YMDDIRIEDOLAETH ARCHAEOLEGOL GWYNEDD GWYNEDD ARCHAEOLOGICAL TRUST

REPORT ON THE TENTH SEASON OF THE TRE'R CEIRI CONSERVATION PROJECT JUNE TO NOVEMBER 1998

PART 1: TEXT

D. HOPEWELL

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Fig. 1 General plan (after RCAHMW, 1960), showing areas conserved in the tenth season

CRYNODEB O WAITH A GYFLAWNWYD YN Y DEGFED TYMOR.

Disgrifiwyd Tre'e Ceiri (SH373446) yn aml fel un o'r bryngaerydd sydd wedi cael ei chadw orau yn Ynysoedd Prydain. Saif 485m uwchlaw'r môr ar y mwyaf dwyreiniol o dri chopa'r Eifl, ym mhenryn Llyn. Mae'r gaer ddwy hectar (Ffig. 1) wedi'i hamgylchu â wal gerrig sych anferth, 2.3 i 3.0m o drwch. Yn anarferol, oherwydd fod y safle mor anhygyrch a bod digonedd o gerrig i gael ar y copa, ychydig iawn o'r gwaith maen sydd wedi'i glirio oddi ar y safle er mwyn ei ail-ddefnyddio. Mae'r gwrthglawdd wedi goroesi yn agos i'w uchder gwreiddiol o 3.5 metr mewn mannau, gyda'r rhannau gorrau yn cynnal gwrthglawdd wal gerrig sych. Saif wal amddiffynnol allanol arall i'r gogledd-orllewin i'r gaer. Ceir dwy brif fynedfa drwy'r gwrthglawdd yn y gogledd, y gorllewin a'r de-ddwyrain. Caiff y gwrthglawdd ei gario dros gilborth y gogledd gan nifer o gapanau drysau carreg. Ymddengys mai'r fynedfa yn y gogledd-orllewin yw'r brif fynedfa i'r gaer gyda thramwyfa 15m o hyd yn arwain at lwybr wedi'i derasu a phorth arall drwy'r wal amddifynnol allanol. Mae tu mewn y gaer yn cynnwys olion tua 150 o gytiau cerrig sych a mannau caeedig sydd yn wahanol iawn o ran maint a siâp, o gytiau crwn syml i adeiladau afreolaidd a phetryal. Credir i'r gaer gael ei sefydlu rywbryd yn ystod y mil blynyddoedd laf CC ac mae amryw o gloddiadau wedi dangos fod pobl yn byw yn y cytiau hyd at y 4edd ganrif OC.

Mae'r safle ar hyn o bryd yn denu oddeutu 7,000 o ymwelwyr yn y flwyddyn ac mae hyn wedi golygu bod rhai llecynnau o fewn y gaer wedi cael eu herydu'n ddrwg. Ym 1989, mewn ymateb i'r ffaith fod y safle yn dal i ddirywio, sefydlwyd project cadwraeth Tre'r Ceiri gan Cyngor Dosbarth Dwyfor, gyda chymorth ariannol oddi wrth Cadw a Chyngor Sir Gwynedd. Contractiwyd tîm o dri saer maen i gadarnhaur' waliau drwy drwsio rhai oedd wedi disgyn a sefydlogi gwaith maen simsan. Goruchwyliwyd a chofnodwyd eu gwaith yn fanwl gan Ymddiriedolaeth Archaeolegol Gwynedd. Ar ddiwedd tymor 1995 trosglwyddwyd gweinyddiad y project i'r awdurdod unedol, Cyngor Gwynedd. Rhoddwyd cymorth arainol unwaith eto gan Cadw.

Cyflawnwyd y gwaith cadwraethol o'r gwrthglawdd a chant a chwech o gytiau yn ystod naw mlynedd cyntaf y project. Daeth llawer o wybodaeth i'r amlwg ynghylch strwythur ac dilyniant amser y safle yn ystod y broses gadwraethol.

Yn ystod y tymor 1998, gwnaethpwyd gwaith cadarnhau ar y 39 cwt olaf yn y rhan gogledd-orllewinol o'r gaer. Unwaith eto gwelir dystiolaeth yn y cytiau hyn, o is-rannu a newidiadau, sy'n cadarnhau y dilyniant strwythurol a drafodwyd yn adroddiad y llynedd. Cyflawnwyd adolygiad o sefydlogrwydd yr holl safle, hefyd darparwyd Cynllun Rheolaeth tymor-hir, yn ystod y tymor olaf. Mae gwaith cadarnhau y safle yn awr wedi ei gyflawni.

