THE ROMAN FORT AT

Dear John, Rob, Kay.

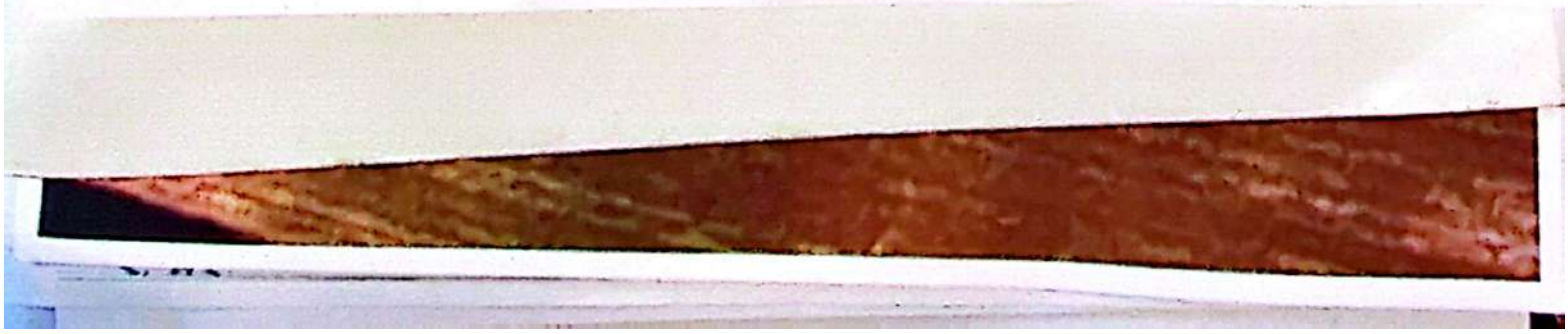
I am old and tired now but here is something that I prepared earlier. *

Best Wishes,

Walter.

* Some of which you may already have

Walter



THE ROMAN FORT AT SOUTH SHIELDS

J. N. DORE and J. P. GILLAM

From Divining archaeology

Chapter Six

Roman Bathhouses in the Borders

I am taking this as a separate chapter because finding the bathhouse is the easiest way to locate the fort or fortlet. By following a drain taking water to a potential fort, you will come to a bathhouse or latrine which is usually inside an annexe attached to the fort. Bathhouses and latrines will appear regularly in the following chapters, not because I am a bathhouse fetishist but because I am informed that the heat-print of the bathhouse furnace should be easily traceable by geophysics and I need to convince the sceptics somehow.

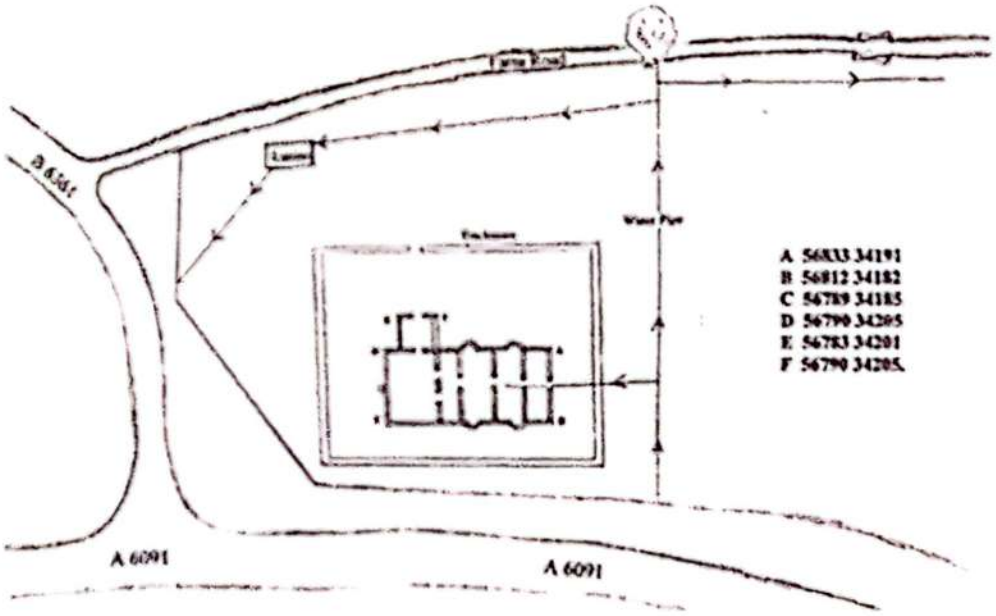
TRIMONTIUM

There are only two proven, i.e., excavated, Roman bathhouses in the Scottish Borders. One is at the small fort of Cappuck **NT 213 695**, where 'a little two-roomed bathhouse' was discovered during excavations in 1886. I have doubts about this identification as I could find no drain/pipe bringing water in or taking it out.

The other is at Trimontium where James Curle's excavation revealed 'quite a small, functional building'. Many comments have been made by archaeologists that this bathhouse was too small to have provided services for the number of troops in the fort and concluded that there must have been a larger one somewhere in the vicinity. This was a logical deduction and quite acceptable – but nobody was prepared to look for it. As a reader of ground, it was obvious to me that the only place for a second baths was between the west side of the south annexe and the village of Newstead.

To hunt for it, I started with the water pipe which I already knew supplied the known baths and the south annexe, following it down to where a branch of it turned off westwards towards the village. Twenty metres along this, I found the wall of a building and spent an hour roughly drawing the structure, returning the next day to check everything because the original drawing was quite complicated.

The building lay within an enclosure in the south-west corner of the field near the junction of B6361 with A6091. This is the lowest part of the field and after nineteen centuries of soil-wash, I would not be surprised if there was a metre of earth on top of any archaeological remains. This would explain why there are no tiles, bricks and blackened soil which characterises the known baths site.



Of the building itself, the walls are about 0.7m thick. The large room nearest Newstead is the heated room with the stoke-hole on the west side and rows of hypocaust supports probably still in place – divining rods suggest 15 rows north-south and 10 rows east-west. This room is about 18m by 12m. Thereafter the picture is less clear as there seems to have been at least one reconstruction. The enclosure wall is about a metre wide and likely to have been made of stone.

N.B. The measurements given were paced along the outer edge of the walls and are approximations. Even if the measurements given are only approximately right, this is a much larger bathhouse than the known one. As a bonus during the bathhouse search, another branch pipe was discovered leading from the main pipeline. This went to a building 7m by 5m lying to the north of the bathhouse. With one water pipe going in

From Roman Frontier Post 1911 - 2011 p 183.

C. The south annexe

To the west of the first-century entrance road and south of the east-west street, a number of quality finds have been made: fragments of small and large bricks, roofing tiles, scored tile and scored box-flue tiles are evidence of well-constructed buildings. This is supported by other finds: four intaglios were found to the west of the road and a further two to the east, while quality samian pottery was found in quantity on the western end of the site, although coarse ware became dominant as one progressed eastwards.

