



# Bodleian Libraries

UNIVERSITY OF OXFORD

This book is part of the collection held by the Bodleian Libraries and scanned by Google, Inc. for the Google Books Library Project.

For more information see:

<http://www.bodleian.ox.ac.uk/dbooks>



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 2.0 UK: England & Wales (CC BY-NC-SA 2.0) licence.

# LETTERS

FROM THE

HIGHLANDS of SCOTLAND,

*George Clerk Maxwell*  
Addressed to G. C. M. Esq;  
*one of the Commissioners of the Customs*  
*In Scotland*

By JOHN WILLIAMS, MINERAL ENGINEER.

EDINBURGH:

PRINTED FOR WILLIAM CREECH;  
AND SOLD BY T. CADELL, LONDON.

M, DCC, LXXVII.





A

LETTER FROM THE AUTHOR,

T O

THE HONOURABLE LORD KAMES.

MY LORD,

**A**BOUT a year ago, a copy of my paper concerning the vitrified forts, was sent to London to be disposed of to the bookfellers; but the account it contained of those remains, appeared so incredible, that none of them would hazard the publication.

a

The

The subject is, indeed, singular, and I have sometimes indulged in conjecture ; but, I can assure your Lordship, I have advanced nothing as FACT, which is not strictly true. As your Lordship's name is so well known in the literary world, your testimony will add authority to my paper, and remove the discouragement to its publication which arises from my being so little known.

I have the honour to be,

My LORD,

Your LORDSHIP'S

Most obedient,

And most humble Servant,

CROSS-CAUSEWAY, }  
EDINBURGH, }  
March 10. 1777. }

JOHN WILLIAMS.

H I S L O R D S H I P ' S A N S W E R .

EDINBURGH, March 11. 1777.

S I R,

**I** THINK it every man's duty to do justice to merit, whether he have a name or not in the literary world. And as far as my evidence can go, I give you leave to say to the world, that I have long known you to be an honest man, and that your veracity may be depended on. I willingly add my opinion, That your discovery of buildings being cemented by means of fire, is a curious fact that ought to make a figure in the history of arts. The vitrified forts you mention, must have been erected before mortar was known in Scotland ; and it is a notable instance of the extraordinary shifts people were reduced to in the infancy of arts. This discovery of your's will serve to detect an error that several ingenious naturalists have  
fallen

fallen into, of burning mountains formerly in Scotland, verified, say they, by the burnt remains still to be traced. I suspect, that these remains are no other than the debris of the vitrified forts you mention.

I am

Your faithful and obedient Servant,

H E N R Y H O M E.

# L E T T E R S

F R O M T H E

## HIGHLANDS OF SCOTLAND.

---

### L E T T E R I.

S I R,

**T**HOUGH some of our late historians have given us pretty full accounts of the genius and manners of the modern Highlanders, and some gentlemen of knowledge and observation have visited many parts of the Highlands, many other parts still remain inaccessible to strangers. These parts I have had occasion to visit, in the course of my employment as a mineral surveyor; and have been struck with monuments of the power and skill of their antient inhabitants, of a kind so remarkable, and indeed so singular, that I have not heard of the like being seen in any other part of the world. And as I am pretty sure you have had no further information respecting them, than you received from me a few years ago, a more particular

A. account



account of some of them will not, I presume, prove unentertaining. For although my account should not be entirely satisfactory, I flatter myself I shall, at least, have it in my power to point out something worthy of your notice, if you ever happen to visit the Highland parts of Scotland.

I SHALL first direct your attention to the vitrified forts. These ancient ruins are so very singular, that, I believe, nothing of the fort had been discovered, or even imagined, of late years, at least, till I gave you a short account of them some time ago. I was greatly amazed when I saw the first of these vitrified forts. And my astonishment was the greater, because I had never so much as heard of any thing similar. I immediately made inquiry concerning them, but could get no information. I conversed, and corresponded, with some of the most intelligent gentlemen in Scotland, but found they had never heard of such remains. Consequently, I began to look upon these singular ruins as a discovery of my own; and resolved to search for more of them. I was abundantly successful in this inquiry; for, in a few years, I discovered several vitrified forts in the Highlands, and northern parts of Scotland.

IN giving you an account of these extraordinary remains, I shall mention some circumstances common to them all, and point out others peculiar to a few.

ALL the vitrified forts I have yet seen, are situated on the summit of a small hill; small, I mean, in comparison of the lofty Highland mountains. From the sites of these forts, we usually command the view of a beautiful valley, or of a widely extended level country. A level area, of greater or less extent, is always found on the summit of the fortified eminences. And part of this level area is inclosed by a wall.

wall. But what is most extraordinary, the materials of this wall seem to have been vitrified, or run and compacted together by the force of fire; and that so thoroughly, that most of the stones are melted down, and any part of them not quite run to glass, is entirely enveloped by the vitreous matter. The vitrification, in some places, has been so complete, that the ruins now appear like vast masses of coarse glass, or flags. Although the fortified hills have a level area on their summit, they are every where difficult of access, except in one place, which has been strengthened by additional works. I have seen some of these hills of an elliptical form, and accessible at both ends. And the ruins which remain at the extremities, show, that, when the area is of this form, it has been strongly fortified at each end.

As a direction to you, if you should travel through those parts of Scotland in which they have been discovered, I shall point out a few places where I have seen these extraordinary ruins.

THE first I shall take notice of, is situated on the hill of Knockfarril, which lies on the south side of the vale of Strathpetfar, two miles west of Dingwall in Ross-shire.

THE hill of Knockfarril is about nine hundred feet in perpendicular height, if we measure from the valley beneath as the level; and besides overlooking this valley, it commands a prospect of the country for some miles eastward. It is of an oblong figure, precipitous on each side, but less steep at the extremities. The level area on the top of this hill, is a pretty large oval; and the works on it have been extensive, and appear, from their ruins, to have been of great strength.

L E T T E R

## L E T T E R II.

S I R,

**I** OBSERVED in my last letter, that part of the level area on the summit of every one of the fortified hills, is inclosed by a vitrified wall.

THE inclosed area at Knockfarril, is about a hundred and twenty paces long, and about forty broad. But as the whole length of the ground, which was moderately level, could not conveniently be taken in, there have been very high, and, apparently, very strong works at each end, without the vitrified wall. In consequence of directions from, and at the expence of, the honourable board of annexed estates, (by whom I was then employed in making a mineral survey of his Majesty's estates in the Highlands), I made a cut, or section, quite through this vitrified fort, in order to explore the whole of those extraordinary appearances to the foundation. Beginning without the ruins, we cut to the rock all the way; and made a section, not only through the surrounding wall, but also through the inclosed area. We did not begin the cut exactly in the middle, but near the east end, in order to avoid two places, which, upon examination, we found to be shafts almost choaked with rubbish. These appear to me to have been wells; and, I am inclined to believe, from what I observed in the other vitrified forts, that each of them was provided with a well or two.

