9/7/71. Wall in NO4. From the section of the wall so far disclosed appears to have a revetting face of medium size undressed boulders of a variety of rock types. The boulders are sub-angular and probably were originally surface collected for their primary use [? fort construction]. The revetting face holds back a a core of smaller angular fragments with a fairly high amount of earth. Width undetermined. The wall is carefully coursed and over bonded with the long axis of the revetting stones projecting back into core to give a firm structure.

Several pieces of vitrified material are to be noted in the core but not perhaps in the density one expects on a vitrified site. Much of the stonework shows signs of intensive heating but this is ~~[illegible]~~ more likely pre-wall construction heating. Maximum of 4 courses standing.

In the extension into NO3. Large lumps of vitrification are used in the construction of the wall face.

THOUGHTS. (1) Wall is post vitrification of the fort. But no indication of by how much.

(2) Wall is ~~pre~~ 1066 in character but no indication by how much.

ASSOCIATED FINDS From top of rubble and top layers of side of wall animal teeth (probably [illegible]) Odd fragments of calcined bone. ? Scatter from previous [illegible]. CHECK BAG 6.

Clearly below this wall is a definable horizon which is clearly associated with calcined bone. Previous excavation did not get to foundation of the wall.

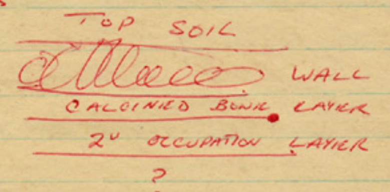
Horizon below wall clearly associated with human funerary material. A burial (see Plan) ? human extends beneath the wall. Horizon also producing calcined and burnt bone and one human tooth. Some fragments of bone unburnt. Fair quantity of tiny fragments of charcoal.

THOUGHTS

(1). No doubt about cremation burials or burial.

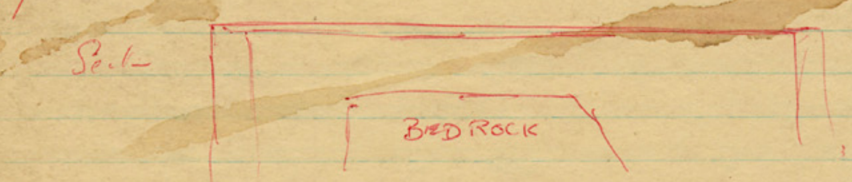
(2). These seem to pre-date the wall and have been scattered by its construction.

(3) With reference to NO6 now suggests stratigraphy as follows



CHECK (4) Bag (15) scraper.

9/7/71 NO6



NO 5 (9/7/71)

West End: Excavating beneath tree stump - top 30 cm mostly black soil with few small boulders. large slab together with few other boulders encountered at this depth almost directly under tree, resting upon first occupation level. This occupation level showed no change in soil type, but small fragments of calcined bone, + charcoal fragments were found scattered throughout. Below first occupation level soil type remained as before until second occupation level encountered at depth of 65 cm. This had same characteristics as first except for ~~less~~ smaller quantities of calcined bone. Below second occupation level there is marked change in ~~colour~~ type. matrix with much greater quantity of small angular ~~stones~~ pieces of rock.

FINDS - animal teeth from upper layer
- 3 pieces of iron from first occupation level
- animal bones from just above first occupation level to below second.
- flint flake in ~~first~~ second occupation level

THOUGHTS — This area been disturbed - fragments of glass found at first occupation level about 1m from west end of trench. No evidence of disturbance in section, but would still suggest someone has dug in this area in past. Some disturbance also by tree roots - may account for animal bones appearing in different horizons - or are they different animals? Are teeth all same species? See BAGS 20, 30 - 32. Pieces of vitrified stone found above first occupation level, but none below it. If trench had been disturbed below first occupation level should be vitrified stone from lower levels. Why did early excavators, on encountering first occupation level, not dig below it? Boulders would appear to have been randomly thrown back into pit on top of first occupation level. No large boulders encountered in this section at all! unlikely that wall (in NO4) was pulled down in this ~~pit~~ trench by early excavators as large boulders should be present.

From levels in trenches NO4 + NO5 it would appear that walling is above first occupation level. Wall is post vitrification, so quite likely first occupation level is also post vitrification. As first + second occupation levels are same in character is second occupation level also post vitrification?

NO 7

N.B. — Vitrified material found immediately above bedrock in greyish ash layer.

O.K. NO3/WO4 Confirms occupation layers above fall.

The Vitrified Rampart

The rampart is built of two revetting walls with a core of rubble in the centre.