D. The granaries

Surface finds confirm that these buildings were stone-built with a tiled roof. Some small bricks were used somewhere in the construction.

E. Barrack blocks

The eastern third of the fort consists of barrack blocks. Surface finds have produced hardly any brick or tile fragments but plenty of amphorae and coarse pottery sherds. This confirms Curle's sparse evidence from this area given the techniques then available, suggesting that the barracks were made of organic degradable material.

Locally-made pottery

About 200 metres south-west of the south-west corner of the fort, distorted mortaria fragments and two pottery kiln spacers found on either side of the modern bypass possibly point to the site of a kiln producing mortaria. Hartley has argued that at least two potters, Emi- and Invomandus, were based at Trimontium; their stamped mortaria have also been found in several forts along the Antonine Wall.[7]

The east annexe

In the southern part of the east annexe, there is a relatively flat piece of ground a little under a hectare in size. As a fieldwalker, I walked this area many times but gradually ignored it because there was little to be found on the surface. It eventually dawned on me that this was the obvious place for the parade ground, beside the fort but separate from the clusters of buildings around it.

Of the six altars found on the site so far, four were found in the east annexe or its ditch.[8] The first altar, found in 1783, was dedicated to the *Campestres*, the Goddesses of the Parade Ground, by a cavalry decurion;[9] the other three altars came from the east annexe ditch.[10] It seems likely that further altars may lie on this line, deliberately buried along the eastern and southern part of the outer ditch.

