720	14 11
23 Oct. 1720	27- 4
20 Nov. 1720	22- 5
	64- 8

This with 28-5 (d L) carried 16 Jan. 1731 accounts for 93 doz 1 load

TABLE 3.—*Cost of Charcoal per dozen delivered to Old Blast Furnace, Coalbrookdale, 1720*

			£- s- d
Wood	3.05* statute cords	at 15/-	2- 5- 9
Cutting	,, ,, ,,	at 2/-	6- 1
Cording	,, ,, ,,	at -/6d.	1- 6½
Coaling	1 dozen	at 4/3	4- 3
Carriage	,,	at 2/-	2- 0
			2-19- 7½

*The ratio of statute cords of wood to dozens of charcoal and brays is 284/93=3.05, a high value showing that there was much underwood. A dozen of charcoal is approximately 0.8 ton

TABLE 4.—*Iron production and coal coked at Old and New Blast Furnaces*, 1720-21

Period	New Blast Furnace		Old Blast Furnace	
	Iron (tons/wk)	Coal coked/ ton iron (Stacks)	Iron (tons/wk)	Coal coked/ ton iron (Stacks)
4 weeks ending				
1720 8 May	5.5	5.4	4.9	7.0
5 June	5.2	6.4	4.3	7.7
3 July	4.7	6.8	4.3	8.3
31 July	2.9	11.4	0.04	
28 Aug	2.6	11.7	nil	
25 Sep	4.1	8.3	2.7	14.1
23 Oct	4.8	6.1	3.7	9.2
20 Nov	5.1	6.7	4.4	8.0
18 Dec	4.7	7.0	5.5	7.0
15 Jan	5.6	5.9	8.2	1.3
12 Feb	5.9	6.8	8.1	4.2
12 Mar	6.0	6.6	5.0	8.2
1721 9 Apr	5.5	6.6	4.2	9.0

It is clear that the Old Blast Furnace was driving badly compared with the New Blast Furnace and, in the summer when the water supply for the water-wheel was deficient, was out of production for about 8 weeks for relining the hearth. On relighting, it still drove less well than the New Blast Furnace until December. In January and February 1721, when all the charcoal had been delivered, the Old Blast Furnace produced iron at about twice its previous maximum rate, and the quantity of coke made was very small, showing that the fuel used was mainly charcoal, but in March and April it reverted to its original rate of production with its normal requirement for coke. If it is assumed that all the charcoal from Burgin Wood was used during January and February, the consumption would be 1.7 tons of coke and 4.5 tons charcoal as compared with the use of 3.7 tons of coke per ton of pig iron in the New Blast Furnace. Since the coke cost 10/- per ton and the charcoal 75/- per ton, and the pig iron was then selling at £8 per ton, it is obvious that the use of charcoal in the furnace to increase the rate of drive was uneconomic, and in the next three years the sales of pig iron averaged less than 30 ton p.a. compared with 130 tons p.a. in 1720 and 1721.

In 1709 the Coalbrookdale furnace made 80 tons of iron; since contemporary sources show that 2 to 3 cords of wood made 1 dozen (loads) of charcoal, and 2 dozen of charcoal were required per ton of pig iron, this would have required (if charcoal only had been used) 400 cords of wood; since a contemporary Shropshire charcoal furnace made 300 tons of pig iron per year, arrangement for the purchase of 1,500 cords of wood would be expected, with charges for cutting, cording, coling and transport, but no such records occur in the accounts.

From 1718 to 1727 and 1728-38 we have detailed accounts[4] of the purchase of "coles", distinguished as "Big" and "Lump". The "big" was sold in units of "stacks" and "loads" (9 loads=1 stack=35 cwt, so that 1 load was a horse load of about 4 cwt). From 1718 to 1723 "coles" were supplied only by Richard Hartshorne & Co., who received a payment for "royalty and getting" of 3/9d. per stack; the pack-horse drivers were paid 2/- per stack for transport, from Upper Pits; Andrew Cartwright was paid 10d. per stack for "coaking". The totals of "Big Coal" accounted to the Old or New Blast Furnace for "royalty", "getting" and "carriage" agree exactly. By selecting the quantities of big coal "got" and totalling for each year (13 periods each of 4 weeks) these totals may be compared with the totals "coaked" for the same period, as in Table 5.

TABLE 5.—*"Big coal" (stacks-loads) "got and coaked". Old and New Blast Furnaces, Coalbrookdale*

Period	Old Blast Furnace		New Blast Furnace	
	Got	Coaked	Got	Coaked
1718 (9×4 weeks)	714-8	714-2	976-7	976-2
1719	1247-5	1248-2	1323-4	1323-2
1720	1475-4	1475-4	1730-7	1730-5
1721	1601-8	1603-2	1447-6	1446-3
1722	1513-2	1521-5	1654-1	*
1723	1583-6	1585-3	1717-3	1735-3†
1724	1497-0	‡	1664-0	‡
1725	1916-3	1937-7	1502-3	1479-0
1726	1861-4	1859-3	1914-4	1901-8
1727 (11 ×4 weeks)	1734-2	1739-7	1531-0	1530-6

*Two pages missing.
†The entry for 4 weeks to 25 August 1723, 120 stacks—8 loads, is obviously incorrect, since only 107 stacks—7 loads were got and 113 stacks—5 loads were carried; at least 10 stacks of coal should be deducted from the total coked.
‡There are at least three errors in the monthly totals coked based on the coal "got" and "carried"; a correction is not attempted.

It will be seen that all the "big coal" got for the Old or New Blast Furnaces was coked. There were, in addition to the amounts of big coal allocated to the Old and New Blast Furnaces, smaller amounts entered to the Upper or the New Air Furnace (coal-fired reverberatory furnaces for remelting pigs for further castings) and to General Charges (house heating). There were also charges for lump coal to Old and New Blast Furnaces, which must have been coal for "burning the mine"or roasting the ore. Thus it has been proved that, at least from 1718, all big coal entered into the accounts of the Old or New Blast Furnace was first coked, which disproves the story published by John Percy[15] in 1864, and obtained by him from the wife of Abraham Darby IV (1804-1878), that charcoal was at first used and that coke was only used from about 1735.

Unfortunately, for the period between January 1710 (N.S.) and July 1718 no Coalbrookdale records survive and their absence has given rise to speculation which tends to make historians suggest partial success, and only Samuel Smiles has apparently seen a record which deals with these years. The facts accord with a usage of coke only in 1709 and from 1720 onwards, with the limited use of charcoal in the period 1718-20, as previously recorded. Smiles solitary contribution to knowledge, that Darby's favourite charge was 5 measures of coke, two of brays (small charcoal) and one of peat, probably only refers to an experimental period in which Darby was trying to overcome the chief disadvantage of the use of coke, namely, the low rate of production, about half that of a charcoal furnace.

