

ART. XVII.—*A trip to Whitehaven to visite the coal-works there in 1739.*¹ By Sir JOHN CLERK. Transcribed and edited by W. A. J. PREVOST.

Read at Kendal, April 4th, 1964.

Introduction.

AN account of a journey into England made by Sir John Clerk of Penicuik in 1731 was printed in CW2 lxi, and two of his "trips" into England in 1734 and 1741 were printed in CW2 lxii. A fourth, "Journey to England in Aprile 1724",² when Sir John visited the Roman Wall, was transcribed by Professor Eric Birley and printed in Durham and Northumberland *Transactions* (1962) xi 221-246. Professor Birley omitted Sir John's accounts of visits to coal-works in Northumberland, one of which was to a mine near Morpeth where the baronet saw a horse engine for raising the coal which he illustrated by a neatly drawn and detailed "Forme". He also inspected three "coaleries" near Newcastle which were "manadged with 3 fire engines", and another where he observed the ventilation system. This consisted of a furnace at the pithead which, when kindled, drew the air from the coal-face through wooden pipes to the surface.

With the knowledge gained by his Northumberland tour added to that of his own mining enterprises, Sir John Clerk made this trip to Whitehaven in 1739 with the object of seeing the coal-works there. He made a thorough examination of the workings and in particular describes the engines for pumping out the water from the mine which were perhaps of a similar design to Captain Savery's engines. These had already been employed for some years past in the drainage of mines in Cornwall and

¹ Scottish Record Office, Clerk of Penicuik Muniments, GD/18, 2115.

² Clerk of Penicuik, *op. cit.*, 2106.

Devon. The baronet makes observations on various other subjects, which include comments on the Roman Wall and certain Latin inscriptions at Bowness, which are the subject of an appendix for which I am indebted to Professor Birley.

In conclusion, I acknowledge the generous help of Mr C. Roy Hudleston in completing this paper, and I must also draw attention to the fact that the line-blocks of Sir John's sketches are not reproductions of the manuscript. The photographs which I had taken were not satisfactory and I have had to be satisfied with tracings.

The Journal.

My good friend Roger Gale of Scrutton³ near Northallerton in Yorkshire and Doctor Knight of Cambridge,⁴ one of the King's chaplains, having come to see me and repay the visite I made to Mr Gale last year, I waited on them several days at Edin: and had them with me in the country at Pennicuik and Mavisbank.⁵ They came to Edin: on the 26 of July and on the 8 of August they took jounie for England by the way of Carlyle, to which place I waited on them in a chaise.

We dined at the Crook of Tweed 15 miles from Pennicuik where we were very well entertained. At night we lay at Moffat extremely well pleased with our quarters at the postmaster's house. Next day we dined at Ehelfechen, a miserable shameful place but we had good wine and I took care to bring some good bread with me from Moffat and had besides a hare and a moorfoul. At night we got safe to Carlyle.

³ A letter from Sir John Clerk, describing this visit to Whitehaven and addressed to Roger Gale, is published in John Nichols, *Bibliotheca Topographica Britannica* (1790), iii 326-333.

⁴ Samuel Knight, D.D. (1675-1746). Appointed chaplain to George II in 1731. Prebend of Lincoln 1742. About 1717 he was one of the refounders of the Society of Antiquaries. Scottish History Society, *Memoirs of Sir John Clerk*, 152.

⁵ Mavisbank, near Loanhead, Mid-Lothian. Built between 1723 and 1739 for Sir John Clerk by William Adam, the designer of Hopetoun House. A gem of a house, now rapidly disintegrating.

Next morning I parted with my good friends who set out for Penrith and I for Whitehaven to visite Sr Ja: Louder's⁶ coal works there. I found the way very good to Alington⁷ where I dined with my two fellow travellers, Sir James Holborn⁸ and my second sone George.⁹ This place is 26 miles from Carlyle on the sea side over against Drumfrise where Solway Frith is about 20 miles in breadeth. After dinner we came to Workington, a large sea port town, and from thence to Whitehaven, distant 14 miles from Alington. By the way I observed vast tracts of good grounds, uncultivated and full of whins and brakens, from which this observation was obvious that it was foolishness for us to be sending colonies of our people to Georgia and Carolina when such vast tracts of ground as are to be seen every way both in England and Scotland lie *in statu naturae*. The last 3 miles to Whitehaven are monstrously bad, rugh and narrow.