In the northern part of the east annexe, an area of

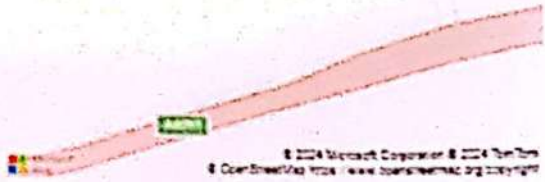

Try this field
with diving rod
B
A

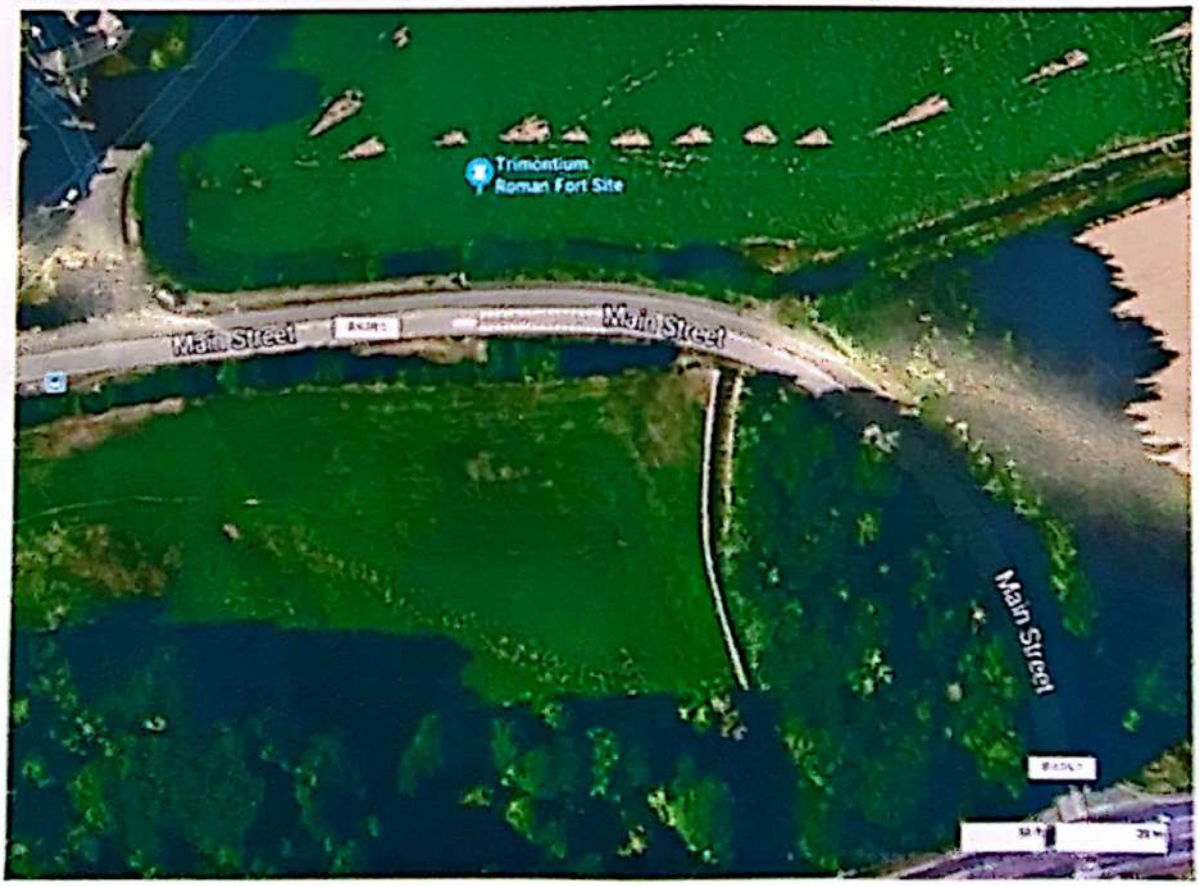
bing maps

Notes

Rushock

Main Street



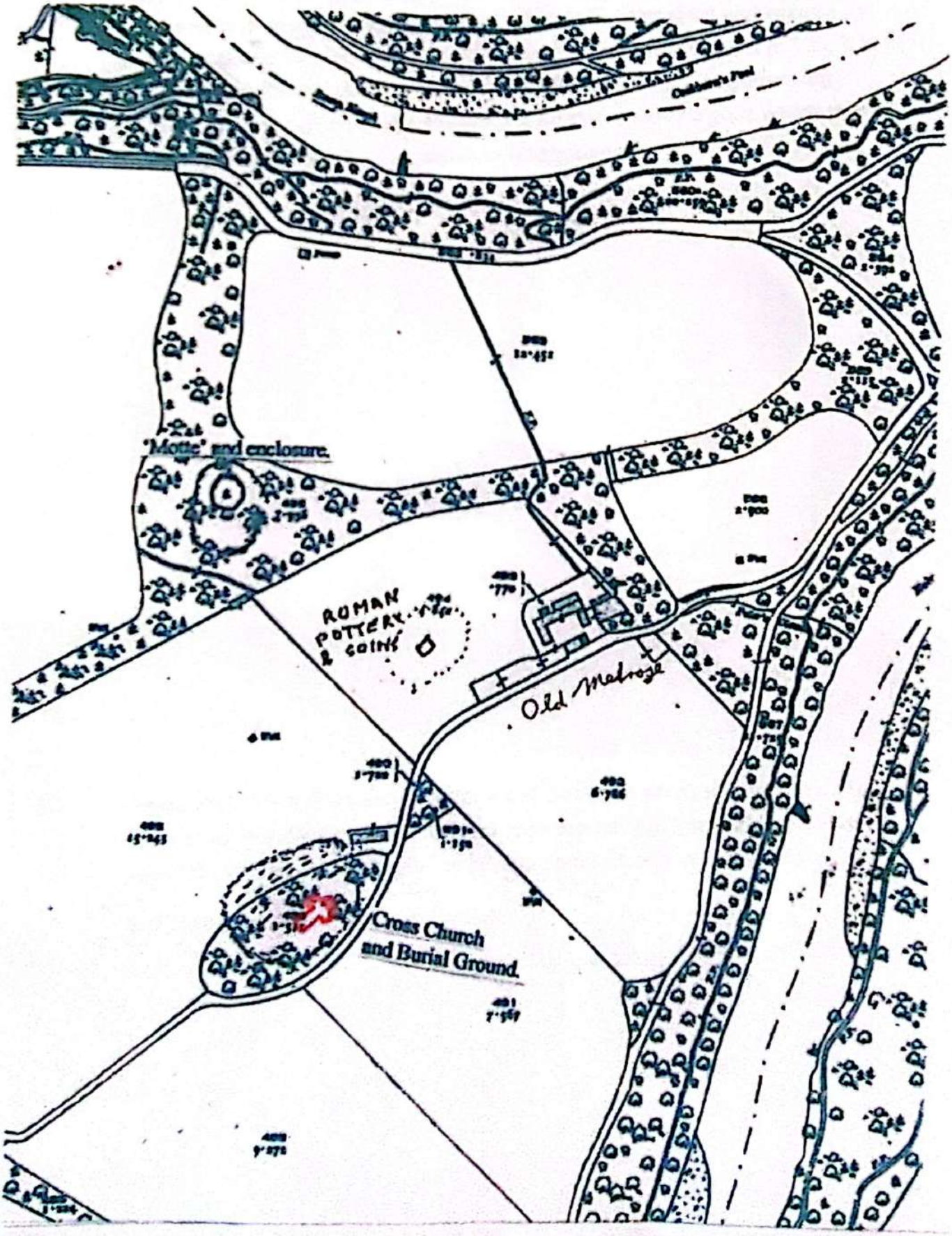


Try this field for another Roman fort/camp.

W.

Roman Pottery & 2 Roman coins found in area of Old Melrose

V.E.



Intaglio No 3 from the Excavations of Roman Sites at Cramond.

There were three Roman intaglii found at the extensive excavations at Cramond; two were relatively familiar subjects but the third was unique (or at least I couldn't find anything similar). In the excavation report p. 120, it is *'A satyr (identified as such by his equine tail) is shown in a half-kneeling attitude in profile to the right. His hand is on the rump of a goat which stands to the right and looks back at him over its shoulder.'*

I think that this is the technique for a difficult birth when the herdsman has to push his hand inside the animal to ease the unborn lamb/kid out. I have seen this technique used in many lambing pens/sheds in The Borders.

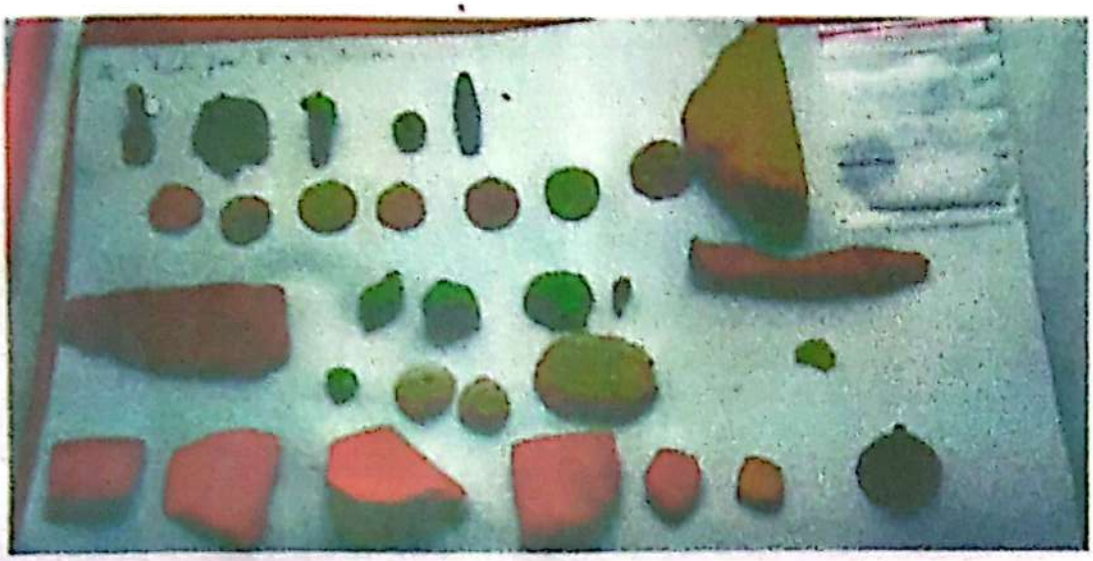
But I am open to any other suggestions.

Walter Elliot

Wolflee Earthwork at NT 591 089.

There are many earthworks in the Borders provisionally dated by shape and size as medieval or Dark Age, but a friendly and responsible metal detectorist can change the dating sequence.

With permission from the farmer and having checked that it was not a scheduled area, Billy Butler was detecting and fieldwalking the Wolflee earthwork site in June 1996. As he left his finds with me for interest, I laid them out and got them photographed by Donald Gordon.



After this, things become a little blurred.

The objects were certainly taken to the Trimontium Exhibition in Melrose and on display for at least one year. It probably went up to the National Museum during a refreshment of the Trimontium display. (Fraser, please check) or the Regional Records (Keith ditto)
It would be interesting to re-access this collection as a representative of how 3rd/4th Roman influence had spread to a small native settlement far from the main-line road systems.

In 1960, I was speaking to a friend of my grandfather's who had had been brought up on Wolflee Farm in the pre-World War One period. Knowing my interest in the Romans he told me a story of how, in the early 1900s, two brothers who were ploughmen on Wolflee farm came to the Kirk at Hobkirk one Sunday with a small silver coin on each link of their watch chains. It caused a great sensation when the coins were identified as Roman silver denarii by the estate owner, Sir Walter Elliot of Wolflee, a keen antiquary himself. (No relation.) It had been a buried hoard from on or near the No 947 site.
I don't think this hoard has been recorded or even noted but Fraser will know.
Feb 2021. Walter Elliot.