The low rate of drive—about 3 tons of pig iron per furnace week—was overcome in 1734 by the erection of a horse-gin pump, which enabled the water to be returned for re-use by the water-wheels operating the bellows. The rate of drive then ran to an average of 6 tons per week of furnace operation, with a maximum rate of 10 tons per week. In 1742 the horse-gin pump was replaced by a Newcomen steam engine.

In 1755 when the first Horsehay furnace came into operation, it appears that the Newcomen engine did not pump back the water to a pool but onto the water-wheel directly. The two Horsehay furnaces over the period 1755-61 gave an average production of 15 tons per week. By 1767 they were each producing nearly 20 tons per week and in 1765-73, 25 tons per week, more than any charcoal blast furnace, and they each operated an average of 50½ weeks p.a.

It must be said of the Coalbrookdale furnace of 1709 that there is little doubt that its thin castings, and its potts, kettles, furnaces and general hollow-ware, were outstanding achievements of the founder's art. Coke gave a higher hearth temperature and more silicon in the pig than did charcoal. This, and the useful amount of phosphorus in the iron, gave a fluid iron which enabled thin castings to be cast successfully in dry sand moulds.

The second Abraham Darby, who developed the Horsehay furnaces in partnership with Thomas Goldney of Bristol, achieved something else. Some of the ores of the Shropshire coalfield, like Blackstone and Ballstone, are low in phosphorus, about 0.1 per cent, so that the pig iron contained only 0.5 per cent of phosphorus. Although the slightly higher silicon content of coke/pig iron gave an extra refining problem, the coke/pig iron could be used in charcoal fineries to make wrought iron of good quality. Since wrought iron was the chief form in which iron was used until Bessemer's process enabled cheap steel to be made, the development of the Horsehay furnaces had a more profound effect than did the original Coalbrookdale furnaces making good thin castings. The coke/pig iron from the Horsehay furnaces was sold to the charcoal/wrought iron makers and few castings were made there. Two furnaces were brought into operation at Ketley by the Abraham Darby—Thomas Goldney group into which Richard Reynolds (who married a daughter of Abraham Darby II) entered and this presumably followed the pattern of development of Horsehay.

Thomas Roebuck, son of a Sheffield Cutler, on 1 January 1760 founded the Scottish coke-iron industry by bringing into operation the Carron Works, with the aid of workmen from Shropshire. An outstanding achievement at Carron was the development of cylinder blowers for blowing the blast furnaces, this achievement being due to John Smeaton, dating, apparently, from 1768. Instead of using a New-

comen engine to pump water on to a water-wheel which operated wooden bellows, Smeaton used the water-wheel to operate pistons in cast-iron cylinders, four such cylinders being used per furnace. This gave a regular blast which was independent of a water supply and Smeaton's cylinder blowers, used in conjunction with the Boulton and Watt steam engine, have usually been considered to be the basis of the rapid development of the iron industry from the last decade of the 18th century.

On the other hand, a cylindrical shape of "bellows" had been used earlier than 1768. When Schröderstierna visited Crowley's Smalwell forge in May 1749 he saw there an iron piston packed with leather, and operating in a cast-iron cylinder with valves at the bottom. The air requirement for a forge was smaller than for a blast furnace, but Isaac Wilkinson in 1757 patented the use of a water-sealed iron piston in a wooden cylinder which could be operated either by a water-wheel or a fire engine. When he became a partner in the Dowlais Ironworks (1759), he was allowed a bonus for all increased production beyond 20 tons of pig iron per furnace week through the use of this blower.

Although many obscure references have been made to the use of wooden tubs and wooden bellows at Coalbrookdale, it has been established[12] that they used leather bellows of conventional form to 1748. Moreover, leather bellows were used at Horsehay until at least 1774, but, despite this, the average weekly production of 15 tons per furnace week over the period 1755-61 increased to an average of 25 tons/week for the years 1768-74. This seems to be due to the use of better pumps to put the water on the water-wheel; these were introduced in 1761 and called the "Engine", and were regularly tended by one man.

The final solution to the problem of blowing larger furnaces occurred in Shropshire when John Wilkinson (a son of Isaac), who had become the chief partner in the Willey furnace in 1759, introduced one of the earliest Boulton and Watt engines with cylinder blowers. The great merit of the Watt engine compared with the Newcomen was its economy in fuel, because of the condensation of the steam in a separate condenser. The Willey cylinder blowers started in 1776 and operated two blast furnaces which each produced over 20 tons of pig iron per week. Although the Horsehay furnaces were producing more than this, they were using, for firing the Newcomen engine, at least $2\frac{1}{8}$ tons of coal, in addition to the $5\frac{3}{4}$ tons of coal (converted to coke) used in furnaces, and half a ton of coal for roasting the ironstone, per ton of pig iron. Wilkinson's final step provided the solution of the problem of blowing large furnaces and in the last decade of the 19th century numerous coke blast furnaces were built in most coalfields of Great Britain.

Three other steps should be mentioned because of their Shropshire association, namely, the use of coal in the finery for making wrought iron, the use of cast iron rails for railways, and the use of cast iron for building bridges.

Abraham Darby II had shown that a coke/pig iron of only 0.5 per cent of phosphorus could be produced, which was suitable for conversion in a charcoal finery to wrought iron. Richard Reynolds, who was a partner in the Horsehay and Ketley furnaces, on the death of Abraham Darby II in 1763 also took over the management of Coalbrookdale. In 1766 he took out a patent in the names of Thomas and George Cranage for using coal in a reverberatory furnace for making bar or wrought iron, and the iron so made proved suitable for making nails, though it was rather cold short

(or brittle when cold). The problem was not really solved until 1783-4 when Henry Cort, in Hampshire, in addition to using a coal-fired reverberatory furnace (a process usually referred to as puddling), used grooved rolls instead of hammers to reduce the product to bars. Cort's puddling and rolling process was taken up in South Wales, particularly at Cyfarthfa, which became the outstanding ironworks for half a century. These two processes, the coke-smelting operation of Abraham Darby I, operated with Watt's steam engine and cylinder blowers, and Cort's puddling and rolling operation, became the foundation of a rapid development for iron-making all over Great Britain, for coal was cheap and widely available, and ore was found with it in the Coal Measures.

In the development of the Coalbrookdale, Horsehay and Ketley works, Abraham Darby II made considerable use of wooden rails on which wagons holding about $2\frac{3}{4}$ tons, with cast-iron wheels and axles, operated, and thereby reduced the cost of transport to a tenth of that with the packhorses used by Abraham Darby I. The wooden rails were, in fact, a development of a method long used in Shropshire collieries where the longwall method of working, developed there, allowed coal to be moved in small wagons from the coal face to the Severn. The wooden rails were replaced in part by cast-iron rails from 1768 and the whole area of the ore fields at Dawley, Lawley and Park, and the coalfield at Coalmoor, were connected to Ketley, Horsehay and Coalbrookdale furnaces and the Severn.