W E

WE began to dig at the east end, on the out-side of the ruins. At first, we met with nothing except rich black mould, mixed with large stones, and fragments of the vitrified ruins. The same appearance continued for several yards, except that the stones and fragments became more numerous as we advanced; and when we approached the ruins of the wall, we met with little besides stones, and fragments of the vitrified matter.

WHEN we had reached the ruins of the wall on the south side, we found it difficult to penetrate; for, though it is evident the wall has fallen down, and broken to pieces in the fall; many of the fragments are so large, and hard, and the vitrification so entire, that it was not without much difficulty we could break through. However, with the help of iron crows, we removed some very large fragments, which, at first, went whole down the hill; but when the force of their motion was increased, they were shattered by the rocks, and ended in a furious shower at the bottom of the hill. On the north side, we began without the wall, among the rubbish of the vitrified matter; and soon came to the ruin of a pretty high wall, more hard and strong than any I had seen before; which I did not expect here, as this wall was almost wholly overgrown with heath and grass. We found it necessary to undermine the ruins of this north wall, that its own weight might contribute to bring it down. The perpendicular height of its ruins, is no less than twelve feet. Notwithstanding, it is quite plain, that the whole of the vitrified wall, surrounding the area at the top of the hill, has fallen flat outward. These walls were undoubtedly very strong at first, and built on a firm and solid rock; but that rock having, on all sides, a declivity outwards,—it is no wonder they have fallen into their present ruinous condition.

## L E T T E R III.

S I R,

I KNOW not what effect reading the account of these old ruins may have upon you; but they appear to me so very singular and extraordinary, that the more I see and consider them, the more I am astonished. I think, and indeed it appears plain from the ruins, that the whole of the surrounding wall, on the summit of Knockfarril, has been cemented by vitrification, in a manner much better, and more compleat, than I have any where else seen. In some other vitrified forts, the stones appear to have been partly run down, and partly enveloped by the vitreous matter; but here, the whole materials of the wall have been united into one solid mass. However, in sections of this wall, or of the fragments of it, we see many pieces and ends of stones not quite melted; but these are so incorporated with the vitrified matter, that it is evident the whole wall must have been vitrified in the building of it, and that the adhesion of the materials was not effected by any cement interposed. For I could not discover in this wall, which I have examined very particularly, so much as one stone which was not affected by the fire, and more or less vitrified.

WITHIN the principal wall, there are remains of vitrified buildings, which seem to have been worse done, and are more decayed than the outer wall. I imagine these inner works have been habitations. They appear to have gone quite round; but have been much higher, and larger, on the north, than on the south side.

I S A W

I SAW nothing in the middle of the area but rich black mould, mixed with stones and bits of bones, which the Highland workmen said were deer's bones. Fragments of the vitreous matter too, are scattered through the area, and mixed with the soil.

I OPENED both the shafts which appeared to have been wells, and soon came to water. I directed the workmen to dig so deep, that they were obliged to desist, for want of a proper apparatus.

IN opening these shafts, we found nothing but good rich soil, except now and then, by chance, a stone, or a piece of the vitreous matter. We could not advance above five or six feet below the surface, though the men worked as expeditiously as possible; and when we examined, in the morning, the holes which had been cleared the preceding evening, we found more than three feet depth of water in each.

WE also cut into a very high heap of ruins, which lay at the west end, without the surrounding wall. It appears to have been an outwork of great extent; as the ruins are high and considerably scattered: but of what sort it was, is hard to determine; for it is now only a confused heap of rubbish. We began our cut so low here, as to be without the foundations of all former buildings. At first, we met with nothing but rich black mould, mixed with large stones, and fragments of the vitrified walls; but when we advanced into the ruins, we found nothing except a confused heap of calcined stones, dust resembling ashes, with larger and smaller fragments of the vitrified matter. We cut only half-way through this heap of ruins, which is no less than twenty-three feet perpendicular from the vertex to the base. I said above, that this vast ruin

is only a confused heap of rubbish: notwithstanding, there is no doubt of its having been a vitrified building, as it contains fragments of the vitrified matter of different dimensions, and in different degrees of decay. Some of these fragments are many feet in every dimension, and so strong, that we could not break them without some difficulty; others of them are to be seen large indeed, but easily broken, and moulded into rubbish, which appears like calcined stones. When we advanced into the middle of this heap, it appeared a continued mass of vitrified matter from top to bottom.

AT the bottom of the hill, and at the skirts of the vitrified wall on the summit, there is a great quantity of stones of all sizes and shapes, which have not been touched by fire. Whence, I am inclined to think, there have been some buildings of dry-stone encircling the vitrified wall. And, I imagine, a proper space has been left between the vitrified and this dry-stone wall, for the purpose of folding their cattle in ordinary, and of securing them, in times of danger, from the incursions of the enemy. What principally induces me to think so, is, that when cutting into the outwork, at the west end of Knockfarril, I saw, under the ruins, a stratum of dung about three inches thick. And this stratum, pressed hard by the ruins, continued for many yards as we advanced.

I HAVE observed the remains of dry-stone buildings going round some part of all the vitrified forts I have seen, at a little distance from them, and, if the situation admits of it, on the south side of the fort. And if the circumstances in the situation correspond, they are always found on the evenest side of the hill, and in the warmest aspect. I have further observed, that where there is not room enough without the  
vitrified

vitri-fied wall, to have this dry-stone fold on the level area above, they have dug a trench on that side of the hill which has the smallest declivity; and on the outer edge of the trench, there are found the ruins of dry-stone buildings; which convinces me, these exterior fences have been made to secure their cattle.

## L E T T E R IV.

S I R,

**T**HE full name of this fortified hill is Knockfarril Naphian, which, I am told by gentlemen acquainted with the Gallic language, signifies Fingal's place on Knockfarril.

