

ART. XIV. – *Coniston Forge, 14 January 1675 to 12 May 1766*

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No evidence is forthcoming as to the time when the bloomery forge at Coniston was built, indeed, very few particulars of any kind have been gathered that bear upon its history. The forge buildings, which stood on Church Beck, have all been cleared away, but a few cottages at or near the site retain the name Forge Cottages . . .

Alfred Fell, *Early Iron Industry of Furness* (Ulverston, 1908), 195.

**D**ESPITE the immense value of Fell's research, his description of Coniston Forge is very brief and was influenced by H. S. Cowper's *Hawkshead* (1899). Both men used the only forge information which the Historical Manuscripts Commission had extracted previously from the account books of Sir Daniel Fleming (1633-1701) of Rydal Hall:<sup>1</sup>

24 March 1674 [1675]. Given as earnest unto Charles Russell Hammerman now at Conswick, to be Hammerman at Coniston-Forge for 35s p tun, to have grease onely for the Bellows and leave for some sheep to go on the Fell, £00 05s. 00d.

Had the authors examined the original document, they would have seen that Fleming used a special marginal mark # in his accounts to identify forge payments and the first two such entries would have allowed them to state when the forge was built. On 14 January 1675, Fleming had "Given to two wrights for viewing of my *intended* Forge at Conistone 5s., in ale 6d." and, on 1 March 1675, £5 was "Delivered [to] my brother William to pay Robert Park in part of the bargaine for building a Forge". Some receipts provide more information.<sup>2</sup> For example, on 1 July 1675, "Robert Parke of Parke-ground in Torver . . . wright and Leonard Parke his son and heir"<sup>3</sup> signed a receipt for £15 and £33 6s. 8d. "in full of the First and Second payments" due from "Articles of Agreement made . . . the Twenty sixth day of May last past". The missing contract would state how payments related to stages of construction. The structure was complete before 25 November 1676 when an eleventh instalment of £12 17s. 0d. was paid to "Robert Park and his son in full of the last payment due for Coniston Forge".<sup>4</sup> They received £115 in all for the contract plus £8, on 17 May 1676, for sawing boards, but a further £116 10s. 9d. was paid in other expenses, as will be seen.

In Sir Daniel's handwriting, a draft conveyance of the forge site survives in box 22. It states that John Dixon of Dixon-ground in Coniston, tanner, for £15 sold "all that parcel of Land called the Holme, and so much of that close called the Hard-How as is meered or set forth for . . . the Forge in Coniston . . . and all that ground where the said Forge, Dam, Dwelling house for the Hammer-man, two coal-houses and a Garden do stand". It is dated 12 September 1676 and Sir Daniel entered the payment in his accounts, but the parties probably agreed terms before building began eighteen months earlier. The use of carpenters for the main construction work suggests that the forge and charcoal stores were built largely of wood. Indeed, 2s. 6d. earnest money was paid when Sir Daniel's younger brother William "Aggreed with Robert Park and his sonne Leonard

the 27th of June In 1676 for workeing all the wright worke that doth belong to the Forge for 21 years after they have delivered up the Forge except Roof and Wall" for £4 12s. 6d. a year. This maintenance fee was paid regularly until 1694.

To obtain raw materials for early iron making, Sir Daniel made several payments of which the last, on 4 June 1677, was £17 2s. 10d. "to Bernard Benson of the Fold [in Loughrigg] for 20 loads and two sacks of charcoals delivered at Coniston-Forge at 17s. the Load". This indicates that a load comprised twelve sacks of charcoal. Earlier amounts given "unto my brother William" helped to pay the builders and provide £20, on 11 October 1675, "to pay Ro. Cowpland for charcoal delivered at the Waterside after the rate of 17s. 6d. the Load" and £10, on 25 February 1676, to pay for carrying iron ore. William Fleming carefully recorded each of these payments in his own accounts which are entitled "An Account of what Moneys I have Received of my Brother . . . from the first of March 1674 [1675]".<sup>5</sup> They survive as a copy, made about 1694 when the Flemings ceased to manage the forge, for a single page, summarizing income and expenditure for the enterprise, shows that Sir Daniel owed William £32 13s. 9½d. for the twenty-year period. The document comprises ten different accounts of from one to thirty-six pages of foolscap, bound separately and then made into one volume of ninety-two pages. All have the same clear writing, which is not that of William or his elder brother Roger,<sup>6</sup> who also lived at Coniston Hall. The accounts give dates of payment rather than of events, but provide so much detail that this article must be very selective. Slight copying errors have been corrected without comment and years have been changed to modern form.

### Building the Forge

From 1 March 1675, William Fleming's "Account of what moneys I have disbursed concerning the Building of the Forge, Coal-houses and Fire-house" lists costs additional to the building contract and shows how labour-intensive the project was. On 23 June, 15s. was "paid to George Towers wife and to Robert Parkes daughter for Ale . . . bestowed of the Two Hammer-men and others at Severall times, they comeing to sett out the worke". Timber felling and bark peeling would have been completed by early July for, on 23rd, William and Thomas Dixon were paid £1 9s. 0d. "for helping to traile the Timber to the Forge . . . Twenty six days apiece haveing 6d. a day without meat and to George Towers Daughter and Widdow Hobson's Daughter for nine days a piece" at 2d. a day without food. Perhaps the girls helped to lead oxen for, on 26 August, Christopher Fisher, blacksmith, was paid 11s. "for Nine paire of oxen shoeing when the Timber was Lead to the Forge" and 4s. 3d. "for mending of Yoaks, Teams and one Horse shoe". This work suggests that most timber was found locally, but a payment on 23 July, shows that more was ferried up the lake. The Dixons had extra labour to help shift the largest timber, for seven named men were paid 6d. a day for up to five days each "helping with the Great Timber to the Forge". Thus, on 23 July, 12s. was "given in Ale and Tobacco when the Great Timber of the Forge and Harnish was reared". On 21 October, 12s. more was spent treating "Workmen and others when the Forge and Coale-house [roof structure] was Reared".

Arrangements for equipping the forge were in hand by 23 July, when 8d. was "paid to John Dixon [the tanner] for a stone of short haire for lyeing under the Hammer

Trough". The same day 5s. was "Given in Ale to thirty men when they *Tumbled* the Hammer-beam to the Waterside". The journey over the lake to the forge is not mentioned but, on 7 April 1676, 1s. 6d. was "Given in Ale to them that helped in with the Hammer Beam". Three days later 1s. was "Given to them that helped in with the Anvil-block and the setting of itt" after 4s. had been given, on 23 March 1676, "in Ale to Thirty men for Traileing the Anvill Block out of the Bruehouse Orchard" at Coniston Hall.

Provision for buying heavy iron goods for the forge was made on 22 December 1675, when 4s. 6d. was "Spent at Woodland Chappell, when we did take Charles Russel along with us, with my Couzen Mr William Kirkby [of Kirkby Hall] and agreed with him for 2 new Hammers for £9 and all his made Iron-gear at 17s. a hundred [weight] and all his Casten Iron at 5s. a hundred, we takeing what we have occasion for". Thus on 18 January 1676, 1s. 6d. was "Spent at the Weighing of the Iron at Woodland Forge" and, on 1 June, £1 12s. 0d. was "paid to Thomas Fleming and his Partners for the Carriage of all the Iron-geare, both great and small, which was bought . . . at Woodland Forge". On 7 August 1677, William Kirkby was paid £25 5s. 5d. for this iron including, as agreed, £9 for "2 new hammers at the high Hall in Kirkby". From Woodland, amongst other items, "4 old Hammers, 3 Hammer Cheekes, one Hammer Bitt and an Hammer head" weighing 28 cwt, cost £7, "3 old Anvills" weighed 11½ cwt, "3 old Hursts" weighed about 4½ cwt and £2 was paid "for one Great Iron weigh boake with Iron strings, one Iron Coast<sup>7</sup> and . . . 3 Leaden weights being 7 stone". If the forge corresponds with the bloomery site listed by Alfred Fell (p. 173) near Yeat House, Kirkby Moor (SD 248 887), perhaps the sale of so many old hammers and anvils signifies that it was closing down. Its stock of ore might then have lain unused until, on 26 January 1683, Thomas Bibby was paid 1s. "for bringing the Iron Oare from Woodland Forge to Coniston Forge".

The forge at Coniston was probably producing iron by 25 October 1676, for William Fleming kept a separate "Account of what Iron hath been *taken* for the Building and Repaireing of the Forge" from that date. By the end of 1679, over 13 cwt of their own iron had been used for small items like "Two plaits for the Hearths 2st 7lbs, and 2 Crows for the Bellows 10 lb", "Bands for the Hammer wheel Rim", "shooeing the Wheel Barrows", "One Morgan for mending the tongs", a variety of tools and numerous "Neeses", "Shamble plaits", "Brays" and "Tue Irons". Other parts of this account continue until 1694 and list iron sent to Sir Daniel at Rydal, including sucks (plough-shares), coulter, shovels and spits.