Finally, in 1779 Abraham Darby III built, over the Severn, the first cast-iron bridge; it stands today, a monument to a family whose achievement should be acknowledged all over the world. These three Abraham Darbys together were the chief architects in converting the iron industry from one of dispersion in the forests and on the minor tributaries of rivers to one of concentration, with furnace, foundry, forge and engineering works close together and connected by a railway. They perfected the art of making thin castings, of operating coke blast furnaces and of using massive castings for the steam engine, railways and bridges, as well as making a considerable contribution to the cheap production of wrought iron. These men, despite their achievements, were modest and unassuming, unlike the overbearing tycoons who gained the names of Iron Kings, such as Richard Crawshay at Cyfarthfa and John Wilkinson of Willey, whose assertiveness distracted attention from the real creators of the modern iron industry.

By the end of the 18th century the group centred on Coalbrookdale had shown the way to others. In 1758 Francis Homfray built a blast furnace at Lightmoor, later to be followed by another. After the Seven Years War of 1756-63 there was a period of bad trade which changed in 1776 with the outbreak of the American war. Blast furnaces were built about this time at Calcutts and Benthall on the South side of the Severn and at Snedshill on the North side. (The Calcutts ironworks is the subject of a well-known print.) The Snedshill works were built by John Wilkinson, who had furnaces at Bersham (Flint.), Bradley (Staffs.) and Willey (Salop), but lived and died at Hadley and may be regarded as a Salopian by adoption. He was responsible for the application of the Boulton and Watt steam engine to ironworks, putting in the first for blowing at New Willey 1776, the first for forge hammers in 1786,[13] and the first for rolling and slitting mills in 1786.

The Coalbrookdale group built furnaces at Donnington Wood and Madeley, another group built one near Broseley in 1786, and in the following year John Wilkinson built two furnaces at Hadley, so that by 1790, when the Napoleonic war was imminent, there were twice as many blast furnaces in Shropshire as in any other county. Never again was Shropshire to enjoy such pre-eminence, for the other areas learnt their lessons fast under the pressure of war demands. By 1796 South Wales had surpassed Shropshire in iron production; by 1806 Staffordshire was rapidly approaching the Shropshire production, even though this had increased by two-thirds in a decade and, by 1823, when the next records are available, the production in Staffordshire was twice that in Shropshire.

Such a rapid development, in which the iron production about doubled during each decade from 1786, naturally brought difficulties when peace was declared and the Coalbrookdale, Ketley, Benthall, Broseley and Calcutts furnaces were abandoned. The Lillesall Company, on the death of John Wilkinson in 1808, took over the Donnington Wood furnaces which he had taken over from Reynolds & Co. and built some furnaces of their own; later they took over the Snedshill Iron Works, and today they are the sole surviving ironmakers in Shropshire.

Conclusion

My story does not by any means exhaust the contributions made in Shropshire to the development of the iron industry and its usage. Bridge builders, canal makers, architects, enginewrights, railway engineers, foundry men and many others found their early training and inspiration in the county and particularly in the Coalbrookdale group of works. Nor must I forget the effect the Coalbrookdale scene had on the painters and writers who, often erratically, but with great vigour, expressed something of the great stir which this quiet little dale had produced.

That its influence has been felt in all civilised countries is beyond question, but I am bound to say that the contributions which have been made are not sufficiently appreciated. I hope that we can all join in ensuring that its story can be more fully recorded so that, in this great period of tourism, it might magnetically attract all who have iron in their blood and become the Mecca of ironworkers from all over the world.

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COALBROOKDALE: THE EARLY YEARS

By R. A. Mott, D.Sc., F.R.I.C., F.Inst.F.

When, in October 1708, Abraham Darby I (A.D.I) started the enterprise later known as the Dale Co. or the Coalbrookdale Company, the hazards he faced were many and formidable. The financing of any industrial enterprise was the most difficult of problems and because of this many early industrialists became bankrupt.* A.D.I had to arrange for the sale of his cast-iron pots to rural communities and did so through agents at the fairs, through which most of the merchandise of the period passed. This involved much travelling on horseback and the organisation of the chapmen and of his own teams of waggoners for deliveries of his bulky commodities. He had to have assistants to help him in travelling, in the collection of payments for deliveries and the supervision of his works in his absence. He had to arrange for leases for regular deliveries of ore, limestone, coal and sand, and for the building and maintenance of his furnaces, moulding rooms and warehouse. Finally, he had to resolve the technical difficulties of two novel procedures, the use of coke in blast furnaces and the production of thin castings. In retrospect, it appears that his technical problems were dwarfed by his business difficulties and, indeed, these have tended to obscure his undoubted technical successes.

The accounts of the early years are mostly garbled, partly because most of the sources are not original,† partly because of confusion with dates‡ and partly because no-one has set out the different incidents in order.** To do this is the purpose of the present paper. The author intends to draw attention to many false statements in the literature, in the hope that misunderstandings may be removed and a background formed for the checking of many features, so that, in due course, more reliable accounts will appear in the literature of the world. Technical features will be avoided, so far as possible, so that emphasis can be given to the early background of what must be recognised as one of the most influential enterprises the world has ever known, the effects of which are still being felt by iron-makers and founders in all industrial countries.

Abraham Darby came from a family of artisans—smiths—the type which provided most of the leaders of the industrial revolution. Before the industrial revolution the smiths were often small holders who carried out their crafts on their holdings.

E.g. Charles Lloyd, of Bersham furnace and Dolobran forge, N. Wales, in 1728; the Ford brothers, sons of Richard Ford I of Coalbrookdale, who were concerned with Caynton and Sambrook Forges in 1756-63; Isaac Wilkinson, of Willey Furnace in 1763.