THE traditional history of Knockfarril, like that of every other place, which has not escaped the notice of the superstitious, abounds with absurdities. The tradition of the common people concerning this place, is, that it was the habitation of giants; and that the chief of these giants was Ree Phian M'Coul, that is, king Fingal the son of Coul. Indeed, I am not surpris'd, rude and unskilful people retain the superstitions of their ancestors, when I reflect, that a tendency in our nature to proportion effects to causes, and causes to effects, first brought giants into being. And that, on account of this natural tendency, the credulity of men with regard to superior agents, is always proportional to their own incapacity and want of skill. When the modern Highlander compares the works of his own age, with these stupendous monuments of antiquity, he dis-



cerns a superior greatness in the latter, which he naturally refers to a superiority in the beings which produced them. And as personal prowess constitutes the chief mark of superiority in the estimation of the vulgar, and is itself supposed to proceed from strength and size of body, height of stature, and robustness of limbs, are thought to have distinguished the authors of such wonderful works. Hence, the feats of Fingal, and his heroes, appearing too wonderful, when seen through the medium of oral tradition, for ordinary men to perform, have been ascribed to mortals of this superior race. If, however, we consider the history of that hero as sung by the bard of Cona, we shall judge it highly probable that Knockfarril was one of Fingal's habitations, or places of strength. For this county, the counties of Sutherland and Caithness, and the coasts of Moray, being subject to frequent invasions from the northern powers, the presence of Fingal was necessary. They usually infested the coasts of the Moray and Pentland friths; and, I make no doubt, these were the scenes of Fingal's wars with those powers, so often celebrated by Ossian, and other ancient Highland bards. To confine the scenes of those wars to narrower bounds, or to make Fingal king of that little rocky tract of country only, now called Morven, appears to me equally improper. I have read Ossian's poems, and am pretty sure I can fix the scenes of some of them in Moray, Caithness, and other counties. I have even been tempted to imagine, that this remarkable place, Knockfarril, is the site of Selma, the palace of Fingal, so often mentioned by Ossian. Many circumstances concur to render this conjecture probable at least.

FIRST, It is a beautiful, and centric situation.

SECONDLY, The buildings on it have been of great extent, and appear, as far as I can judge from the ruins, to have

have been very strong, and better vitrified than any others which I have seen.

THIRDLY, Several places in the neighbourhood of Knock-farril bear the names of some of Fingal's heroes. These places most probably belonged to the particular men whose names they bear: and there is in this neighbourhood, a fine river and valley, which still retains the name of Conon, the place of the famous bard Ossian.

VESTIGES of a road leading, through the hills, from this place towards the north-west sea, may still be traced. When I first discovered the track of this antient road, I wondered what it could be, as it has been cut very deep and wide; and the bank formed by the excavated matter, is still very high on the side of the hill near the old ruins. The country people make this the scene of the giant's amusements; they call it his hunting road. It appears to me to have been a road of communication between this and some other place of strength, or between this and the north-west sea, towards which it leads. This road is not carried in a direct line over hill and dale, but wherever the ground is most firm. I have seen it carried a considerable way about, to avoid a peat-moss or other soft ground. I followed the track of this road, until it entered the hills on the east side of Binevus; but could not advance much further, without proper conveniencies for remaining out all night. It appears, plainly, to have been a horse road, but is in most parts too narrow for wheel-carriages to pass; for, although it has been cut wide and deep where the soil was soft, in going up the side of a hill, or any place where the ground was hard and firm, the road has not been made above five feet wide. I have not discovered such a road as this leading to any other of the fortified hills which has fallen under my observation.

THOUGH

THOUGH I shall not positively affirm Knockfarril to have been the antient Selma, I cannot help being persuaded that the famous bard Ossian had his residence in this neighbourhood. He celebrates the vales, the streams, and the hills of Cona, as the scenes of his pastime. The river Cona, now called Conon, is only about three miles from Knockfarril. The Conon, so renowned of old, is now one of the finest rivers in the north of Scotland. It waters a valley of considerable length before it emerges from among the hills, and then passes through a beautiful and extensive level country, in which it forms itself into many long and smooth channels before it enters the sea near Dingwall. The valley watered by this river is still called Strath Conon, which is but an inconsiderable variation, for so long a time, from Strath Cona. Many of the hills on each side this fine river, before it reaches the low country, are beautifully wild, and command an extensive prospect towards the east. When the aged bard ascended one of these hills, and beheld the rising sun enlightening the whole prospect before him, and diffusing radiance o'er the place of his retreat, no wonder he was incited to sing the morning glories of the great luminary which shone "o'er the blue ocean on the sides of Morven." There are many romantic scenes of woods, and rocks, and falls of water, near the foot of the valley. In short, nature appears here so much as he has painted her, that I cannot forbear making this his residence.

I HAVE conversed with many sensible men about the extent of Fingal's dominions, and they all agree with me, that he was king of all the country on the north side of the Grampian hills. I am of opinion he reigned over the whole of Scotland which lies to the north of the Forth; and that the Highlands, and all the other northern parts of Scotland, went under the general name of Morven, from the vast size and height of the hills.

WE

WE find Ossian brings Fingal's heroes as far south as the river Carron to oppose the Romans. I have not Ossian's works by me; but I do not remember that he makes any mention of their having had a very long march, or of its being undertaken for any other purpose than the defence of their own frontier; which appears to me a strong proof, that their territory reached very near the banks of Forth.

THE largest vitrified fort I ever saw, lies to the south of the Grampians, in the shire of Angus; and there is another about twelve miles west of Stirling. I do not suppose it can be proved, with any certainty, what people used this extraordinary method of fortification; but, if it is allowed to be *Fingalian*, I think it cannot be denied that Fingal's dominions reached from the Pentland frith to the frith of Forth.

## L E T T E R V.

S I R,

ON the south side of Knockfarril, at the foot of the hill, is a prodigious quantity of large stones which have never been touched by fire. These, as well as some vitrified fragments, now overgrown with heath and grass, appear to have fallen from above. The hill is equally steep, and much higher, on the north than on the south side; but there are not on this side so many stones and fragments above ground, at the bottom of the hill.

D

THE

THE rock of all the fortified hills I have yet seen, is more or less of that coagulated kind, vulgarly called the plum-pudding rock. That on the top, and half way down, the hill of Knockfarril, appears to consist of strata of water-rounded stones and gravel, cemented together with lime and some iron. This sort of stone is easily fused by a strong fire; and I have observed in other places, where the rock was less of this kind, and had not much lime in its composition, that the vitrification was in proportion imperfect. At the eastern extremity of the area, on the summit of Knockfarril, there are, without the wall of the fort, vitrified ruins which extend in a direct line a considerable way along the ridge of the hill. The end of this outwork, next the fort, seems to have joined the surrounding wall, as the ruins of both are now close together. Though easily accessible, the ridge of the hill at the east end is very narrow; and the outwork on this ridge is so strait, that it could only have consisted, either of two parallel walls covered above, or of one wall broad enough for the besieged to walk on, and thence annoy their enemies. I am rather inclined to think it consisted of one broad wall, and that there was a break, or cut, across it, over which they had a bridge, that might be taken away, and replaced when occasion required. Some traces still remain, in the ruins, of this cut or break. Many of the vitrified fragments of this outwork are very large, and the vitrification entire; so that, in all probability, they would undergo only a very inconsiderable alteration in the course of two or three thousand years.