INTRODUCTION

Tre'r Ceiri (SH373446) has often been described as one of the best-preserved hillforts in the British Isles. It stands at a height of 485m O.D. on the easternmost of the three peaks of Yr Eifl, on the Lly^n Peninsula. The two-hectare fort (Fig. 1) is bounded by a massive, 2.3 to 3.0m thick, dry-stone wall. Unusually, due to the inaccessibility of the site and the abundance of stone on the peak very little masonry has been cleared from the site for re-use. The rampart has survived close to its original height of up to 3.5m in places, the best-preserved portions retaining a dry-stone rampart. A further outer defensive wall stands to the north-west of the fort. There are two defended entrances through the inner rampart, at the south-west and north-west of the fort with additional simple gaps in the rampart at the north, west and south-east. The rampart is carried over the north 'postern' by several stone lintels. The north-west entrance appears have been the main entrance into the fort with a 15m long passage leading to a terraced pathway and a further gateway through the outer defensive wall. The interior of the fort contains the remains of about 150 dry-stone huts and enclosures exhibiting a great variation in size and shape, ranging from simple round huts to irregular and rectangular structures.

A number of excavations have been carried out on the site; in 1903 S. Baring-Gould and R. Burnard excavated 32 huts (Baring-Gould and Burnard, 1904). In 1906 H. Hughes produced the first accurate plan of the fort, excavated 32 huts and examined the south-west entrance (Hughes, 1906). Further excavations were carried out in 1939 by G. Bersu, C. A. Gresham and W. J. Hemp, who examined five huts and a portion of the inner face of the rampart (Anon, *ca.* 1939). The south-eastern 'postern', and an additional 10 huts were excavated by A. H. A. Hogg in 1956. The excavations produced finds from later in the fort's history, demonstrating that the huts were used up to the 4th Century A.D. Descriptive surveys of Tre'r Ceiri were carried out in 1946 by W. E. Griffiths and in 1978 by K. Dallimore. Dallimore also allocated codes to the more serious collapses in the outer

face. Further plans of the site were produced by RCAHMW in 1960 and Plowman Craven and Associates in 1980.

This spectacular site has been attracting large numbers of visitors for at least 100 years. Complaints about visitor damage were made by the Cambrian Archaeological Association as long ago as 1894 (Cambrian Archaeological Association, 1895) and erosion has become a major problem. Increasing concern about the deterioration of the remains prompted Cyngor Dosbarth Dwyfor, in conjunction with Cadw: Welsh Historic Monuments and Gwynedd County Council, to embark in 1989 on a conservation project to consolidate the site. The project ran for an initial five years. Gwynedd Archaeological Trust was commissioned to provide archaeological supervision and to record all works as they progressed. A management plan was produced at the end of the fifth season including a survey of all unconserved areas in the fort, recommendations for a further, concluding, five years' work and a long-term management strategy. Funding was subsequently agreed by Cyngor Dosbarth Dwyfor, Cadw and Gwynedd County Council for a further five-year programme which commenced in 1994. Local government reorganisation in 1996 led to the formation of a new unitary authority, Gwynedd Council, who took over the management of the project from C.D.D. again with financial help from Cadw. The tenth season of the project was managed by C.D.D. and funded by Cadw. Work started in late June 1998, work continuing on site until mid November.

STAFF AND SUPERVISION

Works were conducted by Mr. T. Edwards, Mr. I. ap Llyfnwy, Mr. G. Roberts and Mr. J. Roberts of T.I.R. stonemasons, Penrhyndeudraeth, under the supervision of the writer. Monthly site meetings held in order to monitor the progress of the project and to arrange the work programmes were attended by the above stonemasons, the writer, Mr. David Longley of Gwynedd Archaeological Trust, Mr. Aled Davies of Gwynedd Council and Dr M. Yates and Dr K. Roberts of Cadw.

PROGRESS IN THE TENTH SEASON

Works in the tenth season were initially concentrated on the remaining 36 unconserved huts at the north-eastern end of the site. A further 3 huts that had been omitted from earlier seasons work were also consolidated. A review of the stability of the total conserved area was also carried out along with a small amount of remedial work. A long-term management plan was prepared at the end of the season. The weather during the working season was unusually cold and wet. Several days were lost due to severe conditions.

RECORDING METHODS

The huts destined for conservation were surveyed with a total station as the existing plans have been shown to be inaccurate. The plans were then printed out and fine detail was added by hand. All collapses were allocated a code based on the hut numbers on the RCAHMW plan. The established technique for recording standing masonry on Tre'r Ceiri was used where possible, i.e. wall were photographed in 2m segments with the film plane parallel to the wall, using a 28mm shift lens to correct the verticals. Each frame was taken from a distance of 4m thus producing an image using the 40% of the negative least affected by lens distortions, etc. A complete, overlapping, pre-conservation photographic sequence of the ramparts and huts has now been produced. It was necessary to adopt a more flexible approach to the photographic recording of some of the huts as the limited space inside them placed some constraints on the techniques that could be used. Where possible, photographs of standing masonry were taken using a levelled camera with the film plane parallel to the wall face using a normal 28mm lens. The 28mm shift lens was used to correct the verticals where a straight on shot could not be taken. A detailed written and photographic record was kept of the works as they progressed, supplemented with measured drawings where photographs could not show enough detail or demonstrate relationships between features clearly. All photographic records were taken on monochrome and colour prints, supplemented with colour transparencies for lecture purposes. At the end of the season the negatives were catalogued and stored in standard archive conditions.