I stayed in this town a day and took time to consider every thing necessary. It was built by Sr Ja: Louder and his feuers¹⁰ within these 60 years. A great coal trade to Ireland is driven here and likewise the tobacco trade from the West Indies. The harbour is dry at low water but very well built on all sides with free stone of which there is great plenty here. The coal ships are loaded by a contrivance of 3 stories of timber spouts¹¹ which receive the coal from the height where it is brought by low wagons which hold 2 chalders. These wagons run upon 4 little cast iron wheals on a cassey way declining easily, bordered by oaken planks or trees. They carry a vast

⁶ Sir James Lowther, fourth and last baronet of Whitehaven. M.P. for Cumberland 1708-1722 and 1727 till his death in 1755.

⁷ Sir John Clerk's version of Allonby.

⁸ Sir James Holburn, Bart., of Menstrie. Succeeded to the baronetcy January 1736/37. Admitted an advocate in 1714, being afterwards an Examiner in the Exchequer. Died 26 July 1758 at Penicuik. GEC, *Baronetage*, iv 438.

⁹ See *Mr George Clerk and the Royal Hunters in 1745* in CW2 lxiii 231-252.

¹⁰ Feuers, leaseholders.

¹¹ Spout, a contrivance having the form of a trough or box with open ends, by which coals, etc., are discharged from, or conveyed to, a receptacle; a shoot.

quantity of coals tho' drawn by one horse only because of the gentle declivity of the caseways.

The principal coal sink¹² is to the westward of the port, on the sea side. Its depth is 80 fathoms. The water is drawn by a fire engine where the boyler is of iron 11 foot by nine and the cylinder of brass 42 inches. 4 pumps lift the water, joyn'd together by a strong chain from the regulator. The first pump lifts the water to the depth of 60 fathoms, the 2d to 40 fathoms, the 3d to 20 fathoms and the 4th to the level of the sea at high water. At every one of these lifts there is a cistern where the pumps draw. They are likeways seting up another engine of the same dimensions to draw water at the same sink. This sink is about 8 or 10 feet of diameter, divided in the middle all the way down and wainscotted all over. In one half of this sink the pumps draw, as will likeways the pumps of the new engine built on the side. At the other half the coals are drawn up by a horse engine in the Scots way, not that of Newcastle, by a pinion and cogs on a horozontal wheel. This is the form of the pit and engines.

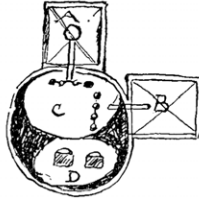


FIG. 1.

- A. The present fire-engine.
- B. The new fire-engine.
- C. The great sink where 4 pumps draw and 4 more design'd to draw.
- D. That part of the sink where 2 corffs¹³ bring up the coals.

The engine which brings up the corffs is managed by 2 horses, changed every 8 houres. They go at a full trot and the driver sits on the arm to which the horses are

¹² Sink, a mineshaft.

¹³ Corf, a basket, tub or truck in which coals are brought to the surface of a coal pit.

fastened. This arm is 24 feet in length from the central stoop¹⁴ where it is fixed. The barrel on which the roap rolls is 18 feet in diameter. Diametrically opposite to the great arm is another of the same length with a weight hanging down from the end of it to serve as a ballance to the other where the driver sits, and the length of both arms are alike. The corffs are two, each of them is an oblong square 32 inches long, 22 deep and 18 broad by a measure taken in the inside, so that the contents of each is 12672 cubical inches. The circumference of the circle which the horses make each turn is 144 feet. They draw up 20 corfs in an houer and 480 in 24 houres. The price of each is 7 pence half penny. By computation I find that the valeu of coal which comes up by this sink is yearly above 4000 lib ster out of which the wages of the coaliers and all the expence of the works is to be discounted, so that Sr James Louder, the proprietor, cannot make above 5 or 600 lib ster yearly from this sink. Note: I measured my corfs at Loanhead¹⁵ and find them near a fourth more, tho' my price is only 8 pence $\frac{1}{2}$.