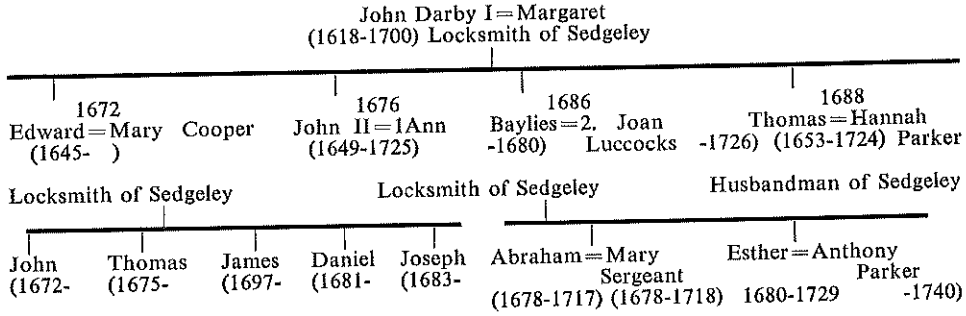
†The only original sources are the Coalbrookdale Co. Accounts 1708-9 (MS. 328), Stock Books 1718-27 and 28-38 (MSS. 330 and 330A) and Cash Books 1718-49 (MSS. 329 and 331), all at Shrewsbury Library. The secondary sources are all copies or abstracts by W. G. Norris (1829- ?) collected in the Norris MSS., a series of manuscript books which include extracts from the records (birth, marriages and deaths) of the Society of Friends at Dudley, Somerset House and elsewhere (V), leases and agreements (VIII) and accounts of the Darby family by Hannah Rose (X), Thomas Baylies and others (VIII), all in Friends House Library, London. The Norris MSS. has been frequently used without due acknowledgement.

‡The Julian Calendar was replaced in England by the Gregorian in 1752, until when the year ended on 24 March: March was the first month, December the tenth. February 1708 was therefore after March to December 1708; in the present paper all dates are Gregorian or New Style (N.S.) and numbered months of the Julian calendar have been changed to named months of the Gregorian.

** See footnote on page 83.

The Darby family holding was leased by John Darby I, grandfather of A.D.I, from Humble Lord Ward, Baron of Birmingham, in 1649 for £30 p.a. for 21 years and was presumably renewed for at least two further terms.

From Norris MSS. V the family background of A.D.I can be presumed to be as follows:—



John I acquired his holding when he was 31 after the birth of his second son, who, with his elder brother, followed him in his trade, his younger son later becoming the farmer of the family holding. The elder brother of John II had five sons to whom the family trade could be expected to pass and when A.D.I was 14 his younger uncle had a son born to whom the holding could be expected to pass so that A.D.I was apprenticed in Birmingham.

The holding was predominately in Staffordshire and the parish of Sedgeley (with part in the parish of Dudley) near Wrens Nest.

When A.D.I was born, his father (John II) and his uncle, Thomas, were leading members of the Dudley Meeting of the Society of Friends, to which John I also belonged.[1] A.D.I's mother died when he was 2 years old; when A.D.I was 8 years old his father married again; it appears that in 1692, when 14 years of age, A.D.I was apprenticed to Jonathan Freeth of Birmingham, a malt-mill maker, and so should serve his time until 1699. A malt mill, like a modern coffee mill, would have a steel cutting screw in a barrel and would therefore require a variant of the locksmith's craft of cutting steel parts for fitting into a wrought-iron casing. Hannah Rose, daughter of A.D.I's first apprentice John Thomas, has said[2] that Abraham Freeth was a "public friend" (*i.e.* one used to speaking at Meetings of the Society of Friends) and that A.D.I and one or two of his master's sons "had a gift in the Ministry" (which has the same meaning). In September 1699* A.D.I married at Birmingham, Mary Sergeant, daughter of a bleacher of linen yarn of the parish of Solihull, the witnesses to the marriage including Jonathan Freeth (his master), Benjamin Coole

**The best available source is A. Raistrick's *Dynasty of Ironfounders: the Darbys and Coalbrookdale* (Longmans, Green & Co., London) 1953. This account is, however, interrupted, and is spoilt by not correcting to New Style dates: *e.g.* on p.22 line 7, p.23 line 6, p.34 line 26, p.39 line 5, p.40 line 14, p.47 line 10, p.53 line 24, p.58 line 24, p.58 line 12 and p.69 line 26 the year given should be advanced by one.

*Norris X, 132 (18/7 mo 1699), though in Norris *V*, 22, the date is given as 18/9 mo 1699; the former is a fuller entry and is adopted here. Raistrick (*loc. cit.*) says the wedding was at Dudley.

and Edward Lloyd (later partners in the Bristol Brass Wire Co.), Charles Osbourne, a successful ironmonger of Wolverhampton, and Thomas Rose of Birmingham, hingemaker, whose son married Hannah, daughter of John Thomas.

A.D.I, in 1699, went to Bristol, probably at the instance of Edward Lloyd, cider maker of Bristol, cousin of Charles Lloyd of Dolobran, and of Benjamin Coole, merchant, and a freeman of Bristol, and set up as a malt-mill maker in a city which had a long history in metal-making and fabrication. This is probably one of many instances of the influence of the close communities of the Society of Friends, whose "non-conformity" marked them as people of independent minds and outlook, suitable for pioneering.

In 1702 A.D.I formed the Bristol Brass Wire Co. at Baptist Mills (and was described[2] as "the acting man") with Edward Lloyd, Benjamin Coole, John Andrews (merchant, vintner) and Arthur Thomas (pewterer). The present writer has discussed the problems of the Bristol venture elsewhere[3] and it is sufficient to note here that the problems of use of coal and coke in smelting and refining copper had recently been solved in the Bristol area and that large quantities of cheap copper were available without suitable markets for its disposal. A.D.I. resolved this problem by making brass with it, using calamine (zinc carbonate) from Somerset and probably using coke as the fuel. It is likely that he knew of the method of coke making as then practised at Derby for drying malt, for, through the 18th century, the Shropshire method of coke-making was similar, even in detail.[4] It is also possible that he used Coalbrookdale coal, which was available cheaply in Bristol, and its low sulphur content compared with that of coal from Bristol and Forest of Dean coalfields would be apparent to the operators, though unimportant in the technical process of brass making.

The Bristol Brass Wire Co. became the chief brass-making company in Europe for over half a century; in addition to making wire (for pins and wool carding), it made sheets which were brazed to form kettles and pots by Dutch workmen brought over by A.D.I, it is thought, in 1704.

The casting of bronze (copper and tin) had long been practised for making guns, bells and statuary; brass was a softer material, easy to beat into sheets (using water-wheel operated hammers) and to mould to curved shapes, but the casting of domestic goods in brass did not develop until Birmingham became the centre of the brass trade, nearly a century later. A.D.I may have tried casting pots in brass (but these would be expensive compared with sheet-ware pots), but we know that he succeeded in casting pots in iron and took out a patent for this in April 1707, being helped by John Thomas, an apprentice who had been with him for the whole of his time in Bristol.

This patent was for casting bellied pots in dry sand moulds[3] and was the foundation of the trade developed at Coalbrookdale. Iron is cheaper than brass and A.D.I's achievement was to make a product sufficiently thin (about 1/6 in.) so as not to be too heavy for household use. Despite the fact that the success of the Bristol Brass Wire Co. was then obvious, A.D.I withdrew from it and used the money to found the Bristol Ironworks in Cheese Lane, and in Jan. 1708 to bind John Thomas to work for him, probably to keep the secret of the moulding.