## L E T T E R VI.

S I R,

**I**N my last letter I finished my account of Knockfarril, in which I was the more particular, as I had made sections of the fortifications situated on that hill, and examined it with peculiar care.

**T**HE next vitrified fort I shall point out to you, is on a hill, called Craig Phadrick, directly above the house of Muirtoun, two miles west of Inverness.

**T**HIS antient fort has as noble a situation as can be imagined. It is placed on the summit of a hill, much about the height of Knockfarril, at the head of the Moray frith; the view of which it commands on both sides, till it is lost in the ocean. Towards the west, and north, it commands that branch of the sea which goes up to Beuley; and Lochness is seen on the south.

**T**HE land prospect is not less delightful, or less extensive. You see the country of the Ard and Beuley towards the west. Looking northward, a considerable part of Ross-shire opens to your view. Towards the east, immediately at the foot of the hill, you have a full view of Inverness, its environs, and the whole country as far as Forres. And the country between the loch and town appears to the south. Besides the cultivated regions which surround this delightful eminence, you see from it, the north, west, and south Highlands.

T H E

THE fortifications on this hill are extensive, and, from the ruins, appear to have been very strong. I observed here, what I had not seen on any other fortified hill; to wit, the ruins of two vitrified walls running quite round the inclosed area. There are three walls at the entrance at the east end. Though it is common in other vitrified forts to find additional works at the entry, this is the only one I have seen with more than one continued vitrified wall.

THE inner wall is, or at least has been, very high and strong; but the outer wall does not appear ever to have been of any considerable height. It is founded on the bare solid rock, about six or eight paces from the inner wall, and goes quite round; but what remains of it is so low, that I cannot think it was designed for defence. As I do not remember to have seen any ruins of dry-stone buildings here, I suppose this low vitrified wall was raised instead of them to form a fold for the cattle.

THE remains of these double walls appear, to me at least, worth going any distance to see; for I imagine there are not in Europe more curious remains of antient buildings. We here see a specimen of the vitrified walls in a tolerable entire state; and when we behold the vast heaps of vitrified rubbish which lie near them, we are enabled to form some idea of the former greatness of these structures. I rejoice to have seen so entire a specimen, as it will enable you the better to conceive my meaning, in what I have already written, and what I propose to write in my future letters, concerning the vitrified walls.

AN area of about eighty paces in length, and twenty-seven in breadth, is inclosed by the interior wall, which appears to have been exceedingly well vitrified.

THE

THE rock of this hill is of the plumpudding kind, and its adhesive quality seems to arise from an admixture of calcareous earth.

## L E T T E R VII.

S I R,

**T**WELVE or fourteen miles from Inverness, are two other fortified hills, Dun Evan, two miles south-west, and Castle Finlay, two miles north-west of Calder castle, in the shire of Nairn.

THE fortifications on Dun Evan, must have been of considerable extent; for the area within walls, is about seventy paces long, and thirty broad.

DUN EVAN is situated on the skirts of the Highland hills, about six miles to the south of the Moray frith, and commands an extensive prospect both of sea and land. Some part of the rock of this hill is of the plumpudding kind; but the greatest part is granite, though there is a small proportion of grey whin mixed with talk.

THERE is a more perceptible decay of the vitrified buildings here, than at either of the places I mentioned before. I imagine they never were so completely vitrified, owing to the unfitness of the stone for that purpose.

E

THE



THE only entry to this place is at the east end, which has been strongly fortified, not with a vitrified, but with some fort of a dry-stone rampart.

THE south side of Dun Evan is inaccessibly steep, and the north side is so in a great degree, though more accessible than the south. About half way down the northern declivity of this hill, there has been a large fosse, with a dry-stone building on the outer edge of it. On the sides of the hill there are springs of water, and evident remains of a well within the vitrified wall on the summit.

CASTLE FINLAY, the other fortified hill I mentioned in the beginning of this letter, is the lowest I have seen: nor do the buildings on it appear to have been very extensive; for the area on the summit, within the vitrified wall, is only forty paces long, and seventeen broad. Though it is low, it commands a fine prospect of the Moray frith, and of the neighbouring country; but it does not take in so great an extent of prospect as Dun Evan, which is much higher.

THE vestiges of a fosse, and dry-stone building, are visible all round this little hill, near the bottom of the slope.

I SAW a small vitrified ruin, which, I think, is called Fordun Castle, about three miles from Fort Augustus; and a much more considerable one on the west side of Glenevus in Lochaber, three miles to the south of Fort William. The fort in Glenevus seems to have been a very strong one, and the vitrification well executed, as the walls still remain in a state of high preservation.

## L E T T E R VIII.

S I R,

**H**ITHERTO I have confined your attention to my discoveries in the Highlands, and northern parts of Scotland; but I shall beg leave, in this letter, to lead you as far south as the Castle-hill of Finaven.

THE vitrified ruins on the hill of Finaven, in Angus-shire, lie about a mile to the west of the kirk of Aberlemny, half-way between Brechin and Forfar.

THE Castle-hill of Finaven, commands an extensive prospect towards the north, of a rich corn country, which is terminated at a considerable distance, by the Highland hills. It also commands a view of the greatest part of Mearn-shire, almost as far as Stonehaven, towards the north-east. But, if I remember well, there is little or no southern prospect from this hill, it being one of the most northern of a cluster of small hills like itself.

THE area inclosed by the wall of this fort, is the largest I have seen, being about a hundred and fifty paces long, and thirty-six broad.

BEFORE I saw this place, I was very curious to know if there were any remains of vitrified buildings to the south of the Grampians. And since my curiosity has been gratified by the discovery of this, and another vitrified fort, in Angus-shire,

I have

I have become desirous to know whether there be any of them to the south of the Forth, and in other parts of the island. I shall take the liberty of mentioning a few circumstances which may direct your inquiries, if you at any time happen to examine this subject further.