Returning to William Fleming's "Building" account, similar iron goods for the forge were supplied by Christopher Fisher, a smith, whose account for nearly £9 was settled on 24 July 1677, perhaps after Coniston had become self-sufficient in iron output. Fleming had bought 17½ cwt of iron "of my Couzen Robt Brathwaite . . . for the Forge" and Fisher had 3s. for carrying it "from Hackett Forge<sup>8</sup> to Hauxhead and from thence to Coniston Forge". The indirect route suggests that Fisher's smithy was near Hawkshead. He worked the iron into a host of things like "Barrs for the Hearth", "Six Bands for the Hammer Elve and Leggs", "Bands for the Axletree and Anvill Block", "4 Neeses, 4 Barends the length of the Neeses to lye under the Anvill weight", "Six Mell hoopoes for the Wood Cutters", bellows pipes and two lots of "Bands for the Bellowes heads, 2 pair of Churnels, 2 hancks, 4 halfe moones with staples and pinns, 2 Staples for the Bellows heads". He made gudgeons for wheel barrow axles and other uses,

chisels, wedges, gavellocks, hacks, coalrakes, "Two Rakes with Sixteen Teeth of Iron", a "Ringer, one Forgan, one pair of Socketts for the Hammer-gate weight", "Jammers and Crookes" for the doors and over 6000 nails. In addition he was paid 10s. for an "Iron Bridle to traile the Hammers and 2 Sledge-feet to trail the Anvills and other Iron from Kirkby-hall and Woodland Forge". Many of these items appear in 18th century inventories of Coniston Forge.

It is also worth noting that, on 26 July 1676, William Fleming paid "John Threlkett for Two Casten fore plaits £5 and for the Carriage of them from Millom to Conistone Forge 5s. 6d.". On 1 May, to make bellows, "five Tanned Beast hides" cost £6 15s. in addition to eight sheets of tin (4s.), three hoops of bigg meal (1s. 6d.), three pounds of glue (2s.), 3 sheep skins at 7d. each and 5½ gallons of "Traine oile" at 2s. 6d. a gallon. Later, five similar tin sheets were bought from a Mr Richard Washington, apparently a whitesmith<sup>9</sup> who supplied "a Wood Weigh Boke and makeing up wth Iron", "2 Ropes for weigh boke strings", "Rings and Staples for the weights" and 3 cwt 13 lbs of Lead at 13s. 6d. per cwt, which cost a further 4s. 6d. a cwt for casting, partly into weights for the scales.

While the forge was being fitted out, ancillary buildings were erected so that, on 1 June 1676, 5s. 6d. was "Given in Ale and Tobacco . . . at the Rearing of the Forge-fire-house" (ie. the dwelling house) and, on 21 October, more gratuities were paid "to forty men when they Reared the Coale-houses 13s. and when they laid up the Beame in the Barne 2s. and when they put up the spring polls 6d". Only the first sum seems suitable for so many men. To finish the structures, extra wood was used for, in April 1677, 15s. 10d. was "Paid to John Harrison for Carrieing and Trayling of Elevenscore and Eight Load of Wood to the Fire house, Forge and Two Coale-houses at 10d for every Twelve Load". In addition he had 6s. for carrying "Timber to the Two Damms upon the Fells". The roofs were perhaps complete by 5 December 1676 when 2s. was "Given in Ale and Tobacco to the Workmen when they measured the Slate". Also 6d. went "to a Douzen men when they Carried a great long stone to the Forge-house and another long stone for a Bridge to the Mill". The same day William and Thomas Dixon had 15s. 6d. for three days "mending the ways for Leading the Slate and for Twenty-Eight days Trailing the Slate down to the way at 6d. a day without meat or drinke". John Fleming of Little Arrow, near Torver, was paid 1s. for "Two days mending the Ways" and £5 10s. for leading "Sixteen Rood and Twenty yeards of Slate . . . at 6s. 6d. a Rood", each of 49 sq. yds. With 2s. gratuity, this was an overpayment of 1s. 4d. The cost of slate, like wood, is not recorded and no doubt came from estate resources. Fixing the slate would have formed part of the building contract. On 24 January 1677, Robert Birkett and William Satterthwaite had £1 for 10,000 "Latt nails" and Bryan Christopherson was paid £3 1s. 8d. for lath and other nails. Lastly, John Askew of Arrad Foot beyond Pennybridge supplied about 153 bushels of lime at 1s. a bushel for "Liming the Inside and Outside of the Forge and Fire-house".

The final touches were applied when, in November 1678, Richard Washington provided two locks for the forge fire-house at 1s. each and George Cocken supplied three heavier "Locks for the Forge and 2 Iron houses 7s. 6d. and one for the Barne there 1s.'. In March 1679 Cocken was paid "for Glassing the Forge fire house at 4d. p. foot for 77 [sq. ft.] of Glasse", enough for about seven windows. In the same month, 18s. 8d. compensation for damages was "Paid to severall men for Traileing the Timber . . . over

theire Meadow and Corne” and 10s. was “paid to William Atkinson for his Little Close which the Timber of the Forge and houses Lay in for 2 years”. Eventually, on 31 March 1681, Robert Park was paid 16s. for 26 man-days “for makeing of Tables, Bedstockes, Lyeing & shutting the Croshouse-Loft . . . at the Forge fire house . . . and makeing of Beast Booses at the . . . Cow house”.

### Supplying raw materials

Sixty pages of William Fleming’s accounts contain three separate sections entitled “An Account of all the moneys I have Disbursed for the Repaires of the Forge, Hammerman’s waiges, for Iron Myne and Coales and Expences”. The first of these covers James Russell’s five year period as hammerman, ending on 3 May 1680. The first entry is dated 23 September 1675 when 13s. was “Spent by my Brother Roger, selfe and James Russel when we went to Adgarley to see the Oare and we were at Dalton all night and so to Millum and Kirkby to see what Iron they had”. Three weeks later, he supervised the measuring of 70 quarters of ore<sup>10</sup> and stayed overnight at Dalton. Better detail for this stage in getting ore supplies is given for the next consignment. On 17 June 1676, £3 8s. was “Spent when we went to Adgarley to take up 12 score Quarter of Iron Oare to the Measurers [at] 2d. a Quarter comes to £2. In Ale, Cheese [Bread] and Tobacco to them at 1s. a Score comes to 12s. and we were 4 of us 2 nights at Dalton . . . 16s.”. On 12 October 1677, £54 8s. od. was paid to “Mr Marshall and his Partners” for that ore.<sup>11</sup> Later entries show similar details. A price of 4s. 6d. a quarter was normal but, by the mid 1680s, up to 5s. 6d. a quarter was sometimes paid. Ore supplies in the period to 1694 came from “my Lord” (125 quarters), John Marshall (700), John Goad (330), Thomas Simpson (200), Thomas Preston (140), James Backhouse (29) and Robert Buskell (100 jointly with John Lejap, 120 jointly with Marshall and 220 on his own). Subdivision of orders and delays between ordering, measuring, delivering and paying make it difficult to trace the progress of each consignment, but these notes indicate the pattern of buying Adgarley ore over the twenty year period.

The first payment for carrying ore was made on 13 August 1678. Fleming paid £51 “to Allan Coward for Leading of 3 hundred Quarter of Iron Oare from Adgarley to the Water-foot at 2s. 10d. a Quarter”. For the arithmetic to work, each hundred must have comprised 120 quarters.<sup>12</sup> Two months later, Fleming agreed with Coward’s son a price of 2s. 8d. a quarter. This rate applied until 5 August 1685 when Allan, James and William Coward were paid partly at a new rate of 3s. a quarter, a price at which James Coward carried on the transport until the accounts ended. However, in January and February 1685, Fleming agreed with Thomas Askew of Billing Coat<sup>13</sup> to lead ore “to this side of Ulverstone at 17d. per Quarter” and with Robert Harrison of Stainton to lead it “to Ulverston at 1s. 8d.” a quarter. As transport from there to Coniston Waterfoot is not mentioned and they were not paid for any work, it seems likely that they were used as a bargaining counter against an increased rate which the Cowards probably sought. On 20 June 1690, Fleming paid 2s. “for Ale when I should have agreed with Henry Sawrey and William Ashburner at Lowick Green” for leading ore but failed. Instead, he settled with “James Woodend at the Woodend in Lowick” to do the work at 3s. 5d. a quarter. Thus, on 9 August 1693, Woodend was paid £20 10s. for leading 120 quarters at that rate, the only instance of ore carried to Waterfoot by other than the

Cowards. An interesting item appears, on 23 May 1683, when Fleming "paid to John Walker for 7 Quarter and Six Barrows of Iron Oare [delivered] at Coniston Waterhead for 8s. 4d. a Quarter . . . £3 4s. 4d.". As the final 4d. was changed from 7d., a quarter contained eight barrows. The source of that ore is not stated.