DETAILS OF WORKS COMPLETED

Details follow of all conservation works completed during the tenth season. These can be located by reference to Fig.1 and the detailed location plans, Figs. 2, 8, 16, 24, 28, 33, 37 and 41. As the works were predominantly recorded photographically, it is recommended that the relevant plates in Part 2 be consulted alongside the text.

At the end of the season, the edges of the collapses and any disturbed masonry was marked with discreet 10mm diameter drill holes. In addition to this, polypropylene cord was placed at the lowest point of disturbance in the wall core and at any other relevant points in order to indicate the extent of clearance undertaken.



Fig. 2, Plan of huts centred around hut 55 before conservation

HUT 135 (Fig. 2)

This was an irregular hut built against hut 50, with low, poorly defined walls that were overgrown in places. The hut remains unexcavated. Hughes (*ca.* 1906) depicted the structure as being vaguely sub-rectangular (Fig. 3) with a break in the south-eastern wall. He did not however show facing at the end of the southern wall suggesting that there was not a well defined entrance at this time.

There appeared to have been little change since Griffiths described the hut in 1946:

'A hut of irregular outline, roughly 18 ft. $[5.5m] \ge 9$ ft. [2.7m] internally, set against the W wall of Hut 50. The floor is uneven and is 1 ft. 6 ins. [0.5m] below the general ground level. The walls are low and poorly built, 3 ft. 6 ins. [1.1m] thick and 6 ins. -2 ft. [0.15-0.6m] high, except on the E, where the wall (forming also the outer face of the wall of Hut 50) stands 6 ft. [1.8m] high. On the SE is a possible entrance 2-3 ft. [0.6-0.9m] wide.'



Fig. 3, Plan of huts centred around hut 55 (Hughes ca. 1906)



Fig. 4, Plan of huts centred around hut 55 (RCAHMW, 1960)

Collapse 135a

The eastern end of the stub of the southern wall was very unstable. Rough facing was standing to a maximum height of 0.4m on the inner face (Plate 1). The stones on the top of the facing were poorly supported and were tending to lever other stones out of position. Three stones, indicated on Plate 2, were reset in a more stable position. The end of the wall was examined in order to attempt to locate the entrance. Both the inner and outer facing continued for a short distance at ground level before becoming overgrown by well established turf. No further investigation was made.

Collapse 135b

The outer face corresponding to 135a was also unstable (Plate 3). The end of the wall consisted of several loose stones which were clearly not *in situ* and were not supporting the rest of the masonry. These stones were cleared and reused in a stable fashion (Plate 4). The wall top was then carefully packed.

Collapses 135c and 135d

The 0.8m length of the inner face immediately adjacent to hut 50 was stable, standing to a height of 1.2m (Plate 5). A 0.3m deep hole (135c) had however, been dug in front of the wall exposing the loose natural stones beneath. The masonry to the south-west of this point was ruinous and was standing as a 1.6m wide, steep rubble slope (135d, Plate 6). The loose stone was cleared from the collapse (Plate 7). The base of the wall had slumped forwards suggesting that the adjacent hole in the hut floor had once been larger and had undermined this section of wall. A large stone (A on Plate 8) was placed at the end of the stable masonry and a rough face was built above this that blended into the irregular collapse to the west (Plate 9).

Collapse 135e

A 2.0m length of somewhat rough outer face was standing on the south-west side of the hut (Plate 10). This appeared to be running at an oblique angle to the expected alignment of the hut wall (see Fig C). Careful examination revealed that the base of the facing had slipped forward forming a slight bulge thus making the exact alignment of the wall difficult to ascertain. The *in situ* facing was reasonably stable but was not well supported. Three loose stones from the surrounding rubble were therefore reset in order to provide more stability. These are indicated on Plate 11.

HUT 54 (Fig. 2)

This small rectangular hut was excavated by Hughes (1907) who reported that it 'was drawn blank'. His plan shows a roughly rectangular hut with an entrance in the north wall (Fig 3).