MOST of the fortified hills are about the height of Arthur's seat, near Edinburgh; though some of them have been found higher, and others lower. The vitrified ruins appear, at a distance, like some sort of inclosure, on the summit of the hill. The fortified hills are, in general, very steep on one or more of the sides. If a heap of rubbish is seen on the summit, or on any part of the sides, of such a hill; you may direct those whom you employ in the inquiry, to examine it. When they are among the hills, and happen to perceive any thing like an inclosure on an eminence, they should examine it, whether many fragments appear or not; for, in some places, the vitrified ruins are overgrown with heath and grass, and have the appearance, at first sight, of sod or earth buildings. Their being concealed in this manner, is, perhaps, one reason why these extraordinary ruins remained so long undiscovered in an age which abounds so much as the present, with men of observation and inquiry.

IF this singular method of fortification shall be found, upon further inquiry, to have been in use over most part of this island, we may conclude it was known to all the antient Britons; but that, in process of time, it fell into disuse; and if we might venture to refer the decay of this art to any particular period, it should be to that wherein lime first became known as a cement. If, on the contrary, these ruins are found only to the north of the Forth, it is probable this art was practised only by the inhabitants of the northern parts of Scotland.

land. And that it being subject, like all other arts which are confined to few people, to a peculiar influence from the prosperity or decline of those who practised it, was lost in the same misfortunes with themselves.

THE fortifications on the Castle-hill of Finaven, appear, from the ruins, to have been high and strong. I observed before, that the area inclosed by the vitrified wall, was more extensive than any I had seen; though, if we include the outworks at each end of the inclosed area, the ruins on Knockfarril are of greater longitudinal extent.

THE rock of this hill, and of all the little hills near it, is of the plumpudding kind. }

THE only appearance of any entry to this fort, is at the east end, which has been strongly defended by additional works. As there appears to have been a small space between these outworks and the wall of the fort, I suppose the garrison have had a draw-bridge over the walls, or else they have entered from below, and have stood on these high places when besieged, to annoy the enemy. But it is now very difficult, and even impossible, precisely to ascertain to what purpose each part of these ruins was formerly appropriated.

NOT half of the level ground on the summit of this hill is inclosed by the vitrified wall. Ruins of a fosse, and very high dry-stone buildings, appear at the west end. At the same end, is a deep and large shaft, out of which, perhaps, they got part of the materials for making the vitrified walls. I make no doubt but the dry-stone buildings here, as well as at the other forts, were raised to defend their cattle; for at

a time when they constituted the chief riches of the country, it is reasonable to suppose, no circumstance would be neglected which could contribute to their preservation.

## L E T T E R IX.

S I R,

**I**N my former letters I have given you a particular description of the vitrified forts, and pointed out the situation of several of them in the Highlands and northern parts of Scotland. I shall now beg leave to trouble you with a few conjectures concerning the method taken to erect such extraordinary buildings. This, I confess, is an undertaking of some difficulty. For these ruins are so singular, that I can derive few hints from any thing else I have seen.

IF, however, I might be permitted to give loose to conjecture, I should imagine the antient inhabitants of this country, from observing the effects of the heat, employed either in running bog-ore, or in offering burnt sacrifices, learned, that, if increased to a proper degree, it would vitrify stones and earth. The first iron they had in the Highlands, and north of Scotland, nay, I believe, I may say, in all parts of this island, was made from the bog-ore, which is still seen in great abundance in the Highlands and northern parts of Scotland. The manner in which I suppose they melted the bog-ore, was suitable to so rude an age. I suppose them to have made a large fire, in any place exposed to the wind, and to have placed

placed a layer of ore above the fire. The air blast would give it the first fusion, it was then taken to the forge, and wrought with the hammer till it was made fit for use. I have often seen lead ore reduced to fusion in this manner. And the intense heat necessary for such operations, vitrifying the stones and earth which lay under it, would give the first notion of vitrification.

IT is evident, from the records of the earliest antiquity, that it was the practice of almost all nations, to offer burnt sacrifices. And it was customary, on solemn occasions, to burn a large sized animal whole, which would require a very strong fire.

EITHER of these was sufficient to show the antient inhabitants of this country, that an intense heat could melt stones.

AFTER they became acquainted with this power of heat, I suppose some genius among them to have employed it for forming vitrified walls. The manner, however, in which he employed it, is still problematical. I have tried the subject several ways in my own mind, but find difficulties in all the methods I have yet imagined. I shall, however, mention that which satisfies myself the best, and which appears most practicable.

I IMAGINE they raised two mounds of earth, parallel and in the direction of their intended wall. And that they filled the groove, formed by these parallel mounds, with fuel, above which, they layed the materials to be vitrified. There is no doubt but a strong fire would fuse these stones, especially if they were of the plumpudding kind, and not too large; and the frame of earth would prevent them, when in fusion,

fusion, from exceeding any assigned breadth. I suppose they added layers of fresh fuel and materials alternately, and raised the mounds of earth, till the whole was brought to the intended height. And the earthen mounds being removed, by degrees, from each side, the vitrified wall remained detached and entire. I am confident, from the appearance of the ruins, that the materials of them were run down by the fire, in some such method as this. For, in all the sections which I have seen, whether of the larger or of the smaller fragments of these ruins, I never observed the least appearance of a stone being lay'd in any particular way. Nor could I in any of them discover a stone, large or small, not affected by the fire, and in some measure vitrified.

I HAVE often seen lime stone burned in turf kilns, which consisted of two parallel mounds only, raised about six or seven feet high, and built up at the ends, as they were filled with the lime stone and fuel. These kilns answer very well in moderate weather; but in a high wind, I have seen the lime stone vitrified to such a degree, that it cost the farmer much labour to recover the vitreous matter; yet the turf kiln was so little damaged, that it might have been used again for the same purpose. I offer this as an example which has some tendency to prove the possibility of vitrifying stones in a groove between two turf mounds. And as a proof of the feasibility of reducing them into such a state of fusion as I have supposed, I shall mention a fact, which I received from a gentleman in Edinburgh, of great knowledge, and undoubted veracity. This gentleman told me, his father had a brick-kiln on the edge of a pretty steep bank; and that while the kiln was burning, a high wind one night increased the heat to such a degree, that, in the morning, a great part of it was found vitrified, and had run a considerable way down the hill.

I O B S E R V E D

I OBSERVED before, that the art of forming walls by a vitrification of the materials, seems to have been practised by the antient inhabitants of this country, before they were acquainted with the use of lime as a cement. And the common tradition, that the use of lime for that purpose, was first introduced into this island by the Romans; by leaving the natives ignorant of this useful cement for so many centuries, shows the necessity they were under of having recourse to this or some other expedient to supply the want of it.