The Inner Face

Comments with upper 1½ metres exposed

The inner face of the rampart has been built of large blocks — mainly of [?] red sandstone showing slight metamorphism. These blocks have been split to give a straight smoothish face. Surprisingly only one conglomerate boulder appears in this section of the face and conglomerate is notably lacking in the rubble fall from the wall suggesting the mainly the stone has been brought from some distance ? where. There are occasional boulders of other rocks notably schists and quartzites. These have not been split and were probably local boulders which were used because of the smooth flat face. Their sub-rounded character suggests fluvioglacial origins. The revetting face had originally been neatly coursed using the above boulders which on average vary between 40 + 50 cms in length + 15 to 20 cms in depth with smaller packing. Long project back into the wall some 30 cms. Subsidence probably as a result of the slipping gives the wall its present appearance of

irregular coursing. Note on average the facing boulders are somewhat larger than those at Burghead and the standard of dressing much poorer.

Beam holes are clearly indicated at certain points in the wall but it is so difficult to be absolutely precise where all the beam holes were. ~~Some are smart~~ Those which are definite are marked on the plan. At the base of the section present exposed there may have been some sort of levelling courses. No sign of any timber remains in these beam holes. Many of the flags show vertical cracks indicating the problem of weight of thousa[?]. All stones show the standard dull reddening of heat.

Ref. Childe Abernethy

Bottom Section. The lowest four courses of the wall are built of very large blocks in the same way as the outer face. eg 65 x 50 cms. These are neatly coursed and show no indication of breaking course as the upper layers do. Nor are timber spaces so evident. The boulders show signs of heating but not the intensive heating and cracking that the upper layers display. — Seems to back the way the argument on the civil engineers suggest. The section at the bottom of the rampart was purely till. with a clear turf layer running underneath the rampart. The greasy layer does not come up to the rampart suggesting that the heating was not so intensive here as further out ? debris from building on turf layer.

Building debris layer between bottom 80 cms of foundation courses.

Total standing height of inner face 3.6 m

See further on

The rampart core

The rampart core consists of a wide variety of boulders on the whole smaller than those used in the rampart facing. There is a wide variety of rock many of them well rounded suggesting surface collection of boulders from all round the hill with no selection. Earth packing does not appear to have been used as the whole material is full of voids.

Vitrification occurs in the core of the wall apparently even at high levels. The vitrification is discontinuous providing large lumps in several patches.

From the evidence here there is no doubt that the vitrification must be related to the nature of the rocks at any given point in the [illegible] core. ie when rocks fuse at temperature below 1363°C. It follows that the reason why Burghead did not vitrify is that sufficient temperature not achieved either
a) Due to nature of rocks
(b) Conditions on that particular day (Ref. Childe)

The outer face

The rampart face still stands to a height of more than 2½m. and is very different in character from the upper parts of the outer face. Once again it is neatly coursed but the blocks are much larger in size - some 75 cms. in length and as much as 50 cms in depth. They project into the rampart ~~face~~ core about 40 cms. The blocks are of a similar variety of rock to the interior face. But conglomerate the native rock of the hill features much more prominently forming some 15% of the total of the exposed face. Loose packing was used to level the courses. It appears that the original face of the wall was vertical with no batter.

Evidence for timber through beams does not exist in the bottom 2m of this face.

All the usual characteristics of intense heating. At the base of the wall there appears to be some blackening with small pieces of charcoal lying on projecting steps of the stonework. No evidence so far that this charcoal penetrates far below ~~the wall~~ between the stones of the wall.

Just below the first course of the wall a cascade of vitrification spews out from the wall like a petrified waterfall. This is 40 cms thick and appears to have flowed out in a treacle like state ~~and~~ falling vertically till some 70 cms out from the wall. Its course partly predetermined by earlier rubble fall. No. Pulled face with it

Estimated volume of rampart

Length 191 yds width 7 yds Height 5'

191	191
21	35
191	955
382	573
4011.	6685
	1671
	8356

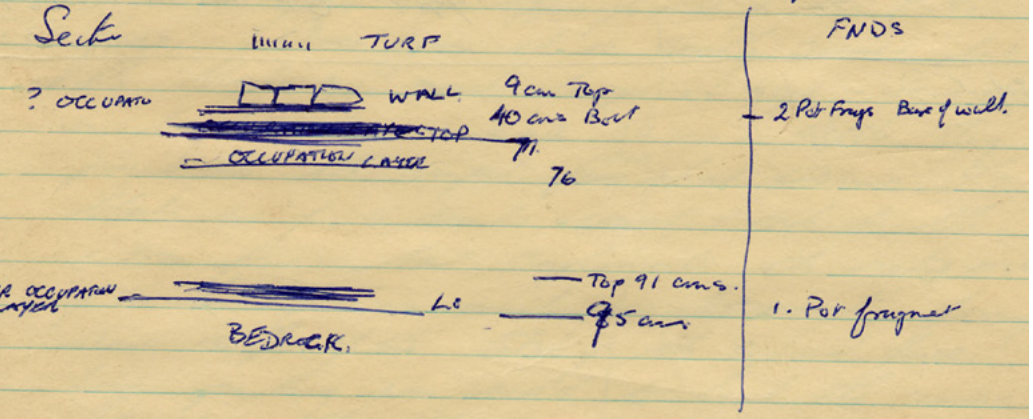
Approx 8300 cubic yds

Not finished

NO 4 continued

Bedrock in this sector is at 95 cms below the N turf surface. Sloping to the W. of trench