It was the following year that I visited the site with divining rods and got a typical Roman fort shape with an annexe on the east side.

2 August 2023. With new skills of using Google Maps to get air photographs, I looked at this site and found a fairly convincing Roman fort. Definitely worth a drone trip.
Best wishes.
Walter.

See page 3 here

On Divining and Geophysics

Early Days.

Although born in Selkirk, I have spent my life living or working in the hills and fields of the Borders. I never went to University because a) I didn't want to and b) because my parents couldn't have afforded to send me anyway.

After National Service (1952-54), I joined my father's firm of fencing contractors and as most of our work was in the hillier parts of the Borders, I spent thirty-three years there, hearing the poetry/stories/legends of the place and seeing the changes that generations of Borderers had left on the landscape. The 'aye been' traditions and language lasts longer in the hill country than in the lower flat lands of The Merse.

As fencing contractors, we used divining rods, two pieces of wire bent at a right angle. With those we could determine where field drains were in order to avoid them and where straining posts had rotted off at ground level so that we could lever the stumps out and slip in a new post. They were practical working tools that saved a lot of hard graft – and they always worked.
This was nothing unusual as most farms had people who could find drains, pipes or underground electric cables with metal divining rods, hazel twigs or even a small weight on a piece of string. Nobody was interested in the mechanics of how or why they worked but accepted that they just did.

Although my father and grandfather could use divining rods, I was the first to apply them to archaeology. The rods could not differentiate between a field drain 0.5m deep/0.3m wide and a Roman ditch 4m deep/7m wide except by size but reacted equally well in each case. Although archaeologists have been traditionally sceptical and more concerned in how/why than about results, a few are coming round to consider that 'there might be something in it after all'. The remainder maintain a healthy but polite scepticism and put their trust in geophysics, of which more later.

There are well authenticated instances of water diviners who can find underground bodies of water and tell how deep they are beneath the ground surface. On sinking the borehole, these numbers are found to be correct – impressive and irrefutable evidence. Now that is impressive.

Natural Phenomena.

In the thousands of millions of years of its existence, it is considered that the Earth had reconstituted itself at least twelve times through violent geological eruptions and extremes of temperature. Over this profoundly long time, the Earth became a huge laboratory, producing the natural phenomena of force fields or lines of force which we cannot see and which we have only recently (comparative term) been able to understand and use.

When Shakespeare wrote Hamlet in 1601, he used the sentence *'There are more things in Heaven and Earth, Horatio, than are dreamt of in your philosophy'* he was not understating the case.

Gravity.

Around that time, philosophers (thinkers/scientists) were debating on how gravity worked; obviously it did otherwise every person or object would be whirled off into space but the problem was that you couldn't see it. Eventually Isaac Newton (1643 – 1727) amongst others decided that it was a force where two bodies of matter were attracted to each other. (Sexual attraction is something totally different)

Electricity and Magnetism.

James Clerk Maxwell (1831 -1879) calculated that electrical and magnetic fields could travel through space at the speed of light ie 186,000 miles per second. Many of Maxwell's discoveries have been carried on to development in modern times. The microwave cooker and the ability to see and speak to someone in Australia as if they were standing beside you, are thanks to his preliminary work. Also the discovery that radio waves reflect from any object in their path was later developed into Radar in 1940 to detect incoming bombers before they could reach the shores of Britain.

This is a wide and complex subject that I don't really understand but, thanks to Wikipedia, I can quote that *'Every material (or person?) is influenced to some extent by a magnetic field'* and *'Some organisms can detect magnetic fields, a phenomenon known as magnetoception.'* Quotations which might help me in my struggle to explain why divining works.

Observations.

Isaac Newton believed that *the path to true knowledge lay in making observations rather than reading books.*

Growing up in a rural community and working as a fencing contractor, I knew that divining rods were useful tools to find ditches, drains, pipes and buried electric cables. The technique was simple – hold a divining rod parallel to the ground in each hand and move forward slowly to where a buried ditch/drain may be. About

5m from the drain, the rods begin to get 'heavier' and cross when you are directly over the drain. I have noticed that the rods react when your hands are at the edge of the drain, not where your feet are placed and that the rods always line up with the direction of the trench.

Being of an curious? mind, I have tried this technique with iron, copper or plastic divining rods as well as a Y-shaped hazel twig or a plumb weight on string, and each crossed, lifted or moved over the drain; the drain could be in a grass field or below tar or concrete and still worked; standing on a rubber sheet or wood boards, wearing wellies and rubber gloves made no difference as everything still worked. So I concluded that some non-visible force was passing through my body to move the rods, twig or plumb weight. Unbelievable but it always worked.

A greater test was to get a number of humans, usually students, to walk slowly over a piece of ground and nothing happens. Give each a pair of divining rods and get them to do the same again and you find that almost every case the rods cross, even with those who stubbornly refuse to believe they would. Then I get them to walk the same pattern as before but without the rods and there is no response. With thoughts of magic or con tricks in their heads, I explain that there is an earth force which you cannot see but which needs the visual effect of divining rods to know that it is there. I am not sure that I convinced everybody.

I have found that any disturbance of soil can be detected with divining rods. This includes ditches, drains of all kinds, graves, underground cables, the postholes and the foundations of demolished buildings. The secret is to mark out every place where the rods cross and eventually a pattern emerges. This is a good (and cheap) way to mark out a site

But is it good enough? Every book to mention the bathhouse of the Trimontium fort concludes that it is too small to have served the number of troops in the fort and a vague guess is made to where a second bathhouse might have been. The logical steady supply of water to the fort is from the number of springs on the east side of the Eildons. These had been collected into one drain and led to a header tank on the knowe above the fort, then piped across the hollow to feed the Curle baths. A branch from this supply pipe ran to a large building in the lower ground east of the South Annexe. Over three years and in different soil conditions, I carefully divined the building five times and got the same baths shape in exactly the same place. This is not a coincidence but needs proof by spade.

Geophysics.

When Bradford University came to excavate the Trimontium site in 1987, everybody was delighted. Curle's excavations from 1905 to 1910 had uncovered about ten per cent of the site and provided a standard of excellent which has never been surpassed. Sir Ian Richmond in a 1947 excavation, air photographs from the 1940s onwards and field-walkers' finds from the 1920s had provided more information and objects from the site.

But The Department of Archaeological Studies of Bradford University came with the most up-to-date archaeological tool – geophysical surveying. By using resistivity and gradiometry it was hoped to get a better picture of the complex site. This new technique worked well in some places but not in others. The heavy masonry of the baths which was found and photographed by Curle, did not register at all on the print-out and it was suggested that they must have been 'ploughed out'. Similarly there was no indication of the 36 feet deep pit in the south annexe and the head geographical surveyor had to ask me quietly if I could check its location with my divining rods as that section was about to be excavated; it was exactly where it appeared on Curle's plan. After that, I got fewer 'jocular' remarks about divining rods.