The next stage of transporting Adgarley ore to Coniston Forge was agreed, on 10 December 1675, when William Fleming gave a shilling earnest money "to Addam Fleming for Bringing up all the Iron Oare from the Waterfoot to the Forge for 8d. a Quarter and all the Coales that are delivered at the Watterside which he is to Receive and bring . . . to the Forge at 1s. a Load. We are to keep the Boat in Good repaire". Adam Fleming was also paid 2s. a score for ferrying about 20 horse-loads of clay per year for repairing hearths at the forge. He was Daniel Fleming's rent collector for Coniston Manor and became a key figure in transport activities as will be seen. He was already the boatman on Coniston for, on 30 May 1666, he had agreed to "take of Roger Fleming, William Fleming, William Sowrey and William Atkinson the boote they bild; For carridge of wood by wayter" for five years. Adam was to "uphold her", pay 25s. rent every 1 February and give "libertie to Daniel Fleming Esq or his Mother Mrs Alice Fleming to Make use of the boote For the winter fishing soe it doe not hinder me when I have wood to carrie downe . . . I haveing Free libertie to land the wood at the end of the water without paying".<sup>14</sup> In another transaction, on 22 January 1675, a week after the two carpenters viewed the intended forge site, William Fleming bought "All that close of Arrable meadow pasture and waste ground called *Landing Parke* at Nibthwaite and adjoining to Thurston Water" from John Chamney for £22 10s. 0d.<sup>15</sup> Thus, on 10 December 1675, Adam Fleming was paid 13s. 4d. "for makeing of Two places, one at the head of the Water and the other at the Foot for laying of the Oare in, and one long Cawsey at either place to bring the Oare out of the Boat".

On 26 August 1675, William Fleming gave 2s. "in Ale at the pulling upp and Lanching of the Boat" so that William Owle could repair it.<sup>16</sup> The shipwright was paid "for Two stone of Ocum 5s, for six stone of pitch 16s. 4d. and his three men for mending the Boat Seventeen days apiece, they haveing meat with my Mother,<sup>17</sup> there waiges" £1 9s. 4d. In addition, Christopher Fisher was paid 14s. 3d. for 400 spikes and 500 roof nails for mending the boat. Owle made a boat at Rydal in July 1677 and repaired the Coniston boat using between 12 and 44 man-days of labour in the summers of 1679, 1680 and 1682. John Hyonson then took over the work and repaired the boat in 1685, 1687, 1690, 1691 and 1693. The quantities of materials varied, but were about half the quoted example. Oakum and pitch, brought from Pennybridge by boys if need be, cost 2d. a lb. Tar was about 1s. 6d. a gallon, roof nails were 1s. 8d. to 3s. a hundred and spike nails 1s. to 1s. 8d. a hundred. Between fifteen and twenty men drew up, turned, returned and launched the boat, but their only reward was 1s. for ale. Every year during Owle's time, "Eleven Score foot of Inch Boards" were used "for flowering the Oare Boat" but there is no comment on the boat's capacity.

Including the first £20 paid to Robert Cowpland in October 1675, fourteen suppliers delivered charcoal to the waterside or Waterfoot by May 1680. Ten of them sent single consignments of between 1 load 2 sacks and 11 loads 3 sacks. Three sent two batches and only one, William Redhead, supplied on four occasions during the five years when James Russell was hammerman. Out of 109 loads total, Cowpland was the largest supplier with 46 loads 10 sacks and, with only three exceptions, the normal price was

16s. a load. Adam Fleming shipped it all at 1s. a load as agreed. Charcoal delivered directly to the forge during the same period usually fetched 17s. a load. Of 34 suppliers, 25 sent single consignments of between just 6 sacks (from Christopher Fisher, the smith) and 46 loads 7 sacks by Myles Sawrey. Seven suppliers sent two batches and only two sent three. Robert Hesketh, the largest supplier, sent 106 out of a 610 loads total. Thus many suppliers were probably small, spasmodic operators with little money, coaling small parcels of trees. Unfortunately, the supplier's address is given only once in twenty years (Richard Penny of Yewtree in 1692). A few more like Roger Fleming, Bernard Benson (24 loads), Christopher Fisher (6 sacks), Michael Holme (Ambleside, carpenter, 6 loads), William Redhead (of Nibthwaite, 40 loads 8 sacks by 1684) and Cuthbert Hodgson (carpenter of Yewdale, 60 loads) have been identified, so that a distribution map cannot be drawn. From 1683, at standard prices, Roger Fleming supplied 202 loads of charcoal, three-quarters to the waterside, probably from Nibthwaite.

A further 137 loads 3 sacks of charcoal were supplied from Coniston Hall, providing useful information about the work and prices. On 24 April 1676, William Fleming paid 10s. "for 3 pieces of Haire Cloth being 20 yards in a piece for Hirdles for the Collier to save the Pitts from Burning the Coales". On 3 November, he paid John and Thomas Waters £18 15s. 10d. "for the Cutting, Wheeling and Coaleing of 75 Load and 2 Sacks of Coales at 5s. p Load" and John Harrison had £3 2s. 7d., on 6 April 1677, for leading the same about a mile "out of the Demaine to the Forge at 10d. p Load". Similarly, on 9 July 1679, Fleming paid £8 9s. 6d. "to William Fletcher for Cutting and Coaleing of 28 Load and 3 Sacks . . . at 6s. p load" plus 19s. 4d. "To Nicholas Jackson, Thomas and William Dixon for wheeling the Wood in at 8d. p Load" and Adam Fleming had £1 12s. 11d. for leading the coales at 1s. 2d. a Load "from the Demaine to the Forge". In January 1684, George Towers and his partners received £4 4s. for cutting and wheeling wood in the Park and Hag-head while William and Thomas Dixon had £2 17s. 6d. "for Grubbing of the Orchard and Cutting it up". This allowed William Fletcher to earn 3s. a load for coaling a further 33 loads 10 sacks and Adam Fleming was paid 1s. 4d. a load, on 9 February 1684, "for Bringing [it] out of the Demaine to the Forge".<sup>18</sup> The cost of the work therefore rose from 5s. 10d. to 7s. 10d. and 8s. 6d. a load, perhaps because later work might have been in poorer woodland. Even if the orchard was decrepit, that reference highlights the environmental impact of iron working on Furness woodlands.

For sacks to carry charcoal, on 13 March 1676, Fleming paid £6 19s. for 208½ yards of harden at 8d. a yard, "which made 3 Douzen and 4 Sacks" and, on 10 April 1677, Adam Fleming was paid 8d. a dozen for making that number and mending 9 dozen and 8 coal sacks more, a service he performed at that rate until 1685. On 26 October 1678, Samuel Robinson<sup>19</sup> had £4 4s. 8d. "for 127 yardes of Harden which we had in Aprill last at 8d. a yard being 23 Sacks at 5 yardes and a Quarter to a Sack and the rest [6¼ yards] for mending". Similar entries to 1694 never mentioned the width of the cloth. From August 1681 to 1686, William Benson supplied all the harden at about 7d. a yard. Occasionally small amounts of "Hemp and Inckle" were used for "Coale Sack bands". In two decades 1,301 yards of harden were bought for making over a dozen new sacks a year, and about 52 yards were bought for repairing 52 dozen old sacks. If these figures are complete then a repair needed about three inches of full width harden on average and tears might have been the most common problem. At the forge, baskets or swills were used to carry charcoal and ore. There are many payments for these, first to John

Atkinson, until his widow was paid 6s. 2d., on 15 February 1679 "for 13 Coale Basketts and 6 Oare Basketts and for 2 Coale Riddles". John Grigg then took over but, from December 1682 until 1694, John Park became sole supplier. Charcoal baskets usually cost 4d. and ore baskets 2d., the latter being smaller to compensate for the heavy ore.

### Ore from Coniston Fell

Two back pages of William Fleming's accounts list payments "Concerning the Getting of the Iron Oar at Coniston from the 1st of June" 1691. On 19 December 1690, he had already "Aggreed with Adam Fleming for the Leading of the Iron Oare gott at the Oare Pitts to the Forge att 10d. p Tunn" but they must have agreed to alter the contract because, on 22 February 1694, Adam was paid £2 1s. od. "for Leading of Forty one Tunn of Iron Oare from the Fell to the Forge at 1s. p Tunn". For seven days before 10 June 1691, Randolph Noble<sup>20</sup> (earning 10d. a day) led John Bowman (8d. a day), John Turner (8d.) and Thomas Dixon (6d.) "workeing at the Oare Pitts". During the next three months Noble, his brother and three other men did just six days work each. When day-work ended in November, John Bowman had completed 50 days, John Jackson 39 days and John Carter 30 days. Presumably, Fleming preferred contract work for, on 7 November, he "Aggreed with John Jackson for the Getting of Forty Quarter of Iron Oare for £6 12s. 6d. . . . we to find him tooles and Wood for Timbering of the Pitt and to lye the Wood there". As the men were paid 6d. "for white Candles" and Adam Fleming had 2s. "for 2 Kibles makeing"<sup>21</sup> which were bound with iron for 3s. extra, the workings were probably deep and narrow. In addition John Fleming was paid 4s. 8d. "for the Lone of his Tooles and findeing Coales, the workemen sharpening their picks 280 times at 4d. a score". Thus nothing was allowed for the loan or fuel. On 10 December, Jackson was paid 3s. 3<sup>3</sup>/<sub>4</sub>d. a quarter for the contract ore and agreed to supply 80 quarters more for £10, or 2s. 6d. a quarter "we finding him all manner of Tooles". Fleming agreed to build "a Smithy at the Mynes . . . to be three yeards and a halfe wide within and four yeards Long within and Two yeards high of Side wall, we finding Wood and Boards and to lye them at the foot of the Hill, and he to finde all the workemanshipp and stufe for £1 5s.". Jackson, Bowman and John Fleming were then paid 3s. 8d. for two days each "mending and makeing the way to the Oare Pitts". On 12 January 1692, 1s. 3d. was "Given to the Myners and them that helped them to measure Twenty four Quarter of Iron Myne" but, after taking up (buying) a further 41<sup>1</sup>/<sub>2</sub> quarters of ore on 30 March, Jackson and Bowman were paid only £5 8s. 10d. "for getting the Iron Myne" before the end of April 1692. Though the forge accounts continued for two more years, they made no further mention of ore mining on the fell, as if it was a short lived venture. Indeed, the next page states that in 1693, Thomas Simpson supplied sixty quarters of ore from Adgarley for £13. The forge was then let to a tenant and proof of continued iron ore mining on Coniston Fell has not been found.