Sector



Loose occupation Layer Same character as in NOS → ie charcoal peat ash + Small fragments of calcined bone

Upper occupation Layer As before

Note wall sits on top of these layers and need not be contemporaneous with it.

At W. end of square wall appears to be destroyed. ? (19 Excavate

Outer rampart sect. west

The Inner Face

This face of this rampart is set in bell rock and separated from it by a thin turf layer 2-3 cms thick. The remaining revetting face stands 4 to 5 courses (70 cms) high of undressed stone of similar variety to the inner rampart. The boulders have, however, been selected to give a reasonably smooth face

Inner Rampart ~~Interior Face~~ Contd

Localised pockets of black material, apparently turf. ~~Two~~ Three tiny fragments of calcined bone from grunge at bottom of wall. Black localised material is certainly not timber. Extends 40 cms below wall nor rising down. ? Like Burghead stuff. But not a continuous layer. Definitely turf. Present water table cuts bottom of rampart on both sides. As two to three courses ⇒ Certainly no difficulty in getting a well inside the fort.

Lumps of charcoal taken between bottom courses of wall.

Turf layer interrupted by small boulders impinging into it

Outer Rampart Section West

The outer face of the rampart

The outer face of the rampart is exceedingly roughly built standing to a height of 152 cms. Originally it appears to have been a vertical face but now it tilts slightly outwards. The rampart is set on bedrock with a natural (?) turf layer 1-2 cms thick running beneath the wall.

The face of the wall appears to be very roughly built using large squarish blocks which show some signs of heating. Largest block in section measures 30x50 cms. The wall is roughly coursed and interspersed (?) with turf and 'peat'. All suggestive of very rapid building with whatever materials lay to hand.

The north section adjacent to wall

This section consists entirely of sandy earth with a few small stones and some signs of turf. The bedding of this suggests gradually run off the top of the wall. It is clearly a run off the wall rather than a filling up against.

The south section adjacent to the wall

Very similar in character to the N face but signs of a clear flat face of fairly large dimensions close against the outer face of the wall.

The rampart core

On surface indications across the rampart at this point there is a slight dip c. 20 cms in the centre suggesting the possibility of a double rampart. The section however shows clearly a single rampart with two sloping faces and the nature of the internal filling account for the dip in the profile.

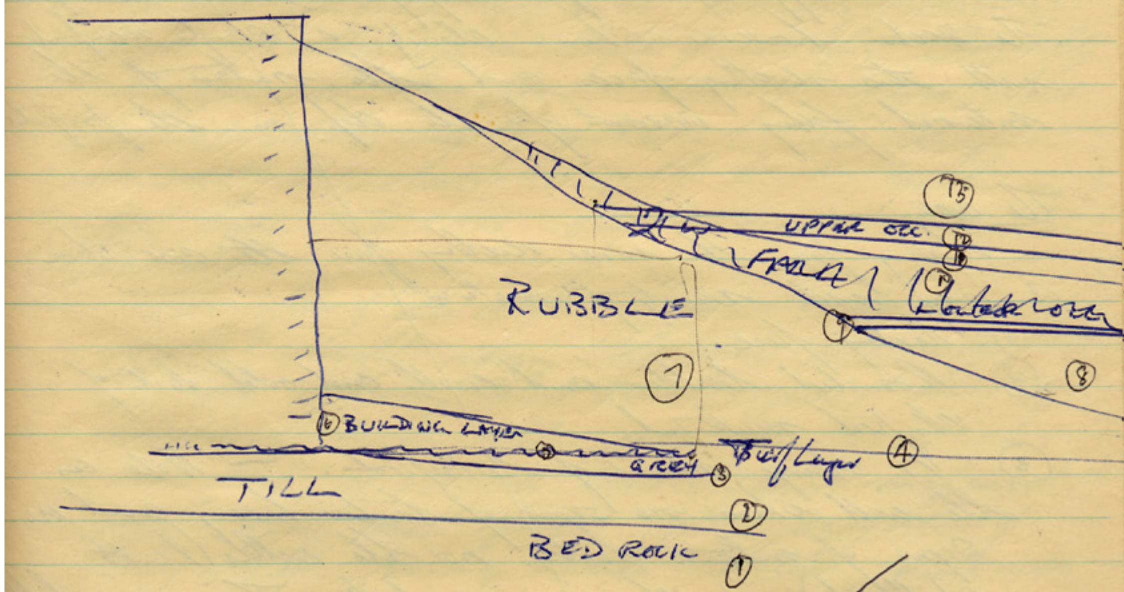
The core

Working from the inner sloping face the core shows a very wide variety of material.