## L E T T E R X.

S I R,

**I**N a former letter, I gave you all the traditions I could collect, in the Highlands, concerning the fortified hills; and even ventured to add some conjectures of my own in confirmation of them. But I begin to suspect I was too hasty; and, on further deliberation, I am inclined to think, the vitrified forts are the works of a much earlier age than what is assigned to Fingal. The history of these forts is, however, clouded with obscurities, which, after surveying the ruins over and over, after thinking, writing, and conversing much about them, I have not been able to dispel. It has often grieved me, since I discovered the ruins of the vitrified forts, that I never could learn any thing satisfactory with regard to their history; so that, after all the pains I have taken to inform myself of their history, I am obliged to leave them as I

G

found



found them. It is a great loss to the history of the northern parts of this island, that there are no other memorials of the transactions of a few centuries back, than the songs of the bards, which, at best, must be very imperfect vehicles of historical truth. We have no better authority, however, for ascribing the vitrified forts to Fingal. And it is a question with me, whether this is *directly* authorized even by the traditional songs of the bards. I know Fingal is the hero of these songs; and the singular appearance of the vitrified ruins might induce the modern Highlanders to ascribe them to him, without any other reason for their doing so, than what resulted from the supposed suitableness of them to so exalted a character. At the time I wrote the letter concerning those traditions, they seemed to me to carry an air of probability. And though I am still far from thinking they involve impossibilities; when I consider the subject more impartially, I see no reason why the numerous round buildings of dry-stone, so frequently found in the Highlands, and northern parts of Scotland, and so worthy of his greatness, should not, as well as the vitrified forts, be ascribed to Fingal.

TRADITION calls these dry-stone buildings, Pictish, and, I believe, our antiquarians make the Picts and antient Britons the same people. Though the remains are more entire, it is now no less difficult to determine to what people these belonged, than the vitrified forts. When I first saw these dry-stone conical buildings, I supposed them much more modern than the vitrified forts; and the tradition of their being Pictish, confirmed me in that supposition. However, upon more mature reflection, I do not find I had any ground for it.

THEY discover greater marks of bodily strength, and rustic hardiness, than of art and skill.

THE

THE only mark of skill I can discover in these buildings, is their conical figure, which is chosen with judgment, as the most proper for dry-stone buildings.

THE buildings appear to have been raised with very large and good stones, when they were at hand; but when such stones were not near, the builders seem not to have gone far for materials; but to have taken those they found on the spot. There is no mark of a tool on any of the stones. I have seen some of these conical buildings, formed of good, hard, flat-bedded stones, square at the edges, which remain in part entire, and I imagine would have been altogether perfect, and continued so, perhaps, to the end of time, if people influenced more by mercenary views, than a love of antiquity, had not thrown them down for the sake of the materials. The stones in some of these buildings are not at all decayed, but continue quite unimpaired. One of these edifices, in the shire of Ross, to the south of Dornock frith, about three miles above Ardmore, was built with stones of so durable a kind, that they have not undergone the least decay in so long a period of time as must have elapsed since it was built. Near half of this conical building was standing when I saw it; but the upper portion of the cone had been pulled down to repair a mill-dam: the same fate which another antient structure further south met with a few years ago.

THESE conical dry-stone buildings are of different sizes. But, in general, the diameter of the base of the cone is from thirty to forty feet. From parts of them, which, in many places, still remain standing, we may see they were constructed with dry-stones without any kind of cement.

AT,

AT, and near the foundation, the stones are generally very large, and broad-bedded. There is only one low aperture by way of entrance to these buildings. One thing I must not forget to remark, to wit, that in every one of these buildings, there is a hollow in the wall which is carried quite round. This hollow is about five feet high (measuring from the surface of the ground), narrower above than below, and covered above with broad strong stones, from which, to the top of the building, the wall is solid. I suppose they made their fires in the middle of the circular area, at the bottom of the cone; and that the aperture at the vertex, by letting out the smoke, and admitting the light, served both as a window and as a chimney. These may seem to people in the more polished parts of the island, very awkward buildings, whether designed as strong-holds, or dwelling-places; and it must be confessed they do appear so now, though I question, if there were any better in the most improved parts of the island, when these were built.

## L E T T E R XI.

S I R,

**I** BEGAN, in my last letter, to give you some account of the conical dry-stone buildings, of which the ruins are so numerous in many parts of the Highlands, and north of Scotland; and shall endeavour, in this, to finish my remarks on that subject.

I FIND

I FIND from the ruins, that, in some places, there has been nothing more than a single building of a conical form; and, in others, that the cone has been encompassed by two or three circular stone buildings. These are about five or six paces from each other, and the interior one about the same distance from the cone, which it entirely encircles.

I CANNOT say to what height these outer buildings have been raised, as I never saw any of them entire. But they do not appear to me to have been very high; so that the cone, whose height was always proportioned to the diameter of its base, must have overtop'd them, and made a conspicuous figure. A hollow, like that which we found in the lower part of the cone, could be traced in the walls of the outer buildings. Where these additional works are found, the ruins spread to a considerable extent.

BUT the cone alone could not have contained many people; though, as a place of strength, it afforded sufficient security against an enemy who assailed it only with missile weapons. The smallness of their size, however, was fully compensated by their numbers. I have seen them in the maritime parts of Sutherland, and Caithness, within a mile of each other. They have been placed so near each other there, on account of the unevenness of the ground, which, except they had been so situated, would have prevented the one being seen from the other. For, it is probable, from these buildings always being placed within sight of each other on both sides the Moray frith, that the natives studied to place them in such a manner on all the coasts, as that a signal given by one, might alarm all the rest, in case of an invasion. Though these buildings are erected within sight of each other along the coast of the Moray frith, they are most numerous in Sutherland and

Caithness. I am told there is a chain of them in the north Highlands, from sea to sea. This I cannot ascertain. All my own observation entitles me to assert, is, that there are many of them far from the sea in several glens in the north Highlands. And I have seen such numbers of them on several parts of the west coast, that I may venture to say they are within sight of each other there, as well as on the coast of the Moray frith.

W H E T H E R the vitrified forts are in like manner within sight of each other, or not; and whether, or not, they surround the coast as the dry-stone buildings do, is uncertain. And it would take more time than I could spare to make the inquiries necessary for ascertaining this point. All I can say at present, is, that I could easily see the ruin near Inverness from Knockfarril, and that I could see Dun Evan in Nairnshire, from the ruin near Inverness, and Castle Finlay again from Dun Evan.

T H E S E four, and that near Fort William, are within sight of the sea; but the Castle-hill of Finaven, in Angusshire, and some others which I have seen, are a considerable distance from the sea.