The nearby monastic promontory settlement of Old Melrose had produced a large number of rectangular parch marks, approx. 6m by 3.5m, on Richard Strathie's air photographs. To see if there was any Roman connection, the Trimontium Trust commissioned geophysical surveys in 2001A.D. and 2002A.D. These produced '*largely negative results*' but it was pointed out that wattle buildings (as the parch marks probably were) could not be detected by geophysical survey methods alone.

In Yarrow, the area between the Yarrow Stone and the Warriors' Rest cottage has been a burial ground since pre-historic times. In the first years of the 19th century, twenty large cairns were demolished to provide stones for enclosure dykes. In 1858, eight stone-lined cists aligned east-west were found during the construction of the Warriors' Rest cottage. On divining over the dyke, I found three rows of similar-sized grave-shapes so it is fairly certain that this was an early Christian cemetery. The demolished cairns showed up as large circular marks with a rectangular internal chamber.
Yet, when this potentially interesting site was given a geophysical survey, no distinctive cairn bases or grave-shape features showed up.

At Bonjedward, NT 65662 23690, I would be surprised if there was NOT a Roman fort at the crossroads of Dere Street and the Roman road on the south side of the Tweed and Teviot, and situated on a bank guarding Dere Street's bridges over the two rivers. There is a mention of a Roman 'Station' at Bonjedward in the 1855 History of Roxburghshire and later references.

Wishing to prove that divining rods work on archaeology, I commissioned a geophysical survey where broad banks with rounded corners could be seen on air photos and on the ground. This was not particularly successful as *'No anomalies clearly consistent with a Roman fort have been identified in the data'* appear on the printout.
So, in my opinion, the benefits of geophysical surveying archaeological sites is *'Not Yet Proven'* but being a stubborn Borderer, I intend to give geophysics just one more test, this time on a clean site beside a Roman road. Chapelhill Farm near Peebles or Craik in Roxburghshire would suit.

Et Envoi.

I have found that the best way to collect evidence of the unknown past is to observe the present because ground awareness can provide clues of previous occupants either through finds made accidentally and deliberately or simply by studying the land surface. There is a modern veneer on the countryside that can be mentally stripped away layer by layer to reveal past land-holding or settlement enclosures and even negative evidence can be valuable. The secret is in finding the right interpretation.

So I favour the 'boots on the ground technique' backed up by divining rods as the best way to reveal the past provided it is written/recorded for further assessment by other interested parties whether they agree with it or not. That is why I am such a pain-in-the-anatomy to everybody.

I am an old man, set in my ways but not in my views. If anyone can prove that my theories are wrong, I am perfectly willing to change my opinion; what else could I do.

29 January 2016. Walter Elliot.

The Post-Roman Settlers

PURE BORDER SCOTS

In the land o the Borders, ye'll find there are lots
O fowk whae speak in a pure Border Scots.
Bit is it? Ah've quaistioned that theory o late;
It isnae that pure as Ah'll now demonstrate.

When the Romans left here, the tongue that was spoken
Was a form o Welsh – an No, Ah'm no joken.
Welsh lested a while until the time when
Some Germans sailed owre frae a place, Angeln.
Of course, they spoke German tho historians hide
An cas it "Old English" for the sake o their pride.

Then oot o the North, a peculiar mix,
An airmy composed o the Scots an the Picts
Conquered at Carham; sae Scots Gaelic was flung
Intae the mix o the "pure" Border tongue.
Bit the Scots cam frae Ireland, gaun back a guid while
In big leather boats an hed settled Argyll.
The lands aroond Dublin wi its Viking remains
Then kindly chipped in an sent us some Danes.

Efter a while, David cam up frae the Sooth
Wi scarcely yin guid Scots word in his mooth,
Accompanied bie Norman-French freends in wee bands,
He settled them here an gied them wide lands.
(The Normans were Vikings whae hed lost their wey
When they landit in France an decided tae stey.)
Sae that added French whuch was spoke wi decorum
Intae our language – it made quite a jorum.

As oo traded wi Hamburg an Holland an such
This gied us mair German an a wheen words o Dutch.
The gypsies frae Yetholm then topped up the lot
Bie chucken some Hindi words intae the pot.

The language o pure Border Scots, ye can tell,
Is a source o great pride as Ah speak it masel.
It's maybe no "pure" as Ah've telt ye at length
Tho variety gies it its vigour an strength.

W. Elliot. 2000

> Questions have been raised about his sanity... but I'd back Walter every time

FORDYCE MAXWELL

SCOTLAND on SUNDAY
www.scotlandonsunday.com
April 21, 2013

LIFE can be tough for the self-taught. Usually (make that too often), hard-won experience is trumped by academic credentials and thickets of initials.

That's why I wasn't surprised to read that Walter Elliot, who taught himself archaeology and history during more than half a century as a fence-erector on many of the hills and fields in the Borders, has trouble with university-certified, centrally funded, professionals – particularly when he tries to convince them that with two pieces of L-shaped fencing wire as divining rods he can pinpoint as much, or more, of what is hidden underground than they can with modern archaeological technology.

Walter, now heading for 80, has written a number of books including *The New Minstrelsy Of The Scottish Border* and two not for the faint hearted – *Selkirkshire And The Borders From The Beginning Of Time To 1603* and *Selkirkshire and the Borders 1603-1815*.

Psyching myself up for *1603-1815*, which he kindly gave me recently I read his other present, *Divining Archaeology*, and found it fascinating; Hugh Miller, the self-taught 19th-century geologist who began his working life as a stonemason, kept coming to mind. It must make sense that intelligent, although not formally educated, men with their nose to the grindstone of hard work with natural materials think about what they are doing and draw conclusions.

Walter began to learn the uses of, and his powers with, divining when choosing the best spots to sink holes for the main straining posts on which his fences depend. He admits, putting it mildly, that some are sceptical: "Getting normal people to believe that I could get two pieces of L-shaped fencing wire to indicate what is under the ground stretches belief to near breaking point – and past it in many cases."

Questions, he agrees, have been raised about his sanity by outraged professional archaeologists. As another great Borders character, the late Bill McLaren, might have described it in one of his commentaries, when Walter and the professionals lock horns there can be "a bit of argy bargy".

Personally, I'd back Walter for the same reason as one of the professionals he managed to convert during excavations at the Roman fort of Trimontium in the shadow of the Eildons. Towards the end of work there the pro said: "Walter, you're mad as a hatter – but always worth listening to."