### Repairs

Apart from the boat repairs noted earlier, most forge maintenance involved the bellows, roof, dams and heavy fittings. From 1677 to 1683 the bellows were mended usually twice a year and then once a year until 1694. Always the main expense was one



to three "Tanned Beast hides" costing up to 30s. each, but occasionally bull hides at 35s. were used. Normally a pound of glue at 6d., 18 to 32 lbs of tallow at 4d. a lb and about 4 gallons of oil, often called "traine oile" [ie. whale oil] and costing 2s. 4d. a gallon, were used in addition to up to three hoops of bigg (barley) meal, costing between 2d. and 4d. a hoop. Two or three sheep skins "for the Windfalls" cost 6d. each and up to six sheets of tin at 6d. each were used less often and in decreasing numbers. The cost of nails per hundred included "stone prods" (3d.), latt nails (3d.), chair nails (2d.), bellow nails (4s.), spikeings (1s.) and 20-a-penny nails (6d.).<sup>22</sup> Nails and iron replacements for forge equipment already described, were made by Christopher Fisher until 1684 when John Fisher took over. John Borwick, smith, was also employed for "lyeing Cold Chisells" and repairing or making tools and other small items. From 1683 George Kirkby spent a few days every year slating the forge at 1s. a day until 1689 when he and his son did twenty days. Thereafter William Kirkby continued the work. Most outside repairs were done by William and Thomas Dixon, first mending the forge bridge, walling the garden and paving the "Iron house" and then, in July 1681, working eight days each "Sinking and mending the Races" with Emanuel Elletson and his man. The Dixons did four days in November 1682 "mending the Damm at Levers water", work which grew to 12 man-days in 1683, 30 in 1684 and 73 in 1685, as if trouble was imminent, but then abated to 30 in 1690, 26 in 1692 and 12 in 1693. In June 1690, Richard Penny spent a day "mending the Penstock". In September 1683 and April 1684, Robert Park and his son Edward were walling "Hearths and Water Races at the Forge" and, in July 1686, £1 5s. 6d. was paid to Robert Park, his son and men "for working 24 days for 18s. and to Robert, Thomas and William Bibbie for working 15 days for 7s. 6d. at the Cross-ware in Church-beck and other places about the Forge". In January 1684, Edward Park spent two days with John Hodgson "walling . . . at the Tue [or tuyere] holes and hearths" and, in January 1685, Thomas Bibby had 6d. for a day "Leading of Sand and Stones for mending the Forge Chimney".

When Emanuel Elletson took over the forge on 3 May 1680, new equipment was bought. On 27 May, Fleming "Paid for 7 plaites at Millum Castle £15 and spent by my Selfe, Hammerman and my man when we were there 3s". Thus on 24 July, 9s. was paid to Richard Kitchen for carrying these iron plates from "Millum Furnace to Greety-gate"<sup>23</sup> and from there to Coniston cost £1 more on 7 August. Similarly, on 21 July 1680, 3s. was "Spent by 3 of us when we went to Duddon Bridge to buy an Anvill of John Taylor" and when the hammerman went to see it twice. Taylor received 18s. for it on 8 October and transport to Coniston cost 10s. more. After the next hammerman entered the forge in May 1682, William Fleming paid £8 11s., on 6 October 1683, to "Mr Thomas Shepheard att Kendall for one Anvill and one Hammer . . . they being at Grainge and spent when I went twice to Hackett Forge about them 2s."<sup>24</sup> On 16 March 1684, John Seate was paid 17s. 6d. for carrying them to Pennybridge. From there, William Dodgson had 9s. for taking them about five miles to Waterfoot (at almost 22d. per mile) and then the last five miles by water to the forge cost 3s. more, only a third of the cost of land transport. Thus Seate's payment suggests that the trip from Grange was probably by land. On 11 June, the hammerman Thomas Bibby was paid 3s. 6d. for wages and 3s. 4d. "for meat and Ale for 7 men for helping . . . to fire the new Anvill and to Cutt it". More equipment was needed for, on 20 August 1685, Robert Park and Robert Bibby were paid 9s. for going to Millom three times "when they should have

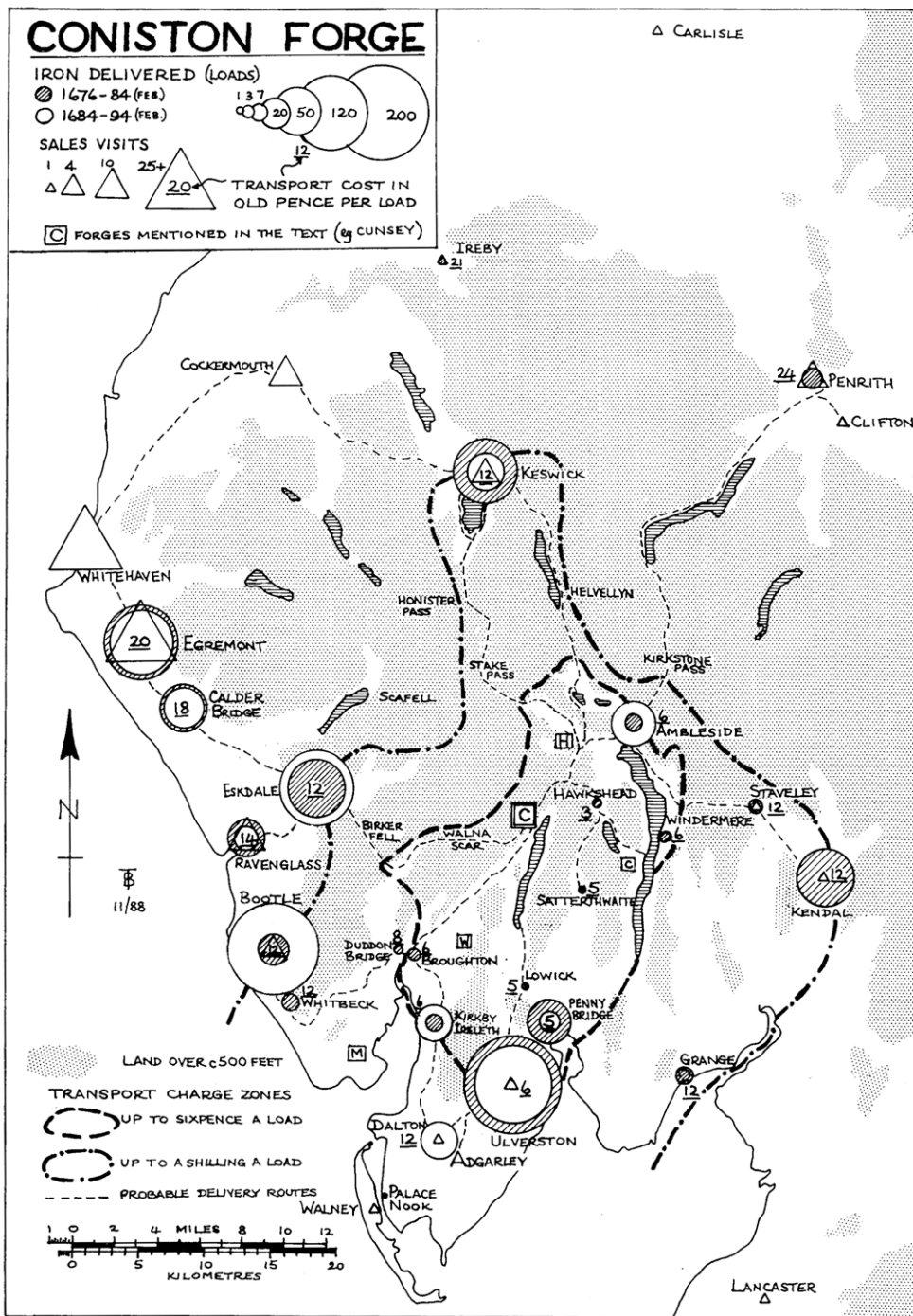


FIG. 1. Coniston Forge; sales visits and iron deliveries, 1675-1694. The best markets were in the peripheral lowlands and a marked increase in trade is seen at Bootle, Dalton, Kirkby Ireleth and Ambleside during the second decade.

bought 2 Anvills of Lady of Millum and shee went Back” on the deal. Thus, on 26 February 1687, £19 13s. 8d. was given to Robert Park to pay “his sone Thomas for Two Hammers and Two Anvills which he did deliver at Pallas nook” and James Coward was then paid 30s., on 15 June, “for *Traileing* of 2 great Hammers and 2 great Anvills from Pallas-nook to Coniston Waterfoot”.<sup>25</sup> After a long, unexplained delay, a final 6s. for “three men four days” bringing them to the forge, was paid on 27 November 1691.