T H E R E appears nothing but the utmost simplicity of rude architecture in the remains of the dry-stone conical buildings; whereas the vitrified forts exhibit the effects of great skill, and the accomplishment of a work which must have cost much labour and time. Notwithstanding this difference, these buildings may have been of the same date, and raised by the same people; for the vitrified forts, and dry-stone structures, do not differ more, than an old English castle and an ordinary building of the same date. And as the knowledge of the

*grout*

*grout* work, though the materials were the same as those used in ordinary buildings, was not general in England; we may with reason suppose, so singular an art as that of forming walls by means of vitrification, was confined to a few of the more skilful among the antient inhabitants of this country; and that those who were not able to supply the want of cement in this way, were obliged to rest contented with dry-stone buildings.

I FORGOT to acquaint you before, of some other traces of vitrified fortifications which I have discovered. I saw a peninsulated rock, on the side of a small harbour near the mill of Troop, which had been fortified by a vitrified wall that run across the end next the land, where some fragments of it are still seen sticking in the earth. In the same place are some obscure traces of stone and lime work, which appears to have been very strong. This last is within the ruins of the vitrified wall, and is accessible only at one end, by a very narrow isthmus, across which a vitrified wall has been run. This is the only vitrified ruin I ever saw off a hill. But from this instance, I think, it may be conjectured, this extraordinary method of fortification has been used all round the coast of the Moray frith, and in all parts of the Highlands, and north of Scotland, where the stone is of the plumpudding kind. All the vitrified ruins I have seen, are situated on rocks of this sort. The rock at the mill of Troop, which the sea has excavated into many antick grotts, and subterranean passages, is of the plumpudding kind. There is one place near the harbour at Troop, where, after descending a narrow and steep path, you find yourself in a fine roomy area, surrounded on all sides by walls of rock, thirty or forty feet high; from which, when the tide is out, there is a narrow passage under a hill, five or  
fix

six hundred feet high to the sea. The light breaks in by degrees on this subterranean pass, which opens, at last, to the view of an immense expanse of sea and sky.

## L E T T E R XII.

S I R,

**W**E are particularly indebted to two or three circumstances, for the preservation of the small part which remains of these venerable monuments of art and antiquity.

**T**HE high and remote situation of the vitrified forts, and the unwieldiness of the stones in many of the conical buildings, have been the means of reserving some small remains of them for the admiration of these latter ages. This circumstance, however, has not, in many instances, been sufficient to secure the latter from dilapidation. Scores of the dry-stone conical buildings have been razed to the foundation. I have myself seen many, where, the best of the stones being taken away, few vestiges of the antient building remained. But some others, where the stones happen to be very large, or a sufficient inducement to remove them wanting, are found tolerably entire.

**T**HE vitrified forts are on too elevated a situation to tempt any one to clear away the ruins, with a view of cultivating the ground on which they lie; and the stones, by being vitrified, are rendered unfit for the purposes to which such materials are usually applied.

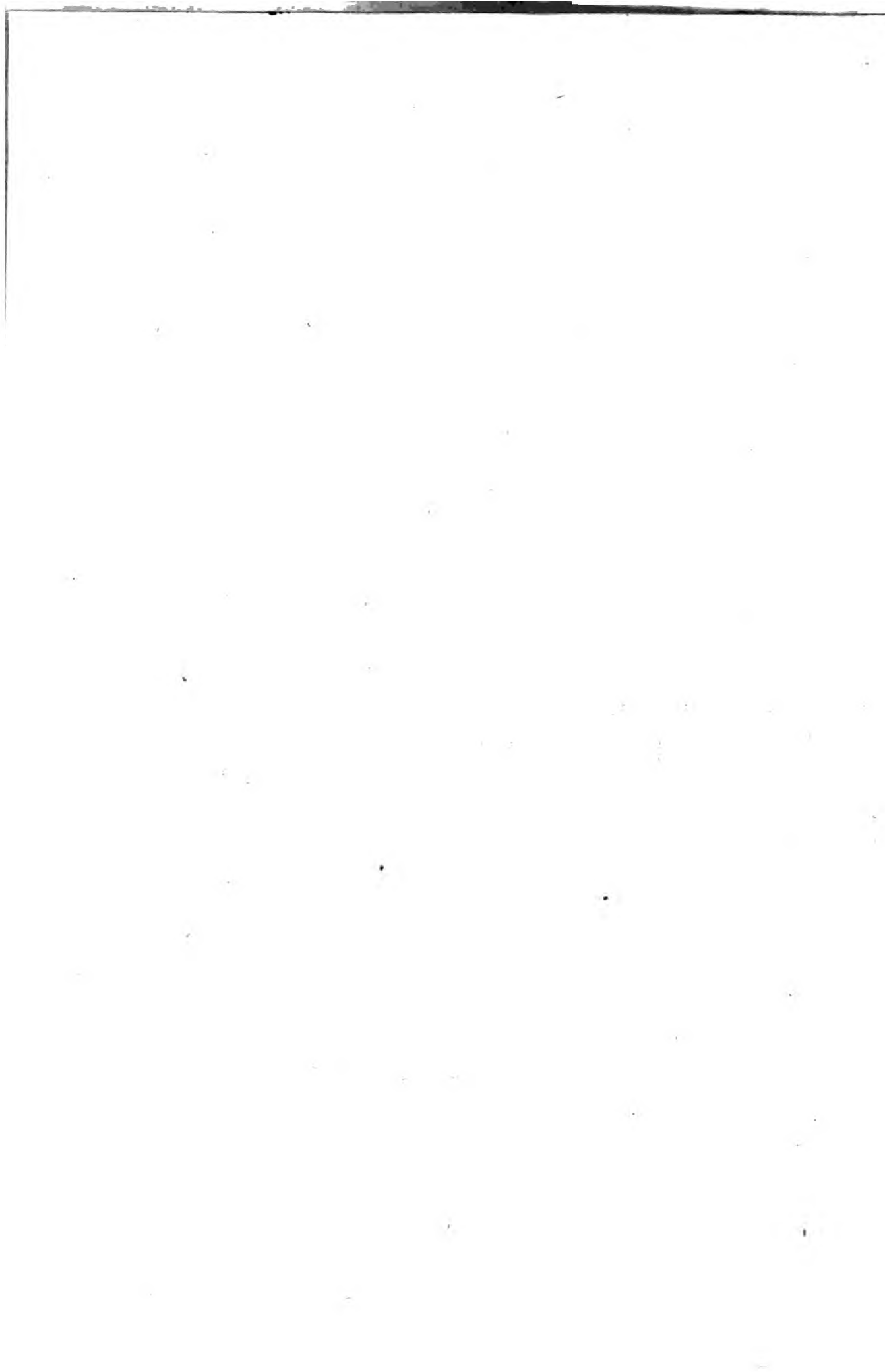
W E R E

WERE it not for these fortunate circumstances, neither their great antiquity, nor their very singular appearance, would have saved them from the sacrilegious hands of monumental ravagers, who, one would imagine, want to blot out the remembrance of every thing which has been, and to make the face of nature an universal blank. I am persuaded there is not a curious person in the island, who has not something on this score, of which to complain. This practice betrays a wretched want of taste, as the contemplation of these antient structures is a principal source of the pleasures of the imagination. Besides, these monuments serve many useful purposes. From them we can often trace the progress, or the decline of the arts; the epoch of any custom, or the time when any particular people flourished.

