

ART. II.—*The Archæology of the West Cumberland Iron Trade.* By H. A. FLETCHER, F.R.A.S.

Read at Workington, June 16th, 1880.

IT was the intention of the late Author of the paper in the third volume of the Transactions of this Society, on the Archæology of the Coal Trade in West Cumberland,* to supplement it with some account of the history of the Iron Trade in the same district, but unfortunately he had not collected any materials.

The present writer has been requested to undertake the task, but finds little to be said upon the subject, for although the different modes of iron making known to successive ages (from the Roman Bloomery, by which a small portion of malleable iron was extracted from the richer ores in a tiny furnace urged by the natural force of the wind, followed afterwards by a slightly improved furnace worked by hand bellows, and a little later by the Forge or Bloomsmithy, with bellows or other blowing machinery driven by hand and by water power, as well as the smelting of pig iron in blast furnaces—first with charcoal as fuel, and then with pit coal, or rather coke,—together with the making of wrought iron from the pig in the open hearth, until superseded by the invention of the art of puddling by Henry Cort,) have all been practised in West Cumberland, it has only been after long intervals and on small scales, and it is only within our own time, that this division of the county has become a great iron producing centre.

The rich red haematite iron ore of Cumberland could not escape the watchful eyes of its Roman occupiers, but it is a little remarkable that, so far as the writer is aware, no

* “The Archæology of the West Cumberland Coal Trade,” by Isaac Fletcher, M.P., F.R.S., Vol. III., p. 266.

vestiges of the scoriæ of Roman Iron Bloomeries have been found in the parts where the ore is most abundant, such as Egremont, Cleator, and Frizington: possibly cultivation of the soil may have obliterated all traces, and it is not improbable that stray pieces of kidney ore found on the surface of the ground, or in the beds of streams, and the vein-like deposits in the crevices of some of the mountain rocks, may have been sufficient for their limited make.

Among the hills many traces of Iron Bloomeries have been found, which may be either Roman or early English, and in several places, in ploughing newly-enclosed land, iron scoriæ have been uncovered, surrounded by little black patches, indicating the places where the needful charcoal fuel has been prepared; for example, at Whinfell, near Lorton, where, according to Mr. Robinson of Whinfell Hall, a most accurate observer, when the common was ploughed some fifty years ago, several such patches were discovered with hollows or depressions in the middle, and one place where fragments of iron cinder were scattered about.* These cinder heaps are also said to have been found in Eskdale, between Knockmurton and Iron Crag, near the Strands in Nether Wasdale, and two are plainly to be seen at the foot of Wastwater Lake, close to the bank of the river Irt and between it and the Screes. This last has every indication of having been a veritable Roman Bloomery. The situation, though not on elevated ground,—being but a few feet above the level of the lake,—is in a narrow gorge through which the wind rushes with great force, and is therefore admirably adapted for a furnace dependent on the natural force of the wind.[†]

An Analysis of the slag or cinder shews that smelting must have been most imperfectly performed, and by the most primitive of all methods, for the specimens sub-

* Similar remains exist at Todale, in the same township.

† The ore would be supplied from a little vein still to be seen near the summit of the Screes, from which shepherds obtained it as a pigment for marking sheep, and which was observed by the Rev. Thomas Robinson in 1709.

mitted

mitted to the Analyst actually contain 56 per cent. of metallic iron.

Another and larger heap on the banks of Ennerdale Lake, near its head, has also the credit of being of Roman origin,* but looks as though it had been subjected to a greater heat than the Wastwater slag, and contains only 43 per cent. of metallic iron, which may be accounted for either by a superior mode of smelting, or by the use of leaner ores.

Doubtless many heaps of Roman cinders are hid from view by the alluvial deposit of some fifteen centuries. They were frequently but small, for the furnace was of a very temporary character, and built chiefly of clay—being moved from place to place as the supply of wood fuel became exhausted.

That iron making was practised in this part in the 12th century we have proof from the Chartulary of the Abbey of Holme Cultram. Mr. Jackson, F.S.A., kindly points out that William, the third Earl of Albemarle, who died in 1179, confirmed to that Abbey, *a forge† at Winefel*, with the right of cutting wood, both green and dry, for making the needful charcoal. This is probably the before-mentioned Whinfell, but I doubt if the remains found by Mr. Robinson belong to this “forge,” as there is no adjacent stream fit for the water power, which at this date it is believed was adopted for working these forges, in which bar iron was made direct from the ore in open-hearth furnaces, somewhat similar to the “Catalan Forge,” still in use in some remote parts of the continent and elsewhere.