That was after Walter had convinced him that not only divining, but rabbits and moles, had a useful part to play in archeological digs. They don't teach them that at university. «

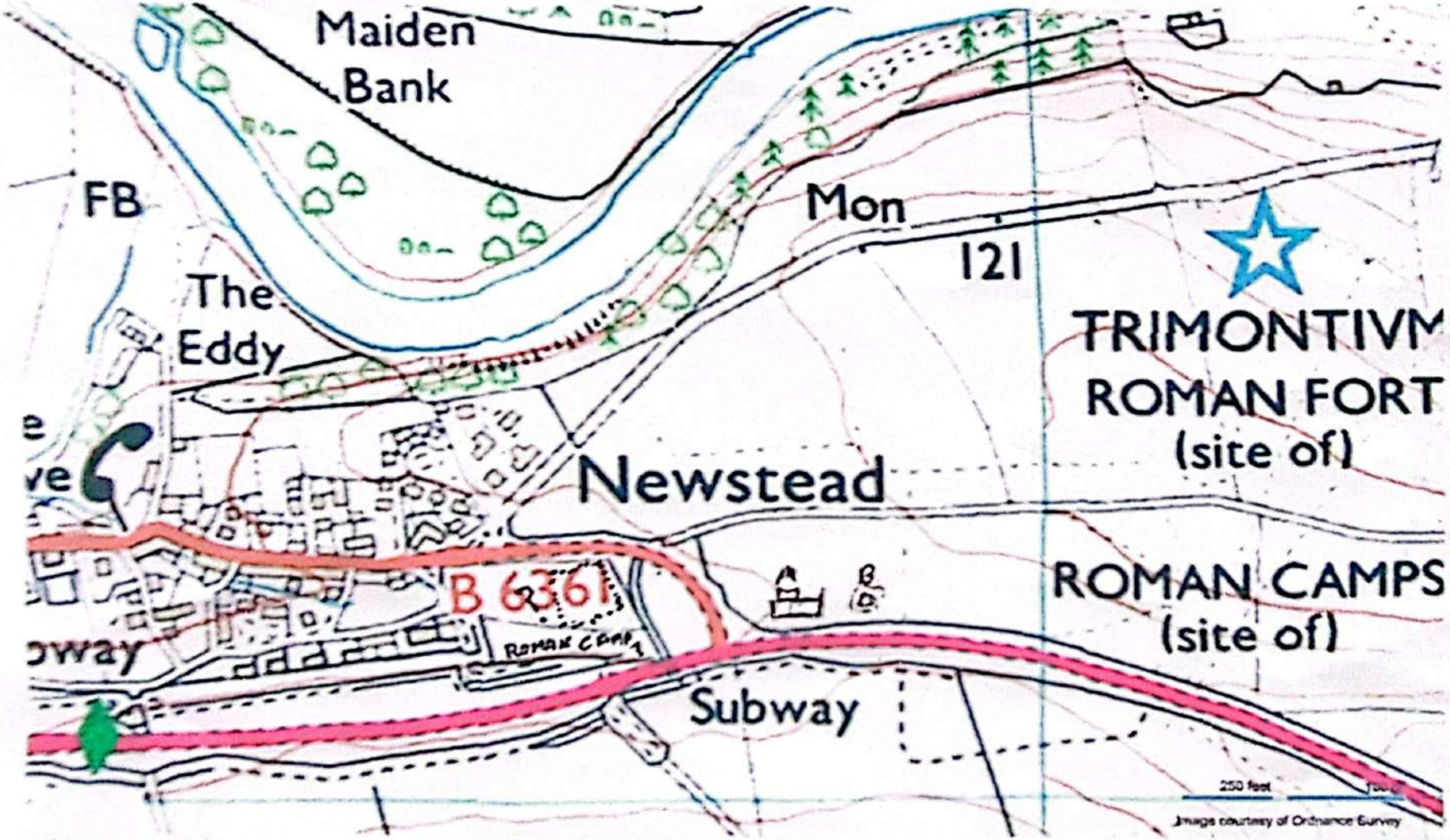
» Twitter: @FordyceMaxwell

» Last week Fordyce... was serenaded by two ammous, yowling cats and decided that what's funny in a Garfield cartoon wasn't then at midnight. He retrieved both thrown trainers next morning

The Facts Behind The Feature.

When soil is disturbed by a drain, ditch or even a decayed former wooden palisade this holds a higher moisture content than the soil around it and in very dry conditions leaves a slightly greener mark on the ground surface.
Even if there is no mark on the surface, the moister soil attracts worms who work their way along that line; but this also attracts moles who tunnel their way along the wetter line. However, moles are much wider than worms so they have to push their way along the same track, disposing of the surplus soil by pushing it above ground and leaving a line of molehills to mark the line of the original ditch. So this could be the straight line of an ancient defensive ditch or decayed palisade. On a known potential site, this is worth considering.

During the excavations at Trimontium, the railway cutting sides were cleaned of surface growth to get a profile of the buildings and objects of both sides. Seven Roman pits were found and were duly excavated. I noted three places where rabbits had dug burrows into the sides of the bank. Knowing that rabbits prefer to dig in softer soil, I asked and got reluctant permission to have a scrape there. We found another three pits filled with Roman waste and artifacts. Point Taken



Add phone number

A. Site of Roman Baths
DIVINING see Divining archaeology
p 53-55.

B Roman Trimontium Past
1911–2011
(Hunter & Keppie)
Roman pottery
'Eni' & 'Iovonandi'

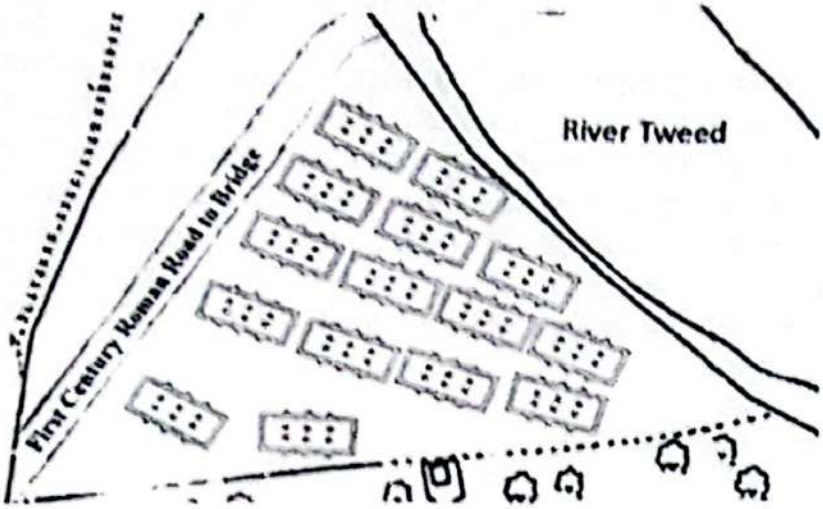
See Roman Fort at South Shields for granaries

River Transport.