Other major renewals generated several hospitality payments, for example, on 20 August 1686, £1 6s. 2d. was “Paid for Ale, Cheese, Bread and Tobacco when we Trailed the Hammer Beame to the Forge and there was 40 men two whole days together”. A week later 4s. more was given “when we Rolled the Hammer Beam over the Two Bridges and up to the Forge to its place, there being 16 men halfe a day” and, on 14 February, 1s. was “Given in Ale to them that we had Oxen on, when we trayled the Axle tree to the Mill”. The labour for fixing these items seems to have been paid for, on 22 February 1689, when Cuthbert Hodgson and his men John Walker and Adam Banck were paid 6d., 4d. and 2d. a day for 14, 22 and 22 days work respectively, and 19s. 4d. was given “to the priest for their Table . . . 58 days”. On 10 January 1691, Cuthbert Hodgson and his man Thomas (Harrison) were paid £2 1s. 10d. for 100 days making “Two new wheels, two paire of new Bellows and other work” and £1 13s. 4d. was paid to “Mr John Birkett for their Table”.<sup>26</sup> The changes continued unabated for, on 19 March 1692, George Elletson was paid £1 15s. “for making the Great Hammer . . . being in weight Five hundred and seven pound . . . we finding him meat”. He was helped for up to six days each by Henry Elletson (18d. a day), Cuthbert Hodgson, William Dixon, and James Taylor, who all lodged with the curate’s wife, and by John Jackson, John Bowman and George Dixon, while Roger Fleming had 3d. “fetching them Ale and Beer” and 3d. was spent on “Salt for Hardening of the Hammers”. By September 1693, Cuthbert Hodgson and a helper, always lodging with the priest’s wife at 4d. a day, completed over 150 more days “working at the Forge . . . dressing the Bellows”, “mending the Hammer-Race-Hutch . . . takeing up the anvill” and finally, with Isaac Steel, “makeing a new Hammer wheel and the Cases and Falls all a new and Righting up the Forge”, for which Thomas Harrison sawed “21 score foot” of wood for 10s. 6d.

### Marketing, Production and Profit

William Fleming’s accounts show that he was responsible for marketing the iron, often spending 5s. to buy ale for un-named “Chapmen” who called at the forge. In addition he travelled several times each year (six in 1681) to see chapmen at markets throughout the region. For example, in 1676, he went to Keswick, Cockermouth and Carlisle before 8 September; by 29th, had been to Preston, Kirkham, Poulton, Garstang and Lancaster and, in October, called at Kendal and Staveley, receiving 5s., 15s., and 3s. respectively. As with his visits to buy ore, he was paid only expenses rather than wages even though some journeys kept him from home for several days. On 1 March 1686, for example, he received £1 12s. for an eight day trip via Penrith, Ireby, Keswick, Cockermouth, Whitehaven, “Eggermouth”, Ravenglass and Bootle. The purpose of his visits was stated on 2 July 1692, when he spent three days with two men visiting Ulverston, Dalton, Walney and all Furness “seekeing of money and selling of Iron”. Normally, he had one or two assistants who, when experienced, sometimes went without

him to see clients. The most important helper was Robert Benson who started in 1680 and seems to have trained Thomas Birkett, Edward Knott and Christopher Birkett in turn as his own assistants. Except for Fleming's initial journey to the Fylde, Robert Benson's visit to Lancaster and "Hesp bank" in January 1683 to seek "Roger Hind for Iron money", is the only other sign of trade with Lancashire south of the Sands. Likewise Carlisle, Clifton (Penrith), Ireby, Kendal and Staveley are mentioned only once even though Kendal became an important outlet. In contrast, Whitehaven had twenty-nine visits and Egremont twenty-seven, whereas Penrith, Keswick, Cockermouth and Ravenglass occur about ten times each before 1694. From 1690 there was a marked increase in "going all Low Furness thorow" to visit smiths and chapmen, as if distant markets were supplied by more convenient forges and Coniston forge had to concentrate on local trade.

Charges for carrying iron to customers began, on 6 April 1677, when John Harrison was paid for transporting  $8\frac{1}{2}$  loads, mainly to Ulverston ( $29\frac{1}{2}$  at 6d.), Pennybridge ( $26\frac{1}{2}$  at 5d.) and Kendal (18 at 1s.). Then Adam Fleming took over and was first paid, on 3 July 1679, for taking 349 loads mainly to Ulverston (111), Kendal (50) and Keswick (50 at 1s.). West Cumberland had now opened up, for "Coderbridge" had 41 loads at 1s. 6d., "Eggermouth" 23 at 1s. 8d., "Ashdale" 18 at 1s.<sup>27</sup> and Bootle 21 at 1s. Adam was paid again in July 1680 for 141 loads, November 1681 (147), February 1684 (217) and then February 1694. During the first ten years 940 loads were carried compared with only 719 during the last decade and the details are summarized in Fig. 1. As Adam seemed able to wait ten years for the last batch of payments, perhaps he prospered from his various forge jobs and used the debt as a long term investment, even though it yielded no interest. One should note that no deliveries were made to Whitehaven or Cockermouth, despite the sales effort there, and that there is no mention of loads collected by customers' own carriers and thus not charged to the accounts. It is essential therefore to look at further details to establish the actual level of iron production.

Four very important entries must be considered with other evidence. On 3 May 1680, Fleming paid £138 4s. 6d. "to James Russell for the making of Seventy Eight Tunn Nineteen hundred five stone and nine pound of Iron at £1 15s. a Tunn [as agreed] It being all he hath made since he came to Conistone Forge". This represents an output of about 22.5 tons a year if production started late in October 1676, as suggested by the use of their own iron for building work. The accounts record the purchase of about 756 loads of charcoal in the same period, so that about 9.5 loads of charcoal were consumed for each ton of iron, if stocks were run down at the end of Russell's employment. Emanuel Elletson then took over as hammerman on 3 May 1680 and in a similar statement on 17 February 1682, was paid £37 0s. 3d. for making 24 tons 13 cwt 4 st 9 lbs of iron at £1 10s. a ton. He had used "Two hundred and Sixteen Load and Seven Sacks of Coales to it which is Eight Load and Ten Sacks to each Tunn of Iron or thereabouts". Thus, although the charcoal-to-iron ratio seems to be better, iron output was below 13.5 tons a year and perhaps explains why Elletson left so soon.

On 24 February 1682 Fleming gave 1s. earnest money when he "Agreed with Thomas Bibbie and his Sone Robert to be the Hammermen" at £1 10s. a ton, plus "1s. for every Girdle"<sup>28</sup> as if this was a common product of the forge. The Bibbys began work by 1 May 1682 and, on 11 October 1687, Thomas was paid £105 for making seventy tons of iron. He had had 720 loads and 6 sacks of charcoal "which is Ten Load and four Sacks

to each Tunn of Iron . . . It being all he hath made since he did come". With production at only 12·8 tons a year, both output and charcoal-to-iron ratio were poorer than in Elletson's time. However, the Bibbys continued until, on 10 February 1694, Robert was paid £54 os. 10d. for producing 36 tons, 5 stones of iron at the price agreed in 1682. He had had 393 loads and 4 sacks of charcoal "which is Ten Load and Eleven Sacks" per ton. As output had averaged less than 5·7 tons a year and the charcoal to iron ratio had worsened again, maybe the extensive repairs, begun in 1687 and outlined earlier, hindered production. However efficiency appears to have declined out of proportion to such interference, perhaps indicating a growing shortage of wood for charcoal and intermittent working would use more fuel to heat up the cold furnace. This is reflected in the average yearly consumption of charcoal in the four accounting periods. Russell used 216 loads a year, Elletson 118, Thomas Bibby 132 and Robert Bibby only 62 loads a year.