Griffiths described the hut in 1946:

'A rectangular hut, 11 ft x 10 ft. [3.0m] internally. The floor is 1 ft. 6 ins. [0.5m] below the general ground level. The hut walls are 5 ft. [1.5m] thick, and have an inner face 2 ft. [0.6m] high (reaching 4 ft. [1.2m] on the NE). On the SW is a narrow entrance 1 ft. 6 ins. [0.5m] Wide. There are traces of a blocking wall running across the middle of the hut from NW to SE.'

The RCAHMW (Fig. 4) plan also shows an entrance in the north wall.

Dallimores (1978) remarks were as follows:

Condition; fair to good. East wall well preserved up to 1.0m. North wall collapsed, but maintains good height. Some facing stones remain in south. South side of entrance well preserved.

There is an obvious discrepancy between on the one hand the two plans which depict the entrance at the eastern end of the north wall and on the other Griffiths and Dallimore who recorded an entrance in the western wall. The problems of interpretation are compounded by the deterioration in the condition of the northern wall as recorded by Dallimore.

The hut was surveyed at the beginning of the present season and the entrance in the western wall could be clearly seen. Unfortunately the northern wall was badly collapsed. For further discussion see below.

Collapse 54a

Most of the northern wall of the hut had been reduced to a rubble slope (Plate 12). A short length of semi-collapsed facing was visible at the eastern end. Both Hughes and RCAHMW had recorded an entrance in this wall but nothing was visible. It was noted that the ground level to the north of the hut was in excess of 1.0m higher than the floor which would result in either a prohibitively steep or very long entrance passage. This along with the presence of an entrance on the western side of the hut casts some doubt on the accuracy of the

Hughes and RCAHMW plans. It was decided to clear the collapse as it was unstable. The presence of unweathered stone showed that erosion was still taking place.

Plate 13 shows the collapse after initial clearance. A number of large blocks of stone could be seen to have tilted forwards and were lying in front of the line of the wall indicating a failure in the base of the facing. This type of collapse has been recorded in many of the huts (Hopewell 1996 and 1997) and is usually caused by treasure hunter holes in the hut floor that have been cut to below the base of the wall thus undermining it. Further clearance was undertaken (Plate 14) revealing the basal course of the south-eastern corner of the hut. One long stone (A on Plate 14) could be seen to have slipped off -line presumably carrying a section of wall with it. A 2m length of convincing basal course could be seen at the eastern end of the wall, casting further doubt upon the presence of an entrance in the northern wall. The long stone (A) was pushed back into line with the rest of the wall and new facing was added above the basal course. The top of the facing was stepped back slightly in order to compensate for a slight bulge in the line of the *in situ* wall base (Plates 15 and 16).

Collapse 54b

The eastern wall consisted of very irregular masonry that had probably settled somewhat in antiquity. There was one area of instability (54b) at the north end of the wall where a 0.7m length of the upper courses had been lost, leaving 0.3m of core standing above the facing (Plate 17). A small amount of core was cleared from the wall top and the dip in the facing was filled with the new masonry indicated on Plate 18.

Collapse 54c

This was a 0.6m wide area of instability in the upper courses at the south end of the eastern wall consisting of one large loose slab (stone A on Plate 19) and two small stones that had originated in the core. The large slab was pinned and the two small stones were replaced with suitably shaped headers (Plate 20).

The southern wall (54g)

The southern wall of the hut had completely collapsed (Plate 21). The base of the wall appeared to have slipped forwards, presumably into a hole, and the rest of the wall had settled backwards with the stones running down into the wall. The collapse was low and stable so no further action was taken.

Collapse 54f

The inner face of the hut immediately to the south of the entrance was low and the upper courses were unstable. One stone (A on Plate 22) had slipped from the wall and was replaced. A loose header was reset and pinned into place with a small packing stone (Plate 23).

Collapse 54d

The inner corner of the north side of the entrance had collapsed leaving the masonry to either side vulnerable to erosion (Plates 24 and 25). A large slab (stone A) lying on top of the corner of the entrance had slipped down from above. This was removed, revealing further stones, neither of which could be made stable in their original positions. Two of these, stones B and C (Plates 24 and 25), were significant facing stones in the entrance passage and it was hoped that they could be reset. The stones were removed revealing a large basal slab (stone D plate 26) which had an inverted v-shaped top, one side of which was tilted towards the entrance passage at an angle of about 45°. This stone could not be moved without a lot of further disturbance.

Several attempts were made to reset stones B and C in their original positions but this could not be done because of the shape of stone D. Stone A was eventually turned upside down and set into the wall at an angle and stone B was laterally rotated and replaced in order to compensate for stone D. Two carefully chosen stones were then added to the corner above stone B and a large slab was placed on the wall top (Plates 27 and 28). A hole in the entrance passage floor was also infilled.

Collapse 54e

The outer corner of the southern side of the entrance passage had collapsed (Plate 29). The loose stone was cleared away revealing an intact and stable basal course (Plate 30). New masonry was added