The interesting district of Furness is beyond the limits of this paper, but it may be noted that the decree of Queen Elizabeth,‡ (abolishing Bloomsmithies and Charcoal making in the royal manors of Hawkshead and Coulton, on the

* This is doubtful.

† See “Ellis’ Dugdale’s Monasticon Anglicanum,” Vol. V., p. 597.

‡ See “West’s Antiquities of Furness,” published in 1774, Appendix No. IX
complaint

complaint of the customary tenants that the wholesale destruction of timber for charcoal burning deprived them of "their proper fewell and for the maintenance of their hedges," &c., and the "yearly use to fell and cutt slender wood and to shed lop crop top and browse all other woods and trees,") would not unlikely have the effect of driving the Charcoal trade and Iron smithies to the Cumberland side of the Duddon. Denton, writing in 1688, observes that oak timber to the value of £4000 (a prodigious sum in those days) had been cut down in Millom "to serve as fuel for the iron forges."*

As to the Forges or Bloomsmithies, I have not been able to trace any north of the Duddon, but it is certain that about this time the Huddlestones of Millom Castle had one or more Charcoal Blast furnaces near a stream still known as furnace beck, and about a mile north-east from the Castle, where, when the site has been ploughed, Mr. Massicks has found slag and pieces of iron. Then, at Duddon Bridge, is still standing a Charcoal Blast furnace which was in operation so recently as eight or ten years ago, and was the last in use in Great Britain, with the exception of one still in blast at Newlands and another at Backbarrow, both in Furness. This furnace was in existence in 1745, (being marked on maps of that date,) and probably for many years previously: it belonged to the family of Lathom, of Broughton-in-Furness, from whom it passed early in the present century to the firm of Harrison, Ainslie & Co., by whom it is still owned and who regret inability to give information about its history. Mr. Massicks possesses a pig of this iron, branded "D. 1783," which was found doing duty as a lintel in a cottage at Hodbarrow.

These are the only charcoal furnaces traced in the Millom district. In what may be called the Whitehaven district we find the remains of one hidden within the corn

* Thomas Denton, cited in Lyson's History of Cumberland, p. 137.

mill at Cleator, near to Ehen Hall. It has been of square section, and the bases of two adjacent sides remain, of great thickness, and each containing a wide splayed semicircular arch of hewn stone. One of these, of about ten feet span at its widest side, is very perfect, and has probably been the "tymp" arch, or the one containing the apertures for casting and removing the slag. The miller's dwelling-house has been built against this side, or front of the furnace, which thus forms its end gable, and the old arch is ingeniously utilised by forming it into the kitchen fireplace. An excavation in the adjoining garden revealed the slag heap at about eighteen inches below the surface, and some of the pieces of slag dug up showed undoubted traces of charcoal fuel. Two circumstances indicate only a short career; the small size of the slag heap, and the perfect state of the masonry of the front of the tymp arch, with its corners unbroken and no marks of abrasion from use. I am inclined to place its date at the early part of last century.

Coming to the period when the smelting of iron in blast furnaces, with coke as fuel, became an established commercial success, which was not until after 1735, we find that about the middle of the 18th century such furnaces were built within the Cumberland Coal Field, (most or all of them with foundries attached for making iron castings,) at four different places, viz., Little Clifton, Maryport, Seaton, and Frizington, but little success seems to have attended them, for these works all seem to have been abandoned after short careers, except those at Seaton.

About 1750, or possibly a little earlier, Messrs. Cookson & Co., who worked coal mines at Clifton and Greysouthen, erected a blast furnace near Little Clifton, on the banks of the river Marron, which supplied the needful water power for blowing. The site is still distinguishable, and a few cottages at a little distance, for the use of the workmen, retain the name of Furnace Houses. There was a foundry

in connection with the works, where light castings for the use of millwrights and farmers were made, as well as those required at the proprietor's own colliery.

On the neighbouring roads may be found pieces of the furnace slag with which they have been repaired, and many of these are of a character which indicate a not very satisfactory result in smelting.