From Michaelmas 1708 A.D.I took out a lease of the Old Blast Furnace (O.B.F.) at Coalbrookdale. This furnace had been built in 1638 by Sir Basil Brooke, lord of the manor of Madeley, and was operated by Francis Wolfe senior* when Charles Stewart fled from Worcester field and sheltered there before his famous hide in the Boscobel oak. Francis Wolfe junior, who had fought at Worcester, may have carried on after his father was buried at Madeley 7 December, 1665. In 1695 Basil Brooke, great grandson of Sir Basil, being childless, put his Manor of Madeley into the hands of Trustees to pay his debts (occasioned "by working of Mines of Cole and Iron")[5] and in 1696 the O.B.F. was in the tenancy of Shadrach Fox who left when the Pool Dam burst and the furnace was inundated. The date of this is not known, though Hannah Rose says that Fox went to Russia where modern iron works were being introduced by Peter the Great about 1699; since Shadrach Fox had a son baptised at Madeley in 1704, the date is probably in the period 1704-8.† The putting-out of the furnace may have caused cessation of the Middle (Great) Forge in the Dale; subsequent leases show that this and the small Upper and Lower Forges reverted to Richard Corfield of Harley, Salop.

According to Hannah Rose,[2] Laurance Wellington held the three forges in the Dale but, as will be seen later, it was Richard Corfield and his sons who in 1715 leased the forges and dams, not covered by the 1708 lease, to A.D.I. Her reference may be to Laurance Wellington I of Coalbrookdale, who died 20 March 1708 (which may have caused the transfer of the leases to the Corfields) leaving John (who died Jan. 1709, aged 44) and Laurance II.[8] Laurance II received rent for the "New Pool" (which must be the pool for the New Blast Furnace, built in 1715) at £2 p.a. from 1718 to 1745 and both John and Laurance were concerned in the supply of coal to the O.B.F. from 1708. A.D.I. lived in the Wellington's old house, White End, near the Upper Forge, paying rent of £4 p.a. from Michaelmas 1708.[9]

When A.D.I went to the Dale, Cornelius Holland (or Hallen) was a "plater" and made frying pans at the Lower Forge; Cornelius Holland was baptised at Madeley in 1673 and died 1731; the family were refugees from Holland and may have held the Lower Forge for a long period, leasing it from the Corfields, for, when A.D.I took out the extended lease of 1715, Holland subsequently paid rent for his forge to the Dale Co.[10]

Captain Stanley paid rent to the Dale Co. at the rate of £30 p.a. for the Great Forge from Midsummer 1718 to 1720,[11] when the tenancy was reserved to the Dale Co. Before that, a trial of making bar iron had been carried out "by Capn Stanley's man" (March 1720)[12] and a charge for carriage to Stourbridge probably means that Stanley had moved his chief activities to that town.

Finally, we know that William Corfield, son of Richard (who died before 1715), had moved his activities to Pitchford,[13] where he would be more conveniently placed to receive charcoal pigs from Leighton furnace, and that he started a forge there about March 1715. It seems clear that, when Shadrach Fox gave up the tenancy of the

*A tankard, bearing the inscription "Given by King Charles 2nd at the Restoration to F. Wolf of Madeley." has a crest of a demi-wolf supporting a crown.[6]

†The Coalbrookdale furnace suffered the same fate in 1801:"rain fell in the space of one hour—caused the Upper Furnace at the Dale to blow up and the water 10 ft. deep in the Foundary". It was possibly in July 1706 when "the violence of these floods throwing down bridges, 42 in Denbighshire and Flintshire".[7]

O.B.F., the leases of all furnaces and forges in the Dale reverted to Richard Corfield, who had let the Lower Forge to Cornelius Hallen and in 1708 the O.B.F. to A.D.I; in 1715 William Corfield moved from the Middle Forge (to Pitchford) and let it to Captain Stanley, who retained it until 1720. Laurance Wellington II may have tenanted the Upper Forge but had certainly left the house White End there by 1708, though he and his brother remained interested in coal mines and supplied the first coal to A.D.I.[4]

A.D.I repaired the hearth of the damaged furnace, built a new pair of bellows and was warming up the furnace on 24 Dec. 1708. Four weeks later he sent his first load of pig iron and his first casting to the Bristol Iron Works. In the last quarter of the year 1709 he sold 37 tons of iron, of which about 6 tons were "Pots", 6 tons other castings and the remainder pig iron; his thin castings would be better than those made from charcoal iron at Bristol, a result which he could not have foreseen.

Technically, he had transferred his patent into regular production, and he had made the revolutionary step of replacing wood by coal, which patentees had been striving to do for 120 years. Economically, because of the low price of coal, his venture was a success despite his low rate of production, but difficulty arose in the realisation of the money which his customers owed him, so that he had to arrange to raise money by mortgaging part of his works. In the Agreement dated 8 Feb., 1710[14] Abraham Darby of Bristol, ironmonger, agreed to assign to Griffin Prankard of Somerton, Somerset, 2/16 and to James Peters of Bristol, merchant, 1/16 of his share in his works. These were the Cheese Lane "Workhouse for Casting of Iron and other Wares" and "Workhouses at Coalbrookdale" (where A.D.I) "in his own name and with his own money did start and carry on or work a furnace for casting or making of Iron Potts and other Ware". The total value was assessed at £2,804, so that he raised £526.

On 21 Sept. 1711, the stock was valued at £3,535, but the debts owing were £1,531 and A.D.I. assigned 6/16 of his stock for £500 to Richard Champion (1686-1714), brother of Nehemiah (1678-1747) and both sons of Nehemiah (1649-1722) who had become associated with the Bristol Brass Wire Co. These details are recited in an indenture of 28 Feb., 1713,[15] and it is noted that Richard Champion had "become interested in the said works and concerned in the carrying on and managing the said works and had advanced to the joint stock £200-5-0". He had also acquired 6/16 of the patent for £5-7-6, thus advancing in all £705-12-6. At the date of the indenture, Champion agreed to accept £1,283-1-3 for his 6/16 shares, his debt of £200-5-0 and all profit due to him. Even allowing 5 per cent interest on his £200 and assuming that his shares were worth 6/16 of the clear value of £2,004, the profit on this £705 works out at 17 per cent, so that A.D.I, after 4 years operation, must have been feeling confident of his future.

This confidence is shown in a letter dated 12 July, 1712,[16] which he wrote to Wm. Rawlinson, the principal partner in the Backbarrow blast furnace, which had just been started in Furness. In this he apparently had in mind an undertaking with Rawlinson for making iron other than "with common fuel", the details of which he could convey by post, he to take 1/8 of the profits and Rawlinson being assured that he would save £700 per annum. This scheme did not mature, for the Furness

area was one where charcoal was relatively cheap and the Backbarrow furnace continued to use charcoal until 1921.