I HAVE now finished all I proposed troubling you with concerning the vitrified, and other antient buildings, which I have discovered in the Highlands, and northern parts of Scotland. I beg leave, therefore, to return you thanks for the favourable reception with which you have honoured these letters; and, as I pay great deference to your judgment, I shall venture to submit them to the candour of the public.

F I N I S.





The following LETTER has been communicated to the Author, on account of its containing a Description of one of these fortified Hills. It is written by Mr JAMES WATT Engineer, to GEORGE CLERK-MAXWELL, Esq; one of the Commissioners of his Majesty's Customs in Scotland.

BIRMINGHAM, *March 29. 1777.*

DEAR SIR,

**A**BSENCE prevented me from answering your kind letter sooner. The notes, and indeed the observations, I made upon the fort at Craig-patrick, are too flight to furnish matter for a *memoir* upon that subject; nor is the drawing correct, as it blew hard, and was very cold upon the hill, which made me do the greatest part of the work from memory, that evening, after I returned to Inverness.

CRAIG-PATRICK is a detached summit of a rocky hill, about a mile north of Inverness. It is elevated about 500 feet above the sea, and about 150 above the adjoining part of the hill. There are several other higher summits in the same line with it, but considerably distant. These form the northern boundary of the valley of Ness; and there are also some northwards from it, but distant about a mile.

TOWARDS

TOWARDS the north-east, the ascent to the summit, though steep, is sloping, grassy, and smooth. The other sides are partly rocky precipices, and very steep, but not entirely inaccessible.

THE rock of which the mountain consists, is of the granite species,—but not an uniform stone. It is composed principally of round water-worn pieces of a red granite, mixed with pieces of a stone which I call *granulated quartz*, which are generally of a greyish colour; and also with pieces of the common quartz. The whole is cemented together, and the interstices filled up by a coarse sand of the red granite.—This rock is externally full of fissures or natural separations, and would not be difficult to quarry.

THE summit is flat, and of an oblong form, rounded at the corners, about 90 yards long, and 30 broad. All round it, there is a rampart about four feet high, rising by a gentle slope from the inside, but more steep to the outside,—which slope is continued downwards for about 20 feet perpendicular, and is tolerably regular, except upon the north-east end, where, I think, there is some interruption, and as it were ruins of the rampart. The bottom of the outside slope, is surrounded with a small hollow, beyond which there is a kind of second rampart, but more irregular than the first; and immediately under this second one, appears the natural rock. The flat place at top, the greatest part of the ramparts, and the slopes, are now covered with grass and moss; but in many places they are bare, and show the materials of which they are composed. These materials greatly resemble the cinders or clinkers produced in a lime-kiln, being, in some parts, a vitrified spongy mass, with a glossy surface; and, in other places, when it has been broke into for a small depth,

depth, you may see calcined, though unvitrified, matters mixed in large pieces among the spongy flag. It is evidently the native rock, vitrified ; and the granite parts seem to be the only ones which have come into fusion, and have formed the flag.

THE ramparts both above and below, together with the slopes, seem all to have been in fusion at one time, and now to form one adhering mass of flag, no part of which seems to have undergone a perfect or thin fusion.

WHERE the lower rampart touches the rock, it seems in some places to be adherent to it. Where the surface of the flags in the ramparts are uncovered, they are rough and irregular, and many detached pieces are scattered about upon the sides of the hill. It is said there was once a well, where there is now a hollow place within the upper rampart ; but that it was filled up to prevent sheep falling into it.

THE country people call it the giants castle ; but I could hear no tradition of its formation. For my own part, I think it a work of art, probably formed by piling up layers of stones and wood, and setting them on fire : But, whether for the purpose of a fort, or some religious use, I will not take upon me to determine. I could wish that a cut were made across it, until they reached the solid rock. Its structure would then be laid open, and something might be discovered, that might throw light upon the intention of the constructors of so singular a fabric.



A  
L E T T E R

F R O M

DR JOSEPH BLACK, Professor of Chymistry  
in the Univerfity of Edinburgh,

T O

T H E A U T H O R.

S I R,

I AM much obliged to you for the fight of your letters concerning the vitrified fortrefles in the North. I had got formerly, from fome of my friends, fome account of extraordinary vitrified walls which they had feen in the Highlands; and Mr James Watt, who fpent fome time in furveying a part of that country, communicated a number of particular obfervations which he had made upon one of thefe ruins; but we were not enabled to judge with any certainty, for what purpofe, or in what manner, thefe hitherto unheard-of buildings had been erected. It is very probable, that they were executed in fome fuch manner as you have imagined. There are, in moft parts of Scotland, different kinds of ftone, which can, without much difficulty, be melted

melted or softened by fire, to such a degree, as to make them cohere together. Such is the grey stone, called whin-stone, which, for some time past, has been carried to London to pave the streets. Such also is the granite, or moor-stone, which is applied to the same use, and pieces of which are plainly visible in some specimens of these vitrified walls, which I received from my friends.— There are also many lime-stones, which, in consequence of their containing certain proportions of sand and clay, are very fusible: And there is no doubt, that sand-stone, and pudden-stone, when they happen to contain certain proportions of iron, mixed with the sand and gravel of which they are composed, must have the same quality.—A pudden-stone composed of pieces of granite, must necessarily have it.

THERE is abundance of one or other of these kinds of stone in many parts of Scotland; and as the whole country was anciently a forest, and the greater part of it overgrown with wood, it is easy to understand how those who erected these works, got the materials necessary for their purpose.

I am,

S I R,

Your obedient humble Servant,

EDINBURGH,

April 18<sup>th</sup> 1777.

JOSEPH JACK.

From

In

Rode

Miles to

mit is a

rock is a

is a stone

aditch,

supported by

area, how

for the dep

of stones,

ostrified,

turned in

generally

stones of

than 40

size of

form this

the first

of such as

Highland