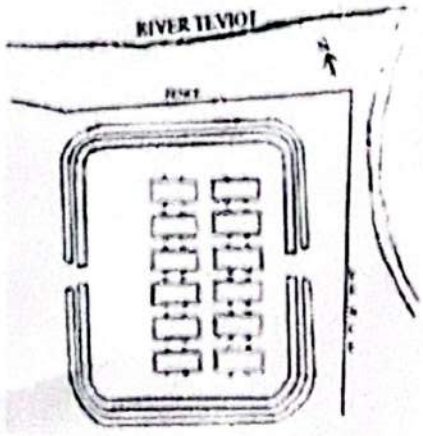
From the vast amount of broken pottery found during excavations and field-walking at Trimontium, it is clear that supplies were being brought in from most corners of the Roman Empire. Wine, olives and oil from France, Germany, Spain and Italy came in thick, heavy amphorae to the Roman outpost. So much of this was recovered that James Curle thought that there was '*almost sufficient to prove that wheeled transport must have been employed for supply purposes*'.

An alternative suggestion is that the Romans used the Tweed to ferry supplies and equipment up river to the focal point of Trimontium. The Romans used rivers and canals in every feasible part of the Empire and there was a Numerus Barcariorum Tigrisiensium (boatmen from the Tigris) stationed nearby at South Shields.
With a steering oar and two boathooks found during the excavations at Trimontium, it is more than possible that bulk supplies were brought up the Tweed from Tweedmouth in 'codicarae' the small flat-bottomed boats which could float on a 0.3m depth of water and carry 10 tonnes. Finds of mussel and oyster shells in several of Curle's Pits prove a link between the fort and the sea shore.

As the centre of the Roman road system, it was essential that a large depot was kept at Trimontium to supply the garrison, neighbouring forts/fortlets and marching troops who were passing through.
In the flat triangular field to the west of the Newstead Fort (NT 5627 3446), there are fifteen buildings measuring 16m by 5m internally with three pairs of supporting blocks at regular spacing and corresponding buttresses. The walls are c 0.8m thick. These are the shapes of Roman granary buildings or their 'ghost walls' which I am picking up with my divining rods.



There is a similar situation at Bonjedward where there are multiple Roman fort/camps at a place where Dere Street crosses the East/West Roman road. Near the junction of the Jed and Teviot rivers, an enclosure 80m by 60m holds twelve similar buildings with a uniform size of 20m by 5m.



With two depot forts on the line of Dere Street being supplied by river transport, it made sense to look for a central depot where the rivers met near Kelso which was about 8 miles from both the above but this area has

been re-made many times for over 2000 years and any traces have been lost.

However there was a long-term Roman presence at Springwood where the East/West Roman road crosses the river Teviot at NT 71354 33541 just west of Roxburgh Castle. On the other side of the crossing is Springwood Farm where the King's Haugh has produced over three hundred Roman coins ranging from 1st century BC to those of Honorius (394 – 403AD). Mainly small badly-worn copper coins they are the small change of commerce still in use long after the legions left for the safety of Hadrian's Wall.

1st August 2018. Walter Elliot.

Additional information. A Roman bronze fish-hook was found in the South Annexe of the Trimontium Fort during the Bradford Excavations.

Short lengths of the foundations of its north and south walls, of cobbles and a few standing masonry, of pink micaceous sandstone, were found. The footing [illegible] c. 8 m. The foundations for the north wall lay at the southern edge of the intervallum road. Those of the south wall went to have served both for the [illegible] and for a gutter of rectangular blocks, with a water channel c. 80 mm deep cut into which had run along the south side of the building. Nothing of the east end of the was located. At the west end it appeared that the foundations of granary C3 earlier foundations which, on plan, lined up with those of the south side of building the actual west end wall was not located. The section obtained in the long trench that the building had been floored with clay, as much as c. 0.50 m thick at the north where the level of the natural subsoil sloped away. Some of this clay had spread over foundations after the building had been demolished and the north wall robbed.

The other building (B2), in between the two with stone foundations, had been constructed entirely of timber and, like its predecessors, had shallow construction trenches, c. 50 cm deep, which had been dug into the slight accumulation of material overlying the natural in the trench for the south wall of building A2. Short lengths of the trenches for the north and south walls were located in the long trench, giving the building a width of c. 8.2 m. Further lengths of the trench for the south wall were found between granaries C1 and C2 and beside and under granary C4, giving the building a minimum length of 33 m. A fragment of a beech in the fabric, dated to A.D. 160–180, was found in one of the construction trenches (see 71).

In the eastern half of the *praetentura* a small part of a building of the second period was found on the north side of the *via principalis* (building B4). Mainly on the grounds of symmetry, this has been restored with the same dimensions as the buildings in the western half of the *praetentura*. A length of the cobble foundations of the west wall, associated with the gravel surface of the second *via praetoria*, was found to the north of and running under the south-west corner buttress of granary C5. The area had been quite heavily robbed but the approximate line of the south wall of the building was marked by the edge of the robber build-up for the second *via principalis*, at a higher level than the foundations of building B4.

The position of the second *intervallum* road has already been mentioned, as has its relationship to the earliest drain at the west side of the *praetentura*. The drain along the west side of the earliest *via praetoria* was subsequently replaced by another drain immediately to the west of the original. That this was the sequence is clearly shown by the fact that the second drain overlies the construction trench for the east wall of building A1. The eaves drip gutter running along the south side of building B1 presumably connected with the drains at either end of the buildings. A short length of a drain running between buildings B2 and B3 was located at its junction with the drain at the east end.

The second *via praetoria* was slightly wider than its predecessor (c. 4 m). At its east side, by building B4, it ran right up to the wall foundations, while a little further to the south, where it was clear of the building, it was bounded by a kerb. The second *via principalis* was considerably wider than its predecessor, the total width of the surface being c. 16 m. On its north side, as already mentioned, it extended to the south wall of building B1, while its south edge ran up to the north wall of building B5. It is doubtful, though, whether its full width was used as a thoroughfare. From the position of the east kerb of the *via praetoria*, south of building B4, it would appear that traffic was kept off the area where buildings A3 and A4 had stood.

The extent of the excavations, with limited endowment, began to [illegible] in 1966 and more especially in 1967 when the area was greater, all investigation of the pretentious had to be selective, and that only fragments of the plans of the buildings in this area, apart from A1, were recovered. From the reconstruction attempted at present, it can be seen that they must have been either barracks or stables, but lack of knowledge of internal details makes it impossible to decide which.