The seams of coal are 6 in number, the greatest 6 foot, 7 foot and sometimes 8 foot thick. The 2d seam is about 3 feet thick. One is but half an elle or 2 feet thick. The great sink pierces most of these seams. The field of coal is now entirely under the sea, all or most of the land coal field being wrought out. This field is about 2 miles in length and about 200 fathoms in breadeth. The ships which come into the harbour sail over the heads of above 200 coaliers and other workmen, so that if a stoop¹⁶ gives way the coal and all the men will be lost in a moment. The seams are very flat, dipping towards the sea very insensibly, perhaps a fathom in 10 or 12 fathoms.

¹⁴ Stoop in this connection means a post.

¹⁵ Loanhead, a small town in Mid-Lothian, is still a coal-mining district. Sir John owned and worked his own coal mine there.

¹⁶ Stoop in this connection means a pillar or post supporting the roof of the pit.

After the coal is brought up to the level of the sea the corffs which bring it up serve to slide it into a cave in the hill above the harbour where the same corffs and coal are drawn up by another engine to the top of the hill. The pit is 25 fathoms deep and the engine is of the same dimensions of that above mentioned but drawn only by one horse, so that the same number of corffs as below are drawn up here every houer.

At this engine the coal is put on the wagons above mentioned and drawn down to the harbour. These horse engines are covered all round with planks of timber because they are wrought in the night as well as the day, and I suppose in winter they have lanthorns to give them light. This is the form of these engines.

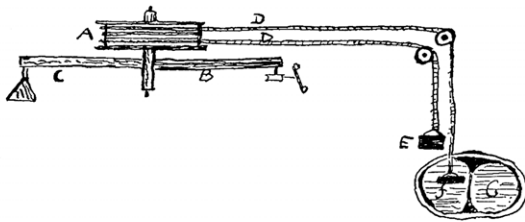


FIG. 2.

- A. The great barrel on which the ropes roll.
- B. The arm to which the horses are fastened and where the driver sits.
- C. The arm and weight which serves for the ballance.
- D.D. The ropes for the corffs, one going down and another coming up.
- E. The corff.
- F. The drawing sink.
- G. The engine sink.

The deepest sink in England is said to be that at the top of the hill which overlooks the harbour. It is 105 fathoms deep. This way of sinking is carried on by a division of boards in the middle of the pit which makes the aire circulat, for without this the aire wou'd not serve above 30 fathoms as I have experienced at Lonhead. This way of deviding a pit will likeways serve to carry on a level or mine any length, for otherways the aire will sit¹⁷ up at 50 or 60 fathom in a streight line horizontally

¹⁷ Sit, to lie, remain.

and much sooner when the sd mine is not streight. The deviding of a sink gives the sinkers all manner of safety in case of any thing falling from above out of the buckets because they never work perpendicularly under them, but as they shift their work they shift their buckets.

The coaliers and horses which are made use of under the sea to carry or slype the coals to the bottom of the drawing engine, enter by the side of a hill next the town and go down on a sloping way to lowermost parts of their work. In this passage which I viewed with attention all the coal seams appear, particularly the greatest which is the lowest, for this passage is carried for the most part of the sd seam sloping to the sea. There are other coal sinks towards the west from which coals are brought to the harbour but not very considerable for their works or people. Sr Ja. Louder has likeways several coal works of an inferior kind at a place called Parton and at Workingtown from whence some ship loadnings are carried to Ireland.

The strata of coal run here Eastward and in my opinion to Newcastle, tho' they are interrupted in many places by the way before they reach Carlyle and afterwards to Hexham. However some thin seams are wrought in several places by the sd strike and many more might be found if due care was taken. I have many reasons to believe that all the strata in Great Britain run from sea to sea, tho' now and then they are dyked and cast up in the edges so as to appear retrograde as at Newhall¹⁸ in my neighbourhood.