It appears from the after-mentioned pamphlets, respecting the case of Gee against the assignees of D. Stephenson, that at some time between 1750 and 1752, inclusive, Gee and Stephenson supplied Cookson and Co. with ore from their mines at Frizington, and with reference to this, Mr. Dickinson, of Thorncroft, writes:—

"I have heard that iron ore was got at Frizington Parks and taken to Clifton Furnace on pack horses, but only the soft ore could be utilised. When my workmen were draining the high part of Moor-side Parks they cut through patches of iron ore at a few inches below the surface, as if the sacks had burst on the way. These deposits were about the track which would lead from Frizington to Clifton."

Another source of supply of the raw material would be the "cat scopes," or ferruginous nodules of ironstone found in their own colliery workings, and we find by Nicolson and Burn's History, published in 1777, that at "Branthwaite are pits of Black stone, called 'Cat scalps,' much used in the iron furnaces at Clifton and Seaton." Without a mixture of these or other argillaceous ironstones, I am of opinion that, with an imperfect knowledge of fluxes and the feeble pressure of blast in use at this time, it was not practicable to smelt in a satisfactory manner the red haematite ore of West Cumberland in coke furnaces. This furnace at Clifton was no doubt abandoned when Mr. Cookson's colliery was "drowned out" in the year 1781.

The old furnace at Maryport, after being disused for a century, is still standing, with its outlines distinctly traceable, though with modern buildings erected against it. It was built in 1752. It is square in cross section, and appears

pears to have been about thirty-six feet high, and eleven or twelve feet diameter at the "boshes," or widest part. It is built of red sandstone, of excellent workmanship, and the "tymp arch," which contains the aperture for casting, is almost perfect. It has been the subject of an able and interesting paper in the Transactions of another Society* by Mr. Addison, of Maryport, from which it is ventured to extract the following :—

A lease was

"Granted in 1752 by Humphrey Senhouse, Esq., of Netherhall to James Postlethwaite of Cartmel; William Crewthwaite of Kirkby Hall; Thomas Hartley of Whitehaven; William Postlethwaite of Kirkby; John Gale of Whitehaven; Edward Tubman of Whitehaven; and Edward Gibson of Whitehaven; of buildings quarries and lands upon which to erect furnaces and forges, with power to deepen the river Ellen between the Works and the Harbour, for a term of Fifty years at the yearly rent of £52 10s. od.

"In a letter from Mr. John Smith to Mr. Senhouse, dated May, 1787, reference is made to the deficiency of water for working the blast in certain seasons.

"In a letter dated November 1783 from Mr. John Barnes to Mr. Senhouse reference is made to the desire of the Furnace Company to sell him the Lease on account of the embarrassed state of the concern.

"In the following January Mr. Senhouse agreed to purchase the Lease, together with all the machinery and other materials, for £600."

From Mr. Addison's account it appears that there were upon the premises, in addition to the blast furnace, a foundry for making iron castings, a number of coke ovens, "three large coal houses which will contain charcoal or coke sufficient for a year's blast," and other buildings, and that the enterprise was abandoned owing to the insufficient supply of water to work the blowing machinery. Mr. Addison also informs us from authentic sources that iron ore was procured from "Whitrigg, Crossgates, Inmangill, and Whitehaven," and also ironstone from Palnackie, in Kirkcudbrightshire; and although he questions the tradi-

* See "Transactions of the Cumberland Association for the advancement of Literature and Science," by John Addison, Part IV., p. 227.

tion that a portion of these minerals was conveyed on the backs of ponies, I have heard from an elderly gentleman, now deceased, that his father, who had a little property at Maryport, told him that he had frequently seen strings of pack horses crossing Broughton Moor with ironstone for Maryport furnace.

An issue of the *Cumberland Pacquet* in April, 1777, contains the following ; —

" We have heard that a pair of iron bellows are placing at Netherhall Furnace ; they were cast at Birsham, near Wrexham, and weigh, exclusive of the pistons, 146 cwt. The quantity of air discharged by these is astonishing. Every sink of the piston is calculated to produce 126,000 cubic inches; one revolution of the wheel sinks the piston 8 times, and the wheel revolves 5 times in a minute ; so that the whole quantity of air produced in one minute is 5,040,000 cube inches."

This volume of blast (equal to 2916 cubic feet) is only about a seventh of that which it is needful to provide for a Cumberland blast furnace of the present day.

Some of the gentlemen connected with this enterprise appear to have belonged to the district or neighbourhood of Furness. It would, therefore, seem a not improbable conjecture that they may have previously had to do with the making of iron with charcoal,—for which that country was once prominent,—and having been literally burnt out by the failure of the supply of timber, had to move their business into a coal producing locality.