Third Period (fig. 11)

The fifteen granaries so far located, were all so nearly identical in construction that there can be no doubt that they were all erected at the same time. Each was a single separate unit, oblong in shape, with ten buttresses on each of its side walls and two on each end wall. The walls and buttresses were mostly of buff sandstone but with some pink micaceous sandstone and a little magnesian limestone. They had a rubble and mortar core and rested on a foundation of clay and cobble with, in places, a footing of small stone slabs. The variety of shape and type of stone indicated much re-use of material from earlier buildings. The walls were all between 1·1 and 1·3 m thick, and the buttresses, which were of one build with the walls, had average dimensions of 0·8 m by 0·7 m, with the end buttresses on the side walls possibly slightly wider. Depending on where the easiest access was, each granary had a loading bay built between the buttresses at one end. Inside, the original stone flagged floors were supported on a series of short, low, stone sleeper walls, as in the still visible Severan granaries at Corbridge (Richmond and Gillam, 1950). The sleeper walls were all *c.* 0·6 m wide and, where they survived to their original height, *c.* 0·9 m high. Vents through the lowest courses of the main side walls, between each buttress, connected the underfloor area with the open air.

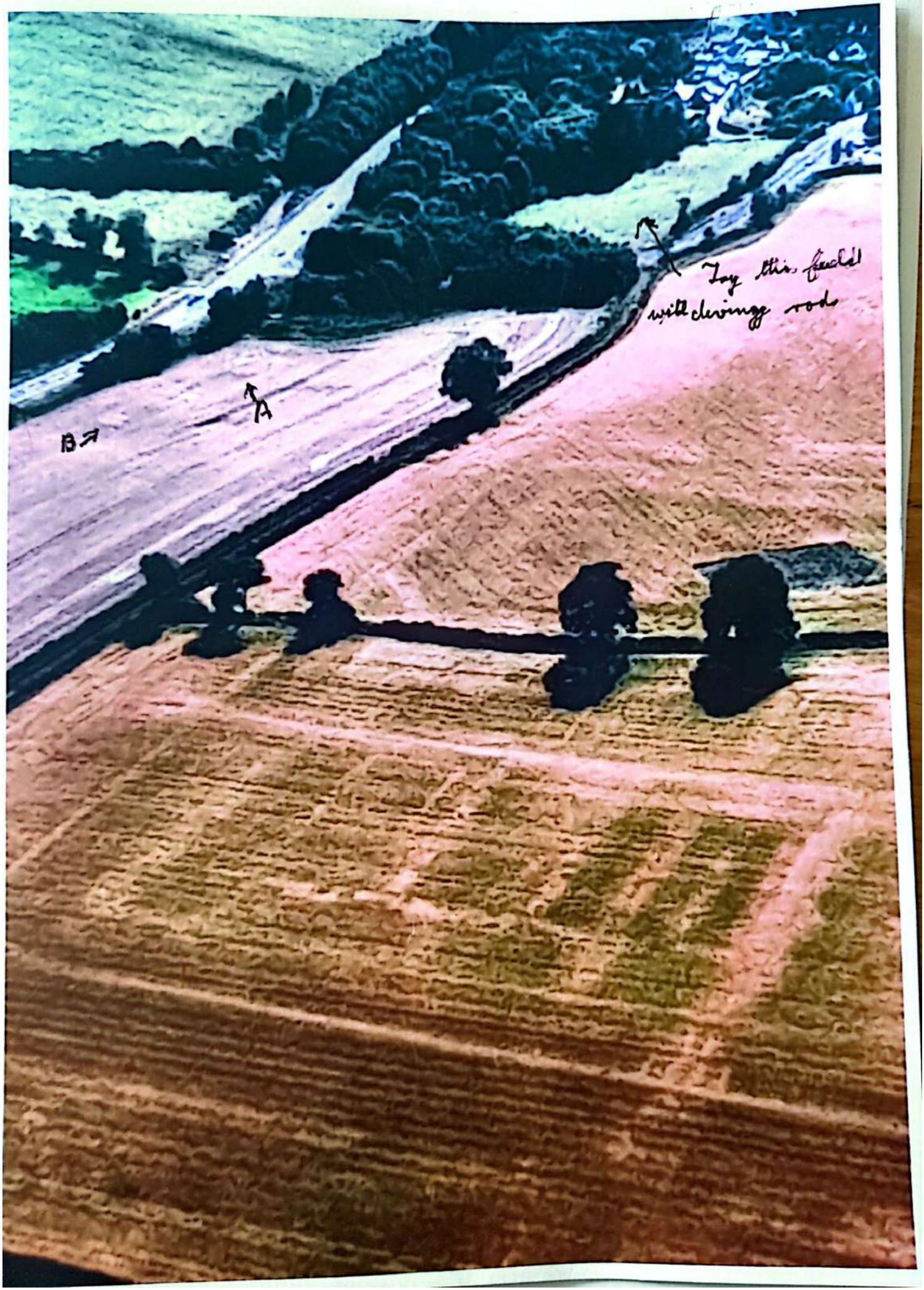
It was in the arrangement of the internal sleeper walls and the end buttresses of the main side walls that there was some difference between the granaries. In granaries C1, C2, C3, C4, C11 and possibly C5 the end buttresses were placed in line with the corners of the building, but in C8, C12, C13, C14 and C15 they were set back from the corners by *c.* 0·5 m. In C7, C10, C11, C13, C14 and possibly C6 the sleeper walls were in rows of four across the width of the building and the outside ones in each set were separate from the main walls. In C12 and possibly C1 they were in rows of six and the outside ones abutted the main walls. There seems, however, to be no meaningful correlation between the different methods of buttressing and the different arrangements of the sleeper walls.

These granaries conform to the widespread type of Roman buttressed granaries. The walls will have been of stone to the eaves apart from wooden-louvred shutters set high up. The buttresses counteracted either the sideways thrust of the grain against the inside of the walls or, possibly, though there is no evidence from the site for this, the thrust of a vaulted roof. The roofs, if not vaulted, would have been of simple gabled timber frame construction. The bins which contained the corn on either side of a central alleyway and which were presumably rectangular and used the outer wall of the granary as a support, may also have been of wood, resting on the stone floor and probably tied to the roof cross-beams. It has long been widely accepted that something like this was the usual method of corn storage, though other possible methods could be envisaged.

Of the fifteen granaries excavated, several show evidence of having been later

THE ROMAN FORT AT SOUTH SHIELDS

J. N. DORE and J. P. GILLAM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Intaglio No 3 from the Excavations of Roman Sites at Cramond.

There were three Roman intaglii found at the extensive excavations at Cramond; two were relatively familiar subjects but the third was unique (or at least I couldn't find anything similar). In the excavation report p. 120, it is *'A satyr (identified as such by his equine tail) is shown in a half-kneeling attitude in profile to the right. His hand is on the rump of a goat which stands to the right and looks back at him over its shoulder.'*

I think that this is the technique for a difficult birth when the herdsman has to push his hand inside the animal to ease the unborn lamb/kid out. I have seen this technique used in many lambing pens/sheds in The Borders.

But I am open to any other suggestions.

Walter Elliot