On page 43 of William Fleming's accounts, a summary of forge finances includes income and expenditure for wood and bark which were not strictly a forge matter and some important items are not separately identified. For twenty years, iron output was credited to the account at £15 15s. a ton, irrespective of changes in production and efficiency. Perhaps this figure was agreed between William and Sir Daniel at the outset, so that any iron sold above that price might have formed William's profit. No details have been found to confirm this suggestion however. In each accounting period the tonnage of iron is lower than the figures discussed above by the amount supplied to Sir Daniel for use at Rydal and for the forge. The summary disbursements do not separate ordinary running costs from lump sum repayments to Sir Daniel which must be noted. During James Russell's time William Fleming paid his brother £100 on both 21 March 1679 and 16 March 1680 "in part for wood and iron", as if forge finance was buoyant. Nothing was repaid during Elletson's short stay but £100 was paid, on 14 February 1687, towards the end of Thomas Bibby's time. During Robert Bibby's employment, £30 was repaid on 17 April 1690 and £20 on 27 February 1693 as if profitability was low. Sir Daniel entered all as receipts in his own accounts and no disagreement has been found in either source. He noted also that William and Roger had paid him £100 "for Coniston Demesne and sheep" on 17 April 1690 and £80 for the demesne on 27 February 1693, so that his brothers would have derived income from farming the Coniston estate. If the value of iron produced is set against William Fleming's recorded expenditure, a surplus of £39 5s. 9d. accrued during Russell's time and £47 9s. 3d. during Elletson's period, compared to a loss of £53 12s. 5d. during Thomas Bibby's time and a deficit of £121 3s. 1d. in Robert Bibby's six years as hammerman.<sup>29</sup>

With the forge making such losses, Sir Daniel Fleming sought a tenant who would give him a regular return. Thus, on 10 November 1693, his accounts note the receipt of 10s. as "Earnest of Charles Russel upon my leasing of Coniston Forge". On 21st, he spent 1s. when his son Richard "took an Account of the things in the Forge" and, on 6 February 1694, 1s. more at Coniston "when the Forge was delivered to Charles Russel". On 1 August, he received £12 to complete the first half of that year's rent of £25. Charles, Joel or James Russell paid the rent regularly, sometimes in gold guineas worth 30s. each. Sir Daniel paid them for "socks" (ploughshares) weighing from 19 to 29 lb at about 2d. a lb. On 1 February 1701, £12 10s. was paid by "Will Russel for his Fathers Rent for Coniston Forge" and, on 25 March 1701, Sir Daniel Fleming died. His eldest

son William had awful handwriting and did not keep such careful records, so that detail for the 18th century is far less complete than one would wish.

### The Eighteenth Century<sup>30</sup>

Sir Daniel Fleming's executors were his daughter Alice, his sons Richard and Fletcher Fleming, all of Rydal, and his brother Roger who was buried at Coniston on 5 January 1704. On 1 February 1703, these executors leased Coniston forge to Charles Russell, hammerman, for nine years at £25 per year, paid equally on 1 August and 2 February. Wood was to be allowed for repairs and Russell was to receive 30 quarters of ore at the outset and leave as much at the end of the lease, which could be terminated at three or six years by either side giving six months notice. "A scedule of all Forge Tooles and Goods Delivered to Charles Russell" was made on the same day and is transcribed in Table 1. By a £200 bond, dated 23 October 1704, Leonard Park of Hem How<sup>31</sup> in Torver, fuller, and Charles Russell junior of Coniston forge, hammerman, became sureties for the latter's father Charles. Three bills for Robert Tubman's carpentry repairs at the forge in 1707-9 were set against rent paid by Leonard Park, who took over the forge fully on 1 August 1709. By a memorandum of that date on the 1703 schedule, Park was bound "to lease and to kepe my Father-in-Lawe Charles Russell harmles and Indemnified of all these goods and materials".

The following year, however, Sir William Fleming noted:

Wednesday May 24, 1710, George Banke, Adam Fleming and the Widdow of Leonard Parke of Farr End in Conistone came to Rydal and told me that the said Leonard Parke dyed Sunday May the 14, 1710 and left her Rachell his Widdow in Childbed and 7 Children that is Charles his son and heir who will be 13 years old about the 7 of July next, Servia (a daughter Elder than the said Charles) thirdly William, 4[th] Emmy, 5[th] Demarius (a daughter), 6[th] Hanna, 7[th] Leonard, and they told me that Tho Scotson would make a sale of the goods the next day, to pay me the money I lent and wished me to send Nedd Knott.

Thus, on 13 June 1710, another forge schedule was taken. It is identical to that of 1703, even down to items like "Five new Belly Boards unmade up" in the barn, and was probably copied to save the considerable labour of a genuine inventory. However, the lists give a remarkable amount of detail of rooms and household furniture and of forge fittings and equipment.<sup>32</sup>

Sir William also recorded the history of Coniston's *smithy* which had been built by his uncle William, in part on land belonging to Farr End Tenement and "in part too much into the High Way". At William's death, in December 1700, it passed to "Unkle Roger" and then to the other executors already noted. By mutual consent, George Fleming (1667-1747, Bishop of Carlisle from 1734) was admitted tenant of Farr End<sup>33</sup> which, with Crag-a-Middin and the smithy, he disposed of in public sale, on 19 July 1704, to Leonard Park of Hem How for £165 10s.<sup>34</sup> On 14 December 1706, Park sold the smithy, with a piece of land six yards long at its east end, to Richard Fleming, a younger son of William Fleming of Catbank, Coniston. It seems that Sir William Fleming's main concern in this affair was to avoid the loss of a penny customary rent on the plot, if a house to be built on it should later fall into decay! Leonard Park's purchase of the smithy and his marriage at Hawkshead, on 27 November 1693, to Rachel Russell

TABLE I. Inventory of Coniston Forge, prepared in 1703, when Sir Daniel Fleming's executors leased it to Charles Russell for £25 per year.

**February the 1st 1702 [1703]**

A scedule of all Forge Tooles and Goods  
Delivered to Charles Russell as Followeth:

*In the Forge fire House*

One Lock on the door & a Heck hung In Iron  
one Table with an oake fraum  
one fourm and Two fourms nails fast.  
Two shelvs and Two shelve on the dishboard with a little fourm at the end.

*In the Low Chamber*

One Table with an oake fraum and one fourm at the side  
one Large stand-bed with a boarded bottom

*In the next Chamber*

one Large stand-bed with a boarded bottom

*In the Buttrey*

Two thick fourms

*In the Chimney Loft*

one Lock on the Door  
one Table with an oake fraum  
two oake fourms

*In the Great Loft*

one pair of Bed-stocks with a boarded bottom

*In the Buttrey Chamber*

one pair of Bed-stocks with a boarded bottom

*In the Barn*

Five new Belly Boards unmade up  
Three Boards

*In the Cowhouse*

Four Beast Leav

*In the Coal house*

Two stees [ladders]  
Twenty six whole Coalsacks  
one Grindstone with Iron Axle-tree,  
Crooks and a wooden Trough  
one Iron Coal-Racke  
Two sound Quarters of an old Hammer wheel

*In the Forge*

one new great Hammer made of wrought Iron  
Three new Casten Hammers  
Two new Iron Hirsts made of wrough Iron  
Two Anvills  
Two old Anvills  
one old Hammer  
Two Gudjeons In the Hammer wheel  
Eleven Iron bands on the Hammer wheel  
one Iron band on each Legg  
Two Iron bands on the Chipp-sill  
Two Iron bands on the Anvill block

*On the Finery wheel axle-tree*

Nine bands Two Gudjeons Two Iron Brasses  
one Clasp of Iron over the one Gudjeon with Hancks & Crooks  
Shamble pins and Shamble plaites  
A pair of bellows with pipes and a Tue Iron and all material  
Thereunto belonging.

*On the Chaffery wheel Axletree*

Six bands Two Gudjeons Two Brasses of Iron  
one Clasp of Iron over the one Gudjeon with hancks and Crooks,  
Shamble pins and Shamble plaite  
a pair of Bellows with pipes & a Tue Iron and all materials thereunto  
belonging.  
Two pair of heating Tongs  
Four pair of Forging Tongs  
one pair of small Tongs

Two pairs of pincers  
one Mandrall  
one Coast  
Two fire shovells  
Two Ringers  
Two Forgans  
one Iron Dish  
Three wrought bolts  
Two fore plaite  
Two Back plaite  
Two Tue Iron plaite and the Hearths made up with old Iron  
Twelve Iron Barrs over the Hearths  
Three Cold Chissells  
one Hammer punch  
one Crow foot for the Bellows  
one Bray punch  
Two sledges  
one hand Hammer  
one marking punch for Iron  
one seat  
one Crane Iron  
one wooden Crane  
one Hammer for braying mine  
one mine shovell  
one mine Hack  
one mine scratt  
one bended bare wch. a great Hammer hangs on the spring Poll  
one pin in the Hammer base  
one Iron pin in the Hamer Gate with Iron socketts.