Backbarrow furnace was, in fact, not near a suitable supply of coal and A.D.I's next two ventures were also with furnaces for which suitable coal supplies could not easily be obtained, though this he may not have known. At the end of 1713 he proposed to build a furnace near Dolgelley, Merioneth. He offered John Kelsall, a school master at Dolobran, a clerkship and early in 1714 Kelsall spent some time at Coalbrookdale and in May went to Dolgelley. The foundations of the furnace were not, however, built until June 1717, after A.D.I's death, and the works were bought by Samuel Milner for £600,[19] this value suggesting that there must at least have been an air furnace for remelting pig iron.

In April 1714 A.D.I offered a clerkship to Thomas Baylies, his brother-in-law who was to join in all A.D.I's enterprises, as was John Chamberlain of Stow-on-the-Wold, Oxford,[18] about whom we know very little. In Dec. 1714 a new lease was obtained from the Trustees of Madeley Manor in the names of A.D.I, John Chamberlain and Thomas Baylies to take effect from Michaelmas 1717 (the date of expiry of the unexpired portion of the lease) for 21 years.[19] The purpose of this new lease was probably primarily to include more land and the forges at Coalbrookdale to allow for expansion there, for articles of agreement were made on June 4th, 1716, between A.D.I (and partners) and William and Thomas Corfield, sons of Richard Corfield, who agreed to release all their rights in "all those severall Ironworks, fforges and ffurnaces sittuate in Coalbrookdale" and all pools, dams, streams from 21 March, 1715, to the end of the original lease. Further, the Corfields agreed to sell to the partners "such quantities of charck coale* as are now at the Upper and Lower Forges." Although the Middle (Great) Forge is not specifically mentioned, it was presumably included, with Captain Stanley as tenant: he would acquire the charcoal stock there himself, as did the Dale Co. in 1720 when Stanley gave up the tenancy. The agreement of 1716 mentions that Richard Corfield was then dead.

According to Baylies,[22] A.D.I suffered from "a long fit of illness which reduced him to a weak and helpless condition and for more than a year and a half before his death rendered him incapable of business". Since he died on 5 May, 1717, this would make 1715 the last year of healthy activity. Baylies notes[23] payments of £430 (principal and interest) to James Peters and £162 to Griffin Prankard; although it was Peters who originally held 2/16 of the shares and Prankard 1/16, and these entries are the other way about, the £430 would agree with a repayment of an original 2/16 on £2,804 (Feb. 1710) and 4½ years interest at 5%, making the date of repayment August, 1714, which is consistent with the Dale lease of Dec. 1714 in the names of three new partners. It can be assumed that Peter's and Prankard's shares were taken over by Baylies and Chamberlain, though Baylies doubts if Chamberlain ever paid for his share. At all events, in addition to the Dale agreements of Dec. 1714 and June 1716, the names of Baylies and Chamberlain were also included in the Dolgelley and Vale Royal enterprises. A deed of 11 March, 1721,[25] recites an earlier agreement of 25 April, 1716, made between Charles Cholmondely of Vale Royal Co. of Chester, and the three

*J. W. Hall quotes the reference to charck coale but fails to mention that it was at the Forges; it may be a similar slip which caused others to assume that charcoal was at first used in the blast furnaces; the very high price of charcoal is noteworthy.

partners of the Dale. According to another source,[25] Cholmondely undertook to supply charcoal and the three Dale partners to supply ironstone and limestone and be responsible for wages, Cholmondely to have a half the pig iron and the Dale partners the other half. The Vale Royal furnace had been concerned in a partnership including Edward Hall and Daniel Cotton until 1707, and in 1711 they (and others) started the Cunsey blast furnace on Lake Windermere and made this their chief enterprise.[26] In the years 1696 to 1713, Vale Royal had produced an average of 524 tons of iron p.a., the high quantity being due to the use of Furness ore.[27] A.D.I may have proposed to supply ore from Shropshire via the Severn, the Welsh coast, the Mersey and the R. Weaver to Vale Royal (Northwich), as well as Furness ore, from his friend Rawlinson of Backbarrow, via the Weaver, but we have no records other than the deed of 4 March, 1721.

The date 26 March, 1715, in the agreement of June 1716 between the Corfields and the Dale partners,[20] suggests that this was the date of the beginning of the erection, in the Dale, of the New Blast Furnace (N.B.F.), the Moulding Room, the New Warehouse and the New Air Furnace (misleadingly referred to as "Upper", probably because it was near Upper Forge Pool) which appear in the Inventory of July 1718. We do not know when the N.B.F. came into operation, only that it was in operation in July 1718[28] when the first detailed records after Jan. 1710 appear. It was off (like the O.B.F.) from 7 July to 31 August, 1718, but only the hearth in the O.B.F. was replaced whilst there were charges for repairing the bellows for the N.B.F.:—

Cash Book 1718, p.2 17 Sep., 1718 New B.F. att lay^{g} ye Bottome stone 2/6
Unleather^{g} ye Bellows 2/6 sink^{g} em 2/6 fill^{g} 2/6 first Blow^{g} 2/6 12-6

The furnace must have been in commission for at least a year for its bellows to require repair.

In the extension of the Dale Works it was acknowledged that Thomas Goldney Senr. had advanced £1,600 and "interest thereon £100" at the time of the death of A.D.I;[29] at 5 per cent interest, this indicates a period of 1¼ years, so that the sum was probably advanced in Feb. 1716: this date is perhaps the best estimate for payments due on the N.B.F. and the approximate date of its coming into commission.

According to Raistrick,[30] A.D.I "continued to hold part of the Bristol Works until about 1710" and "before 1711 Darby gave up all his interests in the Bristol Company", but these statements are probably incorrect. There is only passing mention of John Thomas, A.D.I's first apprentice, in the Coalbrookdale accounts of Oct. 1708 to Jan. 1710 and it is probable that he was left in charge of the Bristol Ironworks receiving Dale pig for making castings in the air furnace. About 60 tons of pig iron were sent to Bristol Iron Works in 1709. That he was still in Bristol in 1714 is suggested by the apprenticeship, dated 13 June, 1714, of John Luccock, a relative of A.D.I's mother-in-law, to "Abraham Darby, *of Bristol*, smith".[31] Thomas Luccock probably remained with John Thomas until his removal to the Dale and subsequently always worked with him at the Dale. The New Air Furnace would replace that in Bristol and the date of John Thomas's removal from there may be estimated as *ca.* 26 March, 1715, when the extra land became available, the New Air Furnace being the first new building.