1) Sloping face.
2) Rounded boulders and earth and odd bits of vitrified material.
3) A large chunk of vitrification. — Note as the wall shows no signs of timber lacing and no signs of intense heating nor the rubble (heat shattered) of the inner rampart. There is little doubt that this secondary rampart was be (?) so positioned to include the large fallen lump of vitrification. Beyond this lump some rounded boulders form the base of the rampart again including odd vitrified boulders but the bulk of the rampart is made up of brown peaty soils in which there are chunks of turf, peat etc.

This all points to a broad ? 7-8 metre rampart built of any old garbage lying around — wide but to no great height — perhaps 2m. with nothing of the superb character of the outer rampart.

Main rampart. Interior Stratigraphy.



Bedrock – Conglomerate Irregular – Rubbed and scuffed.

Greasy layer – This layer runs right through the section but peters out in the building layer. The interpretation of these as a blanket bleached layer would agree with the view that there is a podsol of the spring as the till close to the rampart is protected by the building layer and only rubble fall before occupants occurred higher up the wall.

Building layer – Fine gravel deposit entirely of several courses of wall and slipping off rapidly contains some smaller stones up to 6 inches diameter. This material is very wet and

South Rampart 2. Section

Outer Face

The outer face of the rampart has some of the same characteristics as the outer face of the west rampart in that it has been very roughly built. It is a revetting wall built directly on the till, with no turf layer at any point along the base of the wall or in the section suggesting that the top soil had been stripped off and used in the core before the outer revetting face was built.

The wall is nearly covered with no obvious select of large boulders to make the foundation course which indeed appears to be of a more irregular and rubbly nature than any other part of the wall.

Most of the boulders are oblong blocks some quite large 60x20 cms. Practically all show signs of intense heating and many have vertical cracks. One has vitrified material adhering to it. As far as can be judged the wall was originally vertical and then slumped back as the core consolidated. There is no peat or turf courses in the wall at this point.

The adjacent Section

Above the till there consist of a sandy brown earth with occasional pebbles. The material is completely unstratified and must be slip off the rampart, though this not nearly so clearly evidenced as

in the western section.
Some evidence of the old piece of turf and peat is in the full flat floor.

Along the junction between the till and the earth some blackening occurred which looked like a fragment of timber [Wood]

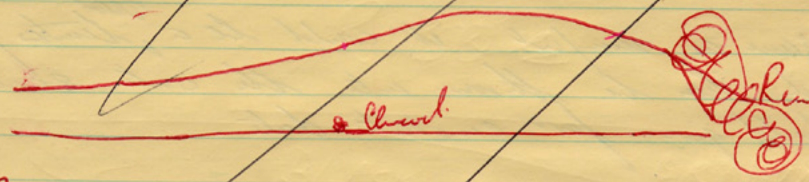
No other revetting face could be traced

<u>The core of the rampart.</u>

See section opposite

① <u>The bedrock</u> is the usual conglomerate. with the usual irregularity.
② Till.
③ Clay. – Grey leached gravelly subsoil Probably ancestral
4.) Turf layer extremely thin and peters out below disturbed till
5) Disturbed till
Other layers follow the rampart section.
But ⑦ Lower rubble with smaller broken material than the [illegible]
Which has many heat cracked stones

<u>Outer Rampart East</u>
No revetting walls recorded.
Greater part of rampart consists purely of earth – piled[?] up. – Occasionally showing courses of turf
Very few stones. Seems to have been packed and flooded(?) east. – Where did earth come from;



Rampart rubble. Contains vast quantities of heated stone. + some peat. Small peat fire set against inner slope of rampart

THOUGHTS

① If timber in E sect of outer rampart is earlier than main rampart :- Can outer ~~[illegible]~~ bank be pre inner rampart which has been added to after the destruct of the vitrified rampart.

② If same as rampart it would be a burnt timber from which has be thrown into the outer sect. ∴ Would give first construct date.

③ Vitrification

Low MP rocks — As though an earth mound of these dropped at one point. ? Low O_2 conditions. — How in nature of sulphur

④ Suggest height of outer rampart at each sect + Comment on lack of fall.

⑤ Outside peat fire nothing to do with vitrification

⑥ Population required to build

Why more in Scandinavia ⇒ Low Population

⑦ Frangibility due to heat bound to shatter on fall.