*In the Iron house*

one Lock  
Two Iron Weigh-bokes  
Two weigh scales with Iron Chaines  
Four Iron Barrs over the scales  
one Iron pin wch the weighs hang on  
one hundred weight  
Two halfe hundreds  
one Two stone  
one stone  
one half stone  
one four pound  
one Two pound  
Two one pounds  
one Iron bridle to traile the Hammer with  
one Crane Iron with Two loose Crookes

*Tooles for the Mine*

one Gavelock  
one Great Hammer  
Two Large iron pickes  
Two Bucketts, with each Two Iron Hoopes and each one Iron Bowl  
one windlas with Two Iron Hoopes and Two Iron Gudjeons  
one oile Firkin  
one Large Coal Boat with an Iron Chain and Two Iron pins  
one Iron hack  
one Iron scratt  
one Boat Crook of Iron  
Two pair of Hotts made of half Inch boards and each Bottom hung with  
Two pair of Jammers  
Three Iron mine Barrows made of wood  
one naile Box.

help to explain how he came to take over Coniston forge, for Rachel was baptised on 26th May 1672, the daughter of Charles Russell "of Consey forge" who had married Margaret Scotson at Colton on 19 July 1664. Their son Charles was baptised on 4 June 1665 at Hawkshead. Charles senior was buried at Coniston on 13 March 1712, followed by his widow Margaret on 21 May 1718.

Charles Russell junior probably left Coniston forge in 1712 at the end of the nine year lease and the Backbarrow Company, founded in 1711, took it over. Their accounts for 1713-4 mention repairs, including £1 5s. od. "for Sodding Levers water Damm" and £1 14s. 2d. paid to John Redhead for forty-one days slating at 10d. a day. However, apart from proving the change of tenant, the Backbarrow accounts are not as informative as one would wish.<sup>35</sup> In the Rydal manuscripts (box 22) there is an unsigned draft agreement, of 1735, between Sir William Fleming (d. 1736) and William Rawlinson of Rusland Hall, John Machell of Bigland Hall, Edward Hall of Cranage, Cheshire, and James Machell of Haverthwaite. Fleming had leased his forge to the first three "for Several Years last past" and the term was due to end on 2 February following. Rawlinson, both Machells, William Leetham (Edward Hall's agent) and Anthony Wilson (Rawlinson's agent) went to Rydal on 11 July to seek a new lease. Fleming went to Hawkshead on 14 July to tell Wilson his terms and Wilson and Leetham visited Rydal on 30 July to agree the lease on behalf of the other four. The term was 21 years at £30 a year and the equipment included a "Three Ton Coal Boat" which was to be used to carry all charcoal, iron and wood.<sup>36</sup> The lessees were to repair the forge, buildings, dam and watercourses and were to keep the forge "working three months in every year" or up to "Nine months together in every Three years". Whenever they commenced or ceased work at Coniston, they were to give written notice to Rydal within ten days afterwards. The clause to ensure twenty-five per cent working might have been engendered by a shortage of charcoal or, just as likely, to protect Fleming from loss of rent if the Backbarrow Company partners should close the forge. Representatives of the 1735 partnership seem to have held onto the forge lease until 1760 even though iron production probably ceased before 1757.<sup>37</sup> A Mr Hall seems to have become agent at the copper mines for Dr Atkinson<sup>38</sup> and the estate accounts for February 1762 record £75 "Cash received of Dr Atkinson & Co upon Acct of Coniston Copper Mines". On 2 June 1760, John Atkinson wrote from Kendal to John Moore, Captain of the Westmorland Militia at Carlisle.<sup>39</sup> The document is endorsed "Dr Atkinson's letter about converting the forge house at Coniston into dwelling houses".<sup>40</sup> Atkinson had seen the Coniston steward who "had Workmen to view the old buildings I was mentioning . . . They calculate the expenses of putting it into proper condition for lodgings for the [copper mine] work people at £50 at the most with some Wood to be felled". If Moore agreed, he would "acquaint Hall with it, that they may put the work forward . . . it will make you about six or seven pounds per year" in rent. On 28 October 1760, Michael Knott wrote to John Moore: "When at Lancaster the beginning of this Month, I enquired of Lady Fleming about the Lease and Schedule of Conistone Forge who acknowledged that she had them". Thus, Atkinson wrote to her asking for them to be sent with his son "as we are at a great loss for them to settle with the gentlemen who were the farmers under the said lease". Hence, John Moore wrote a rough draft which is endorsed "Oct 1761 a copy of a Letter to Leetham", Edward Hall's agent of 1735. It states:

I have at last got a copy of the lease of Cunistone forge from Sir Wm Fleming to Mr Maychell



and others. I find the lessees were to keep the forge in sufficient repair and deliver it up as such at the end of the term. Now I take it for granted, the gentlemen are very sensible that part of the lease has not been performed. Therefore on behalf of Sir Michael le Fleming I . . . would direct you to meet me at the forge in a short time that it might be viewed in order to settle everything . . .

and he suggested 2 November as a suitable date.

From February 1762 to 1769, the estate accounts note "Cash received for Conistone Forge Houses" which, after taxes, netted a maximum annual return of £5 2s. 6d. in 1765. The occupiers were James Birkett, Richard Cadman and Samuel Adams, the last two of whom were called miners in the parish register between 1758 and 1765 when their children were baptised. It is worth noting a letter sent from Pennybridge by Robert Barker to John Moore on 21 February 1766 saying that he had received a draft for six guineas for rent long overdue on the forge houses. He denied liability, citing copper mine affairs as his defence, saying:

I imagine [it] must be from Mr Hall's report but can't see how he can make that to appear reasonable. If he can I dare say Mr Tissington & Co[mpany] will not deny it.

In Oct 1756 I set men to work at Conistone and in Spring/57 the Co. thought it best to get them two houses . . . In June/58 I gave up the Books to Mr Wagstaff . . . [who] promised me he would take care of it, and as Mr Hall came the first week in July/58 to act for near one half of the mine, I . . . expected they would stop the rent [paid by me . . . I] heard no more of it till Apr/60 (which was long after our Co. sold out . . .) at which time I had a private audit betwixt us [by] which he . . . makes me D[ebtor] to 16s. 3[d] for Taxes &c paid for the Forge houses and gives me Cr[edit] for 45s. for one years rent . . .

Barker explained that in 1760 he got a receipt from Hall in full of all demands for the 13/24ths of Coniston copper mines belonging to Mr Anthony Tissington and said that, as Hall's company had since "given up several things to Mr Roe & Co" (of Macclesfield) including about £40 worth of tools not mentioned in the bargain, they could not expect his own company to be liable. The matter was settled on 24 April 1767 when Wagstaff paid 45s. "for one years rent due May 1758" and the receipt is in box 114.

In the same box, a bill for £3 from William Rigg for the supply of "Third Slate for . . . Conistone forge, 60 loads at 1s." is dated 15 October 1766 and indicates extensive building repairs. Other repair bills for "Conistone Forge", dated 18 November 1764 and 11 June 1765, are in box 107. There is good reason to suggest that they refer to repair of the miners' houses rather than of the Forge itself for, in box 22, three scraps of paper include a receipt, dated 12 May 1766, which notes that Joseph Studholm was paid 14s. 4d. by John Moore "for Ale &c at Conistone forge *abt. taking down the same and sale of some wood*". Also, a handwritten draft reads: "To be sold by auction at Conistone forge in Conisstone, on monday the 12th Day of May, all the wheel, axel-trees, Hammers, Anvils, Bellows and other tools and Utensils and goods belonging the said Forge (time of payment will be fixt on the Day of Sale) N[ote] the sale will begin exactly at one of the clock". Another scrap, in John Moore's handwriting, notes some of the sale prices and purchasers:

May 12, 1766

Daniel Fraaon for great axletree

Do	2 Iron gudgeons by auction for odd pieces of wood	£3 5s. od.
George Bownas	one iron standard & 2 braces by auction	£2 9s. od.
Do	a pair of bellows sold by auction	£0 13s. od.
Do Do	with two pieces of Iron barrs by auction	£0 10s. 6d.
		<u>£6 17s. 6d.</u>

As the hammerman's dwellinghouse was let to miners in 1757, no doubt the forge stood idle for some time beforehand and for the next decade. It was built mainly of wood and the payment to Studholm suggests that it was carefully demolished so that its materials and fittings could be sold for the best price. If the structure had had a better commercial value, surely it would have been put to a new use like the house. As there are no physical remains of the forge itself, it is fortunate that so much historical detail has survived to show how a Lake District iron forge was managed three centuries ago. Sadly there is little information about the processes of iron production and lack of space has restricted discussion of peripheral matters like family history. However, details of the role and interaction of many individuals, the supply of raw materials and the output and sale of iron take our knowledge of the forge far beyond previous descriptions. Dates for the commencement of operations, the changes of occupier and the final dispersal are now clear, although searches to clarify other matters must continue. The references to other forges in the district add to Alfred Fell's invaluable pioneering study and suggest that other archives might yield further details of Cumbria's early iron industry.<sup>41</sup>