The next curiosity at Whitehaven is the coparas work. Coparas is made from the brassy parts of the coal gathered on the several coal hills and give the same price with the best of the coal. These brassy parts are laid in

¹⁸ Newhall, partly in the parish of Penicuik and partly in that of Linton, was bought by Sir David Forbes *c.* 1707. Sir John records in his memoirs that he had found about "a dussan of coal seams of one kind or another" in that area. In 1743 he bought Harlaw Muir from the Forbes trustees where he found a seam.

one vast large heap about 60 feet square and 10 or 12 deep. There is no other process than this that the rain water when it falls passes through this heap and subsides to a bottom laid with clay, declining to the middle where it is received in a pipe and conveyed to a cellar or vault of a great extent and from thence into the boylers. The water thus philtrated carries along with it the bituminous and nitrous qualities of the coal, and being boiled afterwards into a salt composes the coparass. They mix with it a little old rusty iron which they put in bags or boxes and boile up with the philtrated liquor. When the water is sufficiently boiled it is let off into large square coolers of lead where it christolizes at the top and sides like common salt. After this these christolized particles are disjoyned from the coolers and put up in barrels for use.

The boyler is a great square basone near 30 feet long and 5 or 6 deep, all of lead. I admired that it could endure so great a heat without melting down but it never does. It is supported by ribs of brick, cast archways above the fire place. The fire is generally made at the entrance and the heat and smock pass backwards under the boyler. Nothing looks more terrible than this liquor set a boyling which it does for 24 houres at least.

The 3d curiosity at Whitehaven or rather the greatest, is Sr Ja. Louder himself who in the midst of great riches lives but in a poor way. He is an indolent old man and knows nothing about coalworks but in order to grow rich carried them on by the best advice and seems indeed to be very well served. I was acquainted with him some years ago, so waited on him and was very well received. Next day he invited me to dinner but I excused my self. He has no wife or children but his monie and estate will go to the Landsdown family from whence he is descended.¹⁹

The town of Whitehaven consists of 3 streets chiefly

¹⁹ Sir James was descended from the Lancaster family. His money and estate were inherited by his namesake, Sir James Lowther, later first Earl of Lonsdale. Perhaps Sir John has confused Lancaster and Lansdown.

and is well built. Sr Ja. Louder has in it a pretty large house but the best part of its furniture is a large Roman altar mentioned by Cambden and by Horseley in his *Britannia* page 192 numb: 51. The inscription begins GENIO LOCI &c. The bulk²⁰ and ornaments make it by much the finest altar in Britain.

There is at Whitehaven a glass work and several salt pans. The harbour is of this shape and above 150 sail belong to the merchants of the town.

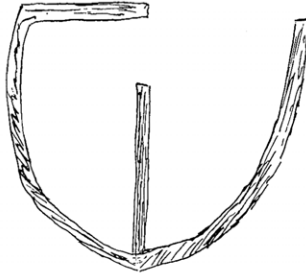


FIG. 3.

It is pretty much under cover and the access is not bad.

From Whitehaven I return'd by Workingtown and Alingtown to Bulness or Boness as it is called by the country people, being a journie of about 24 miles. By the way, 3 miles to the westward of Bulness, we passed a sea marsh at low water which is 2 miles broad. It is called [Moricambe Bay].²¹ Many people are lost here and lately 3 in a fog but I did not observe any sinking sands in it. Bulness, I believe, is the old *Blatum Bulgium* where the Wall of Severus ended but Mr Horsley calls it *Tunocelum* and calls *Midlebee Blatum Bulgium*.

The Roman Wall is a curiosity here worth looking at. The inside and outside were of squared free stones but now they are removed and all the houses and inclosures hereabouts are built out of it. The inside of the wall is

²⁰ Bulk, size.

²¹ Here Sir John left a blank space.

only standing and is in some places 8, 9 and 10 feet high. This inside is built in an irregular way but is strongly bound with mortar, sand and shels which has been poured down from above till all the chinks and interstices were full. Some of it is built in this form.



FIG. 4.

All filled with sd cement of lyme, gravel and shels.

Mr Horseley in his *Britannia Romana* takes no notice of any inscriptions here but I found 2. The first is an altar, built into a wall above Eqr Lawsons's²² barn door. It has this fair inscription on it:

I . O . M
 PRO SALVTE
 D . D . N . N. GALLI
 ET VOLVSIANI
 AVGG SVLPICIVS
 SECVNDINVS
 TRIB . CO
 R . POSUIT which I read thus.