John Thomas was married in Bristol 26 Aug., 1714. Hannah Rose says[32] that her parents "were married in 1714 at the Friends Meeting in Bristol. After marriage they

were accompanied to Coalbrookdale by four young friends . . . Father had hired a house for their reception. The next year brother John was born 1716, George was born 1718 15 10th mo, I was born about 1720. Father removed his habitation to the other side of the Dale from when he had just built a house that was the Mansion House of the Wellingtons the Masters of the Forges in the Dale, where Richard Ford lived, before he went into the great house newly built by his Father-in-law Abraham Darby which was begun to be built in 1715". Elsewhere she says[2] of Mary Darby, after the death of her husband in May 1717, "J. Baylies would not let her go into the new house but went there himself and family and put her in the Old House, formerly belonging to Lawrence Wellington, she being ill went down to Bewdley and was buried there" (March 1718).

"About this time the late Thomas Goldney came up and went into the Old House and he and Richard Ford when they had got J. Baylies out of the new House, went and lived there, then my parents went into the old one".

The date of the removal of Thomas Baylies can be fixed from the Stock Book 1718-27 in which, under General Charges, are accounts for deliveries of coal to the houses with the names mentioned. These records suggest that Baylies was put out of the New House ("Sunnyside") in Oct. 1719 which agrees with the last entry in the Cash Book 1718-31 referring to regular payments to him:

19 Oct. 1719 Thom^{s} Baylies in ptt of his Disburseme^{tts} £5-0-0

We must now try to assess the evidence in the "Case of Th-m-s Ba-l-s" dated in 1721 from Marton Hall, Cheshire and recorded by Norris.[33] In this Baylies attempts to justify his conduct on the deaths of A.D.I (5 May, 1717) and Mary Darby (30 March, 1718) and the fact that he seized eight of the shares of the Dale Co. against debts said to be owing to him. To help assessment there is in the Norris MSS. "Paper in the handwriting of . . ." which appears to be a contemporary account, possibly written by a lawyer concerned in the transfers of shares.[25] There is a third record, prepared by Joshua Sergeant (brother of A.D.I's wife), whose conduct in these complicated affairs is the least blameworthy.[34]

The "Case of Thomas Baylies" is a piece of special pleading full of protestations of his innocence and attempts to make John Chamberlain the villain. He also vilifies Thomas Harvey, another brother-in-law of A.D.I ("one who would sell his friend, or his father, if need arose"). We have two independent opinions of Baylies. Part of Hannah Rose's statements regarding Baylies have already been given; she also said[32] "he proved a very bad man, borrowed money in A. Darby's name, and my father was cheated and some others of the workmen by him." Richard Ford said of him on 30 April, 1735, in a letter[35] to Thomas Goldney, jun., "what will be T. Baylies' success at Neath time must discover, but dont remember of anything ever yet succeeding under his care".

There is also a tripartite agreement[24] of 11 March, 1721, between Charles Cholmondely of Vale Royal, Cheshire, Thomas Baylies, and two Cheshire men for the third part, which mentions an earlier one between the same parties of 28 May, 1718, in which each party had agreed to carry on Vale Royal ironworks and to advance £1,667, Baylies also to deliver for cancelling the earlier agreement of 1716 between Cholmondely and the then three partners of the Dale Co. The sum of £5,000 had been advanced by the other two parties but Baylies had advanced nothing,

though he had surrendered one sixth of his interests. The purpose of the 1721 Agreement was that, unless Baylies advanced £1,000 by 1 May the remainder before 24 Dec., 1721, as well as delivering up the 1716 agreement, he should be excluded from the partnership.

Baylies wrote his "Case of Th-m-s B-l-s" just before the end of the period when his partnership in Vale Royal was liable to be cancelled. In "Paper in the handwriting of . . ." there is a story, to which we will return later, of how the eight Dale Co. shares he seized were disposed of, but it is stated that Baylies became bankrupt and presumably he then forfeited all his interests in Vale Royal and the Dale Co., though the records show that it was not until 1723 that the financial problems were eventually solved.

It is impossible to disentangle all the details of the complex financial arrangements of 1717 to 1723, though certain features are reasonably certain. When A.D.I died in May 1717 the Dale Co. had acquired a lease of all the dams, streams, furnaces and forges to run from Michaelmas 1717 for 21 years, and had built the N.B.F., the New Air Furnace, the Warehouse, the Moulding Shops and the Lower Furnace (New) Pool, thus laying a sound foundation for development of the Dale site. The lease was favourable for, although it cost £100 p.a. instead of £40 p.a. for the O.B.F., the Dale Co. received rents of £55 from the tenants of the Middle and Lower Forges. Baylies says that Chamberlain planned to dispossess the widow Mary Darby since she was not party to the lease due to begin at Michaelmas 1717, that he obtained a legal opinion which confirmed that this was possible, but that to frustrate this scheme he mortgaged his own personal estate to help the widow. Mary Darby then assigned six shares (worth £1,200) and a mortgage on two to Thomas Goldney, Senr. towards meeting the debt of £1,600 and interest of £100 due to him, The Dolgyn works were sold to Samuel Milner for £600. Mary Darby and John Chamberlain acknowledged an indebtedness to Baylies of £1,200 and offered to surrender their interest in Vale Royal if Baylies would surrender his interest in the Dale Works.[26] Although the surrender of the Dale Co. interest on Vale Royal is clear by the agreement of 28 May, 1718, already referred to,[24] Baylies says that Mary Darby died before the judgement on the debt of £1,200 was satisfied. He thereupon took out letters of administration for the estates of A.D.I and Mary Darby and as a result the Sheriff sold Chamberlain's "pretended" shares in the Dale Co. for £600.[37]

The remainder of the story depends on the "Paper in the handwriting . . ." and Joshua Sergeant's account,[34] which appear more trustworthy than the claims of Baylies. Joshua Sergeant, Mary Darby's brother, offered to pay Thomas Goldney, Senr., £400 and security for a further £100 if he would surrender the mortgage on two shares, and Goldney agreed (15 April, 1718) to this surrender, the shares to be used for the welfare of A.D.I's seven small children. Sergeant advanced the £400 to Baylies, the Administrator, to realise this but these shares were, in fact, not transferred until May 1723.