## Notes and References

- <sup>1</sup> Now at Cumbria Record Office, (Kendal), WD/Ry box 119, quoted by H.M.C., Twelfth Report (1890), Appendix, pt vii, *Mss of S. H. Le Fleming*.
- <sup>2</sup> C.R.O. Kendal, WD/Ry box 22, a source of many useful forge details.
- <sup>3</sup> At Torver the only suitable baptism of Leonard Parke, son of Robert, occurred on 24 April 1646.
- <sup>4</sup> Payments in 1675 were 1 Mar £5, 27 Apr £5, prior to 21 July £5 from Roger Fleming (making up the first £15); 1 July £33 6s. 8d. (the second instalment); 26 May £1, 6 Nov £12 6s. 8d., 9 Nov £20 ("in full of third part"). In 1676, 26 July £3, 31 Aug £15, 11 Nov £2 10s. 25 Nov £12 17s. ("in full of the last payment").
- <sup>5</sup> C.R.O., Kendal, WD/Ry box 119.
- <sup>6</sup> For their handwriting respectively, see WD/Ry letters, no. 1650 (re. delivery of charcoal at Coniston 23 Aug. 1675) and 2817 (re. old mines at Coniston, 1684). Sir Daniel's siblings were Roger (bap. 6 Dec 1634, bur. 5 Jan. 1704.); William (bap. 30 Nov 1636; Lt Col of Militia 3 Apr 1683, bur. 23 Dec. 1700); John (1637-9); John (1641-62 drowned in shipwreck); Isabel (1642-58) and Alexander (1644-70). *Memoirs of Sir Daniel Fleming*, CW Tract Series xi (1928), 69-70 and Coniston Parish Registers.
- <sup>7</sup> Presumably a shallow tray to carry weights on the scales.
- <sup>8</sup> In Little Langdale. William's grandfather, Daniel Fleming (d. 1621) of Skirwith, married Isabel, daughter of James Brathwaite of Ambleside Hall. In 1653 James's second son Gawen left his estate, with forges at Consey and "Hockbert", to his eldest son Thomas who, in 1674, left lands at Low Wray, Brathey and Pulbeck in trust to his brother Robert (of High House, Hugill) whose daughter Dorothy married Miles Atkinson of Baisbrown in Langdale. Nicolson & Burn, i, 163-4, 176, 190-2.
- <sup>9</sup> His name and trade suggest that he might have been related to the Washingtons of Penrith.
- <sup>10</sup> On 28 February 1678, Fleming paid 21s. 10d. for measuring "of my Lords Oare 55 Quarter . . . and the 70 Quarter that was taken up before" at 2d. a qtr.
- <sup>11</sup> Fell (p. 60-1) notes a 21 year lease, dated 10 May 1703, for Marshall to mine ore in Adgarley and Stainton

on land formerly owned by Sir Thomas Preston. The Coniston detail shows that John Marshall was involved in ore mining earlier than is suggested in the *Autobiography of William Stout*.

- <sup>12</sup> This would comprise Marshall's 240 quarters of June 1676 and the two lots of "my Lords" ore (footnote 10), totalling 365 quarters.
- <sup>13</sup> Part of the Billincote estate (SD 2272), between Dalton and Barrow, provided funds for a charity for Dalton's poor (Fell, p. 93).
- <sup>14</sup> C.R.O. Kendal, WD/Ry, box 22.
- <sup>15</sup> C.R.O. Kendal, WD/Ry, box 64, unsorted papers. In box 107, a 19th century schedule of fields in some "Old Papers, Nibthwaite", includes "Landing Park" of 2a. 1r. 36p. and an estate valuation of 1862 places the "Boat Landing" (0-1-2, not priced) between Low Landing (2-1-31 at 30s. per acre) and High Landing (2-1-33 at 18s. per acre).
- <sup>16</sup> He seems to have lived at Pennybridge.
- <sup>17</sup> The widow of William Fleming (who d. 1653), Alice was a daughter of Roger Kirkby of Kirkby in Furness. *Sir Daniel Fleming's Memoirs*, 73.
- <sup>18</sup> In the only other similar case, on 9 January 1684, John Hodgson was cutting and wheeling wood at 3s. 4d. a load at Yewdale and William Fletcher had 3s. a load for coaling it into 3 loads and 2 sacks.
- <sup>19</sup> Possibly of Howsbank, Coniston; died January 1692.
- <sup>20</sup> Sir Daniel Fleming's accounts note, on 17 May 1690, that Randal Nobel, John Nobel and John Turner were paid just 4d. a day for 65 man-days "Walling the High Hag, Inman Howe and the Outwalls" at Rydal.
- <sup>21</sup> Mine hoisting-buckets.
- <sup>22</sup> The accounts show that "a hundred of nails" comprised 120 so that small 20-a-penny nails cost 6d. "a hundred". Larger 10-a-pennies cost 12d. and still larger 6-a-pennies cost 20d. The size was not otherwise defined.
- <sup>23</sup> Half a mile SW of Broughton in Furness on the direct line between Millom and Coniston. Perhaps Kitchen lived at Greety Gate or took the load directly across the Duddon rather than via Duddon Bridge.
- <sup>24</sup> Two more items about Hackett deserve note. On 4 September 1680 £1 4s. was paid for "Carriage of 24 hundred [weight] of Casten Iron from Hackett Forge to Coniston Forge at 1s. a hundred" and on 30 December 1681, £6 was paid for it at 5s. a cwt to Myles Atkinson of High House (see note 8). According to the building account, he was paid the same day for 17½ cwt of Iron at 16s. a cwt and for 4 spring polls, 2 "Brassers" and for iron sent to Rydal.
- <sup>25</sup> The 1st ed. one-inch Ordnance Survey map shows Palace Nook on Walney Channel, ¼ mile NNW of Ormsgill, at SD 191 717 where a sewage works is now marked. It was used later for shipping ore from Elliscales to Pennybridge for Backbarrow, but the anvils and hammers were apparently taken by land.
- <sup>26</sup> John Birkett, curate, was baptised 19 December 1657, came to Coniston 22 June 1683, was ordained 21 September 1683 and, on 26 August 1686, married Agnes Dixon. His neat writing continued in the Coniston registers until his burial on 24 February 1716/7. C.R.O., Kendal, WPR/51/3.
- <sup>27</sup> Namely Calder Bridge, Egremont and Eskdale respectively.
- <sup>28</sup> Griddle. Either a wire-bottomed screen for grading ore or charcoal, or an iron plate for baking scones. The purpose is not clarified.
- <sup>29</sup> The accounts do not sub-divide the Bibby period. As Thomas was paid for his iron production on folio 71 and a gap in payments appears during the following winter of 1687/88, outgoings to the end of that folio have been applied to Thomas and the remainder to Robert Bibby. If they worked together throughout the period, Robert might have been the major partner after 1687, for he received the final iron money in 1694.
- <sup>30</sup> Unless stated otherwise, the documents in this section are in C.R.O. Kendal, WD/Ry box 22.
- <sup>31</sup> Equated with Emlin Hall, a quarter of a mile ESE of Park Ground. John Dawson, *Torver* (1985), 117.
- <sup>32</sup> A similar inventory was made on 3 May 1680 when the forge was transferred from James Russell to Emanuel Elletson. C.R.O., WD/Ry, box 24.
- <sup>33</sup> Formerly known as Tyson Ground, now a National Trust workshop at the northern end of Coniston village.
- <sup>34</sup> Confirmed by a deed of 6 February 1705. Park paid £41 8s. 4d. to be admitted to the customary tenement on 12 December 1706.
- <sup>35</sup> C.R.O., Barrow, Z 186, 187.
- <sup>36</sup> On 19 May 1722, Fleming defended his right to fishing and carriage by boat on Coniston Water to counter a claim by the Dowager Duchess Montagu. He acknowledged "my priviledge of keeping a Large Boat for Carrying is now of soe very small advantage besides that of Carrying for the use of my Iron Forge that I

farmed all my other priviledge . . . for only five shillings a year". He supposed it had been of greater advantage in Queen Elizabeth's time when copper was worked. C.R.O., Kendal, WD/Ry box 85.

<sup>37</sup> Alfred Fell (p. 196) wrote that there is no reliable evidence to show that Coniston forge was used after 1744, but H. S. Cowper (p. 287) claimed that it "was turning out about eight tons of bar iron" a year in 1750. F. Barns, *Barrow and District* (1968), 78, states 80 tons a year.

<sup>38</sup> E. G. Holland, *Coniston Copper* (1987), 63-70.

<sup>39</sup> John Moore (1708-80) of Grimeshill, Middleton-in-Lonsdale, as an executor for Sir William Fleming (1656-1736), became chief agent at Rydal and managed Sir Michael le Fleming's estates until 1780. CW2, lxxi, 93.

<sup>40</sup> The seal has arms *a chevron between three boars heads erased* which compares with Atkinson of Whitehaven in the 19th century. C. R. Hudleston and R. S. Boumphrey, *Cumberland Families and Heraldry* (1978), 9.

<sup>41</sup> For example a letter from Charles Russell, dated 13 October 1705, is at Cockermouth Castle (D/Lec/169/1705/1). It refers to a trial he had made on an unsatisfactory ore sample and suggests that better sorting might allow the best quality to satisfy a bloomery, whereas furnaces might use the worse grades. A lower price and prior notice of a second trial would allow him to send someone to supervise sorting and weighing.