Jovi optimo maximo pro salute Galli et Volusiani Augustorum Sulpicius Secundinus Tribunus Cohortis posuit. The Emperors Gallus and Volusianus lived about the year of Christ 252. Volusianus was the sone of Gallus and joyned with him in the Empire. There is a pillar in Yorkshire dedicated to the same emperors.

The second inscription is a square stone found a few days agoe. The stone is about 20 inches square. I bought it and brought it with me. This is the figure of it.

²² I have not yet succeeded in identifying him, though no doubt the unpublished registers of Bowness on Solway would give details; but it may be noted that Richard Lawson (1771-1853) of Drumburgh, a memorial tablet to whom is in Bowness church, belonged to a local family and recounted to the Pilgrims of 1849 an episode of Border warfare in which his grandfather took part — presumably in the moss-trooping days of the 17th century (Abbatt, *Picts Wall*, 1849, 53 f.). E.B.

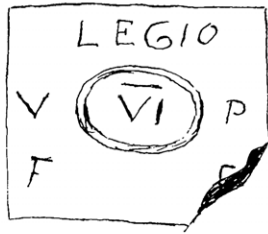


FIG. 5.

The reading is this. Legio sexta victrix pia fidelis fecit. These are the titles assumed by the Sixth Legion and represented by these 4 letters V . P . F . F as will appear by a similar inscription in Northumberland.

As to the Roman Wall at this station there is one thing very remarkable, namely that no stone of it has been got within 6 miles. This my landlord, being a masone, assured me of but on the Scots side at 2 miles distance the country is full of it, being of a redish [*colour and*] of a very fine grain.

I have now at different times seen and considered this wall from one end to the other. It has been a stupendous work, being 80 miles in length, 12 feet in height and 8 feet thick, besides great towers at almost one or two miles distance and very well fortified stations. The whole is built of stone and lyme and both the outsides of hewen work. Besides all this there is a large ditch on the north side all the way about 30 feet wide and 15 deep. Likewise a military way laid with stone. Nor were the Romans satisfied with this for Hadrian's great earthen dyke and ditch gave strength to the whole. However I cannot but look both on it and the vallum Antonini in Scotland as foolish and useless contrivances as the event shewed, for the Scots and Picts cou'd at any time destroy it and enter the Roman province where they pleased. Here particularly at Bulness there was nothing to hinder them from passing Solway Frith at low water which neither this station nor any other farther advanced cou'd

guard. But here it may be said that in the days of the Romans the sea ran higher and consequently the Frith of Solway not so passable at low water as now. I believe it was so but still at low water it was fordable and boats might have passed over at any time.

One thing I am more surprised at than any other with relation to this wall . . . namely that the Scotch historians never took pains to consider it as it deserved. They have given us an account of all the little battles and skirmishes with the English but have neglected or not minded sufficiently the building of this wall which did us more honour than all our warlike actions put together. Surely our forefathers were a very numerous and terrible people to the Romans that they were at such immense pains, labour and expense to fortify themselves against us. Nothing in the world exceeds the greatness and magnificence of this fortification or wall from one end to the other but perhaps the Chinese Wall which was never so well guarded against the Tartars.

On the 12 about 11 in the morning I left Bulness and came over to the Scots side near the village of Dornick. The distance is 2 miles, the passage very fine and no sinking sands to be found. The only difficulty happens from the rivers Eden and Esk which pass about the middle of the frith but when there are no land floods these are not above 1 foot $\frac{1}{2}$ deep at most and the strength of the stream perhaps not above 200 feet in wideness.

We dined at Anan where I had never been and was surprised to find it a very small place tho' a Royal Brugh. There are in it not above 100 houses and but a few tolerable ones yet they have here a kind of wine trade to France and by the strength of oaths and other rogueries vend a great deal of it in England contrary to law. At night I came to Drumfrise and lodged with my sone George.

I stayed here next day and on the 15 I went to Drumcrief near Moffat which belongs to my said sone. By the

way a mile north from the Ross near the Knock wood²³ which belongs to the D. of Queensberry we turned up to the moors and having dogs and guns with us we had very good sport and particularly killed 2 black cocks. These fowls were very large and heavy, yet upon opening their stomachs we found nothing in them but the seeds of sprats and a parcel of small whole stones. That night we came to Drumcrief. Next day we went a shooting towards the Rivox Moss and had very good sport, especially on our return between the water of Tinnel (Kinnel Water) and the Loken water (Lochan Burn) and very fine, even riding ground.