What happened in the interim is somewhat obscure. Goldney (sen.), according to Baylies pressed him to execute the judgement on the debt of £1,200 owing to him (despite the fact that he had apparently accepted the offer of the Vale Royal partnership interests) which he did by seizing the four "pretended" shares of Chamberlain and retaining the other four shares as Administrator. Goldney then refused

to cancel the mortgage of £500 on two shares (for which Joshua Sergeant had advanced £400 and security), and Baylies sold Goldney two of the shares he held for £400 and gave his bond for £100 and the interest due, and transferred two to Joshua Sergeant, for the £400 he already held from him. Finally, Baylies sold the remaining four shares he held to William Wood*, but the latter could not advance the money and Baylies being bankrupt they were sold "by ye Assignee" (presumably Wood), two to Thomas Goldney, sen., one to Thomas Goldney, junr. (his son) and one to Joshua Sergeant.†

Baylies probably did not become bankrupt before 1721 when he was still concerned with the Vale Royal partnership. At that time Thomas Goldney sen. held the six shares transferred by Mary Darby, two sold to him by Baylies and the two assigned by William Wood, giving him a holding of 10; his son held one, Joshua Sergeant three and Richard Ford two. On four of the shares there was a mortgage of £500 made by Thomas Baylies. Joshua Sergeant notes[34 38] that in 1722 William Smith the holder of the mortgage was wishing to foreclose and Joshua Sergeant went several times to Wolverhampton to try to settle the matter. In Nov. 1722 Smith was paid £72-18-4 interest, which at 5 per cent would make the mortgage date Jan. 1720. Finally, in May 1723 the mortgage was paid off by Thomas Goldney, sen. and jun., Joshua Sergeant and Richard Ford (the partners).

This transaction was followed, on 24 July, 1723, by Thomas Goldney, sen., at last implementing his promise to pay Joshua Sergeant for two shares to be transferred for the benefit of A.D.I's children. Sergeant's account was for £400, interest for 5 years (£100), school charges for Sergeant and Sarah Darby £92, £60 for neglecting his business for 6 years, £30 for unnecessary charges caused by Goldney's earlier refusals and nearly £30 in travelling and petty expenses, making a total of £710-18-8.[34] Although Goldney agreed to pay, the account was "carr'd to Tho. Goldney Octb[r] 30 1726" as if it was not finally settled until that date.

In 1723 two shares of Joshua Sergeant's were transferred to the Trustees for the welfare of the children[39] and the Coalbrookdale accounts carry many details of the charges paid (many recorded by Raistrick). From Joshua Sergeant's will (proved 1745),[40] it appears that in 1726 Richard Ford bought Joshua Sergeant's final share for payments of £100 to each of the two surviving sons of A.D.I and to Levy Perry, and for an annuity of £50 to himself. Apart from the indication of the value then attached to a share, this transaction is a tribute to Richard Ford's concern and interest in the younger brothers and sisters of his wife. Several transactions suggest that, probably in 1726, a half share (1/32 of the total) was assigned to each of the 6 surviving

*To reconcile this with Baylies's story that the Sheriff sold Chamberlain four pretended shares for £600 probably means that these were the four assigned first to William Wood. The unfortunate backing of the activities of the South Sea Company led, in 1720, to an orgy of speculation which ended in the notorious "Bubble", William Wood, of Sutton and Upton Forges, was active in bubble enterprises and in 1720 he obtained leases of mines on Crown property in 39 counties; in 1722 he acquired, from the King's mistress, for £10,000, the monopoly to coin halfpence and farthings in Ireland for 14 years, an enterprise which Swift's satire (1724) caused the Government to cancel. In 1726 he attempted to smelt iron ore with coke dust, in a reverberatory furnace at Whitehaven, his claims being shown to be false by a test in 1731, one year after his death. It is fortunate that this effervescent entrepreneur was unable to take up the four shares in Coalbrookdale.[42 43 44 45]

†There were 16 shares in all.

children of A.D.I: Mary (wife of Richard Ford,) Ann (wife of Thomas Hawkins), Hannah, Sarah, A.D.II and Edmund.* Sarah died in 1726, Hannah in 1727 and Ann surrendered her half share in 1738 because of debts incurred by her husband to the Dale Co. at Bersham, by which time A.D.II had acquired 5/32, his brother Edmund having the other 1/32 from the 3 shares originally held by Joshua Sergeant.[41] In 1738, a new lease for 21 years having been acquired for £102-10-0, a new company was formed, the chief feature of which was that the Goldneys sold two shares to Richard Ford, who was then the senior partner with four shares, Thomas Goldney, jun., holding three, Abraham and Edmund Darby three and six members of the Goldney family one each.[4]

Richard Ford died in 1745, his widow Mary (Darby) Ford retaining two and a half shares,[47] with a half share to each of the three Ford sons. Mary Ford died in 1751 but she had probably sold a half share to A.D.II, as did Edmund Darby, for Abraham II then held three and a half and, after a third of a century, a Darby became the senior partner and his creative energy was to give the works a new surge of development.†

Thus the troubles of the Dale Co. in its first half century were financial rather than technical and the debts owing to the Dale Co. were always a large item because of the nature of their essential business as pot founders and of the customers who bought their wares. The financing of industrial enterprises was always hazardous and the Dale Co. could have failed when it lost the creative genius of its founder with so many of his enterprises just started. Fortunately it did not and perhaps the greatest factor in this was the close community of the Quakers who supported it in its difficult years. Richard Ford, who married the daughter of A.D.I and Joshua Sergeant, A.D.I's brother-in-law, come out of the inquisition the most favourably. Thomas Baylies very nearly broke the company and little sympathy can be felt for his voluminous complaints. Thomas Goldney, sen., showed, by his careful acquisition of the financial control of the company, that he had confidence in it but his delay in fulfilling his promises to Joshua Sergeant must be held against him. Thomas Goldney, jun., played an important part in the financing of the enterprise‡. A risk-enterprise like the Dale Co. required the loan facilities which he and his family could give it and this undoubtedly was a stabilising factor. Perhaps it was as well for this enterprise, striking entirely new ground, in a period when the South Sea Bubble was a reminder of the dangers of unwise development, to feel the restraining influence of such a

*Abraham II and Edmund were then at School at Penketh, Lancashire; John Darby, their grandfather, had died in 1725. Levy Perry probably looked after them on their holidays; from 1733 to 1745 Levy Perry was paid about £40 p.a. for undisclosed duties and in 1736 George Perry, at the age of 18, became tutor to Richard Ford's children, continuing as such until 1746.

†The most important members of the eight generations of the Darby family with which we are concerned John I and II, Abraham I, II and III, Richard, William Henry and John Henry attained ages of 82, 76, 39, 52, 39, 72, 63 and 57, the outstanding personalities being the three Abrahams and John Henry. All spent their energy in creative achievement and one need not regret that A.D.II was restrained at the outset.

‡Raistrick makes a judgement on the second which is unjustified: "was by no means such an outstanding man or his father had been"[48] probably because he confused the two through a wrong estimate of the death of T.G.I (1663-1731); for example 11 of the last 13 index references to T.G.I refer to T.G.II (1696-1768); it was T.G.II who for a period, travelled for the Dale Co. and later founded what later became the Bristol Old Bank.

banker until the next generation of the Darbys was available, though A.D.II had to wait until middle age before he could become the senior partner. Until he did so, the Dale Co. followed the pattern created by his father.

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