The Seaton iron works, near Workington, formerly known as the " Beer-pot Works," from a corruption of Bare-pots, which was the name of the ground upon which they were erected, and which still exist in the form of an extensive manufactory of tin plates and sheet iron, were established in 1762 by Hicks Spedding & Co.—the site being a leasehold one, granted for 99 years by Sir James Lowther. Here pig iron was smelted in a blast furnace, and bar or wrought iron manufactured ; and there was also a considerable foundry

foundry in which were cast ship's guns, grates, hollow ware, &c., and several steam engines were made previous to 1800, including the two "Heslop Engines"** figured in the late Mr. Fletcher's paper, one of which is now carefully preserved in the Museum of Patents at South Kensington. Adam Heslop, the inventor and patentee of this form of engine, was formerly a blacksmith at Beer Pot. These works saw many vicissitudes and passed through many different hands. The blast furnace, or rather its successor, for it was rebuilt by Tulk Ley & Co., who acquired the premises in 1837, was last in operation in 1857, and was pulled down a few years ago. It would be interesting to know when the tilt hammer for drawing "merchant bars" here gave place to Cort's rolling mill, (invented in 1783 or 1784,) but no information has been obtained on the subject. A workman employed there nearly 50 years ago says that at that time the blast furnace, or furnaces, (for he is not quite clear whether there were not then two of them,) as well as the foundry, were not in use, and that the bar iron which he assisted to make was rolled entirely from scrap iron, and that the process of puddling was first practised there by Tulk and Ley, about 1838. About 1800 they executed an order for boiler plates for Wilson & Co., of Greysouthen colliery, under the hammer, and these plates, or rather cakes of iron of varying size and thickness and irregular form, the colliery smiths cut into the required shapes with rod-chisels and sledge hammers, punched the holes for the rivets in a somewhat similar manner, and, after two years of labour, succeeded in producing two "hay stack" boilers of small dimensions.

But little information has been gathered respecting the furnaces at Howth Gill, Frizington, for unfortunately those who could best have given it have passed away, but an in-

* See "The Heslop Engine: a Chapter in the history of the Steam Engine," by H. A. Fletcher, M. Inst. C.E. Proceedings Inst. Mechanical Engineers, for year 1879.

spection of the ground shews two circular excavations about twelve yards in diameter, six or eight feet deep, and about twenty-four yards apart, which are clearly the sites of two blast furnaces of considerable size. In one of them part of the rubble foundation remains. The casting house has been between the two furnaces,—the sand of the pig beds still appearing, as well as the foundations of an adjoining building of some extent, probably a foundry. On the north side is a long line of brickwork, with bricks lying about which have been exposed to heat, and which are undoubtedly the remains of coke ovens. The little stream which flows past is not much more than a ditch, and could not have supplied sufficient power to blow even one furnace, so one can only conclude that they have been driven by steam power. The date of their establishment, and who were their proprietors, has not transpired, but they would appear to belong to rather a later date than the before-mentioned works, and were probably only a short time in operation. This conclusion, in the absence of positive information, is arrived at from the circular form of the foundations and the conjecture that steam power was used; but there was an attempt made at Frizington to manufacture wrought iron direct from the ore with pit coal, from 1728 to 1730. The site may have been either here or a little lower down the gill, where there is some broken ground, and by collecting the small run of water in a reservoir sufficient might have been obtained to drive a tilt hammer for a few hours each day; or it may have been on the bank of a little stream near, called "Dub Beck."

It appears that this bar iron making was carried on by a John Wood, said to be an M.P., and also mentioned as Governor Wood, who had a contract for the Irish copper coinage, and who petitioned without success, but with great pertinacity, for a Royal Charter to found a company with a capital of one million, with the exclusive right to make iron with coal and *pulverized* ore. He also experiment

mented at Chelsea with a few tons of ore and coal brought from Cumberland for the purpose, but the whole affair seems to have been but little better than a swindle, and one of those great bubble schemes which marked the time.

Three broadsheets on the subject have been kindly lent me by Mr. Howson of Whitehaven : one, called "The Pulverizing Iron-masters : or an unfair Trial, no Trial," begins thus :—

" Of all the attempts that have been made for some Ages to delude unwary and credulous People out of great Sums of Money, none was ever carried on for so many years with that prodigious Assurance, as the Project for making Iron with pulverized Oar and Pit Coal. It is now very well known that upon the falsest Allegations, these Iron Projectors obtained his late Majesty's Patent &c. * * upon as false Allegations they obtained his present Majesty's Patent * * What use have they made of these Patents but to draw in great numbers of his Majesty's innocent and unwary Subjects to their Ruin, by arguing they might safely venture their Fortunes in an Undertaking that had been so lately under Consideration of Persons in high Stations and so often countenance'd by Patents under the Broad Seal of *Great Britain*."

A search for the specifications of these two patents has been unsuccessful, as well as an enquiry for the petition for a charter.

The second sheet* narrates how public experiments made

* A letter from a Merchant in Whitehaven to an iron master in the south of England :—

"SIR,

" Notwithstanding the King's Attorney and Solicitor General have upon the fullest consideration of Mr. Wood's petition for a Charter for a million of money laid their Report before His Majesty, humbly offering their opinion against granting him any Charter : This Town is almost every post entertained with Letters from Mr. Wood or his Agents, of his being assured of his having a Charter, immediately for making Iron with Pitt Coal. We shall be very glad to see the Money here that is due from the Iron Projectors, but we have had enough of his Iron, unless we saw some hopes of his making that which is fit for use, and therefore we should have been as well pleased to have heard he had some new Scheme for extracting Silver or Gold in some new method that has never yet been tried.

Sometime since we had a prodigious noise about his making Iron at Frizington, near this place, but when there was the greatest noise about it the Iron itself was invisible, so little of it could be procured for Love or money ; Now the hammers stand still, and those that made the noise are march'd off, here is more of the *Pitt Coal* Iron to be sold at a low price than this whole town and County will buy, but the reason is plain, the Smiths do not know what to do with it, and therefore

with

with the iron at Whitehaven proved its utter worthlessness, and a third is a poetical squib headed, "Wood's Pitt-coal Iron, or, Governor John Bitt," which congratulates Whitehaven thus :—

"Whitehaven has now reason to be pleas'd
To find itself of Bubble Iron eas'd.

In 1799 Adam Heslop along with his brothers Crosby and Thomas and several other partners, under the style of

unless the Projectors can find what use it is fit for, we are afraid if they get a Charter, they will get no money to pay off the Mines Royal Company, much less enough to pay off them and us too.

Some days since a gentleman here bought about Twenty Bars of the said *Pitt Coal* Iron and as it is fit the nation should know how it proves (it being the first that we can hear of that the makers would suffer to be fairly and publicly tried, taken indifferently out of a number of Bars as these were) I shall give you an exact account how it proved. If you are not satisfied with this Account you may be pleased to send to the chief Gentlemen and Merchants of this Town to know the truth of it, and if any of the Iron projector's Agents pretend they have better Iron of their making with *pitt Coal* it is desired they will give notice when and where it may be fairly and publicly tried in this Town by as many of the Smiths of the place as shall be willing to try it. And now there is some of the said Iron got into other hands the same shall be forthcoming at any time, to be openly tried in the presence of any persons that there is any design of disparaging the said Iron.

On Tuesday the 21st of July 1730 three Bars of Mr. Wood's *Pitt Coal* Iron made at Frizington, were fairly and publicly tried at the Shop of Thomas Bragg in Duke Street in *Whitehaven*, in the presence of Six of the principal gentlemen and Inhabitants of the said Town. The Iron was bought of Thomas Singleton, Cooper, who had it direct from the Works at *Frizington*, and it was wrought by the said Thomas Bragg and Charles Storey, two of the Chief Smiths in these parts for making Horse Shoes, who tried three several Bars, and protested they used their utmost care in working them (the truth whereof they are ready to depose) but could not possibly make a Horse Shoe of any of them; some broke at the first or second heat, and one piece of a bar held out to the Fifth White Heat, and flew all to pieces at the Sixth.

On Monday following, three other Bars of the said Iron were likewise tried at the Shop of Joseph Steel Blacksmith in New Street, in the presence of Five of the principal Gentlemen, and several other Inhabitants of the said Town, and was wrought by the said Joseph Glaister, two other of the chief Blacksmiths in the place, and by Henry Peele an experienced White Smith in the said Town, who each of them tried the same Bars and worked them as skilfully as they could, as they themselves declared, and as the Spectators were satisfied they did; but could not make Horse Shoes or any other work of it.

All these Smiths above mentioned, declared the Iron to be so bad, they would not work it if they might have it for nothing; and most of the other Smiths in and about this place have often declared the same.

It is to be observed that the Bars above-mentioned to be tried are of *Mr. Wood's* latest performances; that some of his own Agents confess, that notwithstanding he has been near two years trying projects at Frizington, and has expended £10,000 therein, he is yet to learn how to make Iron with *Pitt Coal* that is fit for use, which is abundantly confirmed by the above trials; they further add, that his method of making is so vastly expensive that it stands in a surprising great sum above what the best Iron in the kingdom may be bought for.

Whitehaven, July 31st, 1730."

Heslop's

Heslops, Millward, Johnston & Co., founded the Lowca Iron Works, with a view to smelting, in addition to the iron foundries which they then erected, along with appliances for making the Heslop patent steam engines, but after laying the foundations of two blast furnaces abandoned them. Their lease of the site from Mr. J. C. Curwen included the right of working the thin bands of clay iron-stone of the coal measures which crop out on the beach in Harrington parish, as well as some other mineral rights. This was the last attempt to establish blast furnaces in the West Cumberland Coal Field until the Whitehaven Haemite Company built their works at Cleator Moor, in 1841.

At the Floss, Cleator, where Mr. Ainsworth's Flax Mills now stand, there were some works for making bar iron and steel, which were abandoned and dismantled in 1799. Could these be the intended works referred to in William Gilpin's letter to Sir James Lowther, November 2nd, 1694, in which he alludes to the "free and plentiful ore at Langaran near Whitehaven, and that at Frizington, and the *intended forge at Cleator* for smelting them with Pit Coal," &c.* Mr. Lindow believes they belonged to Mr. Williamson of Cleator Hall, but an intelligent and very aged resident, who says his father worked there, thinks they were held in the latter part of their time by a firm from Yorkshire. Possibly they came from one of the steel producing valleys near Sheffield, and adapted what were before bar making works to steel converting, for a clever sepia drawing of "Cleator Iron Works in the year 1794,"† shews a row of six conical furnaces rising out of square bases which are evidently of the kind used, and still in use, for the conversion of bar iron into steel by the process of cementation. I have been told that iron was "puddled" there in what is technically called "sand bottoms," but about that I have some doubts.

* See Mr. Jackson's "Gilpin Family," p. 38.

† In the possession of the late Mr. Randleson, who had also a vast fund of local information.

There is also some tradition of a bar iron works near Wotobank, Egremont, but on the opposite site of the river Ehen, where there are the remains of a weir and mill-race. Sir Robert Brisco, who formerly owned the site, and who has most obligingly answered enquiries, has found pieces of cinder there, and has heard that both master and workmen migrated to South Wales, where they founded iron works at Merthyr Tydvil; but the "oldest inhabitant," born near the place eighty-four years ago, is of opinion that it was only one of the little spade and scrap iron forges which were once pretty numerous, (many still in operation,) and which are without the scope of this paper.

The earliest record which has been found of iron ore mining in Cumberland seems to be the grant of the forge at Winefel to the monks of Holm Cultram Abbey in the 12th century, which grant also includes a mine at Egremont,—by inference of iron, being in connection with a forge,—and Thomas de Multon confirms a gift to the same abbey:—"de quatuor duodenis minæ ferri in Coupland."*

In the latter part of the 17th century ore was worked to a considerable extent at Langhorn, near Egremont, where there was a deposit close to the surface, excavated in the open like a stone quarry. Of this mine a local author, the Rev. Thomas Robinson, who published in 1709, says:†—

"In a place called *Langhorn* within that Manor (Egremont) is a *Belly* or *Pipe* of *Iron Ore* eight yards deep in breadth 80 yards and in length a hundred; out of which several thousand Tun were yearly got for many years last past; the *Ore* was very rich, consisting of *Button Ore* and a *pinguid shining Ore*. It answered to his Grace the

* See *Monasticon Anglicanum*, also Tanner's "Notitia Monastica," under head *Holm Cultram*.

† "An Essay towards the Natural History of Westmorland and Cumberland," &c., by Thomas Robinson, Rector of Ouseby, in Cumberland, a very shallow book which little more than touches the fringe of the subject. Its author argues in favour of the philosopher's stone, and believes in the transmutation of metals and artificial generation, and gravely observes "it is notoriously known that in *Scotland* of pieces of *Ships* and *fruit* that falls into the sea are generated *Living Ducks*."

Duke

Duke of Somerset a yearly rent of several hundred pounds; the present Lessees are the Judicious *Thomas Addison Esquire*, and Madam *Ann Hebar*.

Being at *Egremont*, his Grace the Duke of Somerset having of his goodness given my Son the Rectory of that Church, I had the curiosity to go to see that rich vein and the Stock of *Ore* upon the bank which was a little mountain. In that great variety of *Ore* I did not only meet with *Spar*, as transparent as the clearest *Chrystral*, but Stones Imbossed with *Bastard Diamonds* near as sparkling as the Real *** And undoubtedly in that rich *Mine*, there were several Magnets engendered," &c.

Some further particulars respecting this mine are gathered from a document kindly lent by Mr. Clutton of York, being "Extracts from the Stewards and Receivers Accounts, &c., of Money accounted for and paid for Egremont Iron Ore." The first entry is for "Ore gotten at Nicholson Pitts * * from the 30th March 1635, to Michas. 1638," and has no amount attached. In 1640 the sum of seventeen shillings and sevenpence was received as Royalty rent; in 1643, 1645, 1646, 1647, and 1748, a few pounds each year. Until 1667 there were no further raisings. In this and the next ten years the annual receipts were from £50 to £100, and from 1679 to 1701 inclusive, they ranged from £200 to £350, with the exception of 1699, when they reached £452 15s. od. Mrs. Ann Hebar's name is first mentioned in 1682, and that of Thomas Addison Esq. in 1693. The royalty rent was five pence per ton. It should be mentioned that in 1688 and 1690 there were no receipts.

Two little books printed in 1767,—one kindly lent me by Mr. Jackson, entitled "Mr. Gee's case with the Assignees of Daniel Stephenson, late of Whitehaven," and the other a rejoinder to it, refuting grave charges against the integrity of its author made by Mr. Gee, called "An answer to and refutation of the charges in Gee's case with the assignees of Daniel Stephenson, so far as they relate to Peter Nicholson,"—throw some interesting light upon the iron ore trade of the Whitehaven district in the middle of the

the 18th century. From them it appears that Joshua Gee of Shropshire, in 1747, took "a Lease for raising Iron Ore in Frizington Demesnes" from Mr. John Williamson, the then lord of the manor; that Mr. Williamson managed the "mine affairs" until September or October, 1749, when Gee admitted Stephenson (who two or three years after became a bankrupt) as his managing partner; that the royalty rent was ninepence per ton, but whether an imperial ton of twenty cwts. or a "pit ton," which was more like thirty-five cwts., we are not informed; and that the price at the mines was six shillings per ton, and on board ship twelve shillings. Much of the ore raised was shipped at Parton, in small craft carrying from ten to sixty-one tons, to Chester, to be smelted in a furnace belonging to Mr. Gee, and situated either near Wrexham or in Shropshire, it is not quite clear which. Stocks of it were kept at Gatehouse, (probably where the mine was, and identical with Yatehouse), at Hensingham, and at Parton. There may have been two reasons for keeping at Hensingham a stock for shipment at Whitehaven: one that the road between those two places might be fit for the passage of carts, and that between the mine and Hensingham only fit for the piece-meal process of conveyance by pack-horses; and the other the circumstance that in all demises and leases of ground at Whitehaven, both Sir James Lowther, the last of the Whitehaven branch, and his successor, Sir James, the first Lord Lonsdale, prohibited the storage of iron ore and coal.

The ore stored at Parton, under a shed ready for rapid shipment, was most likely carried there on the backs of horses, for it does not seem that at that time there was any direct road from Frizington passable by wheeled vehicles.

Peter Nicholson says that Gee came to reside at Frizington in 1753 and remained there ten or eleven years, and as from his own account Gee seems to have been living at one time

time at Howthgill,—he being a practical iron master may have had to do either with the ownership or the management of the iron works there. Gee mentions that about three years before writing he was “refused the right of carrying his ore on a road he had made at the annual expense and labour of fourteen years, whereby his Ore remained unsold and his Mines remained unworked.”

Ore seems to have been worked at Cleator a century ago, and at Crossfield some fifty years earlier.

In the Millom district Mr. Massicks is of opinion that no part of the vast deposits at Hodbarrow were touched till about fifty years ago, when a small quantity was worked near the shore, and that the Huddleston furnaces were partly supplied from a small vein in the limestone close by, the remainder being brought from Furness.