17 I return'd home to Pennicuik and had some shooting by the way till we came to the Crook of Tweed where we dined.

Before I end this trip I cannot omit to take notice of 2 things which might have been insert in their proper places. The first of them in going to Carlyle Mr Gale, Doctor Knight and I made a visite to Burns hill or Burns work where we viewed the two great Roman camps, one upon the south side of it and one on the north. We observed likeways some entrinchments on the top of the hill, tho' we did not go up and concluded this place to be the antient Castra Exploratorum mentioned in the Antonini Itinerarium and not Neitherbee in England as Mr Horseley thinks. I must likeways add that we visited the camp at Midlebee which Mr Horsley calls Blatum Bulgium. We observed particularly the ruins of the building where my statue of Brigantia and the 2 altars were found which are at present in Pennicuik.²⁴

The 2d thing which I omitted was an account of an

²³ Roy's Map, c. 1755, shows "The Ross" south of Courance on Kinnel Water, and "The Knock" on Garrel Water, surrounded by a large wood. The Statistical Account (1791) refers to the "Knockwood" and records that "till within the last seven years", this extensive wood of oaks was sold and not refenced.

²⁴ Sir John visited Birrens on his way to Penrith in 1731, and recorded his observations in a journal. These were printed in *D. & G. Trans.* (1961 . . . repeat 1961) xxxviii 130-135. Professor Birley's appendix, which clears up a number of problems, follows immediately after the journal, 135-139.

oak tree diged out of Drumcrief moss. This tree is 70 foot in length and of a proportionable thickness, streight as an arrow. It lay with its root and branches about 5 foot under ground where are likeways a vast many other oaks. These all lye at the same depth and above them at about 2 feet nearer the surface lys a wood of birch trees which seems to have growen up after the catastrophe of the oaks.

Quer: here what overturned these oaks and birches. Was it a wind or earthquake or was it the general deluge? Certain it is that this hapned by a prodigious convulsion of the world, for all these trees have been overturned in full vigor and are not cut or rotten. The disturbance which one observes in the several strata of our globe shew that there has been such a convulsion, and to this and possibly a second the destruction of these trees is oweing.

Laus Deo.

Such a wind as hapned here in January last might have overturned them.

APPENDIX.

Note on the Bowness inscriptions.

By ERIC BIRLEY, F.S.A.

Sir John Clerk's observations on the two Roman inscriptions which he saw at Bowness, as given in his journal, correspond closely with those in his letter to Roger Gale under date 19 August 1739 (first printed by Hutchinson, *Cumberland*, ii 489 f., in a footnote, and now best cited from Surtees Society 76, 1883, 90-97). The dedication to Gallus and Volusianus, emperors A.D. 251-253, is CIL VII 949; a less complete twin text, CIL VII 949a, was found in 1871. Sir John's comments on it do not need to be reproduced, but the case is different as regards the Sixth Legion's stone, on which his letter to Gale adds a pleasing detail: "the stone being of no great weight I gave my landlord a shilling for it, who had it in his dyke, and carryed it away with me." Huebner took the text from Hutchinson and printed it as CIL VII 951 — but he gave an identical version under Birrens in Dumfriesshire, as CIL VII 1075. A little investigation

reveals that there is in fact only one inscription in question, and that from Bowness. The stone ascribed to Birrens came to the National Museum of Antiquities in Edinburgh with other Penicuik items by gift of Sir George Clerk in 1857; by then, it is evident that the family had no tradition of its true findspot, and it was automatically attributed to Birrens, from which several other inscriptions were known to have come (cf. *D. & G. Trans., op. cit.*, 135-139). But a comparison of Sir John's drawing with that published by Dr James Macdonald in *PSAScot.* xxx 140, fig. 14 (copied here as Fig. 5), and the identity of the readings, together leave no doubt that one and the same inscription is in question, and Sir John's careful account confirms that it was in fact found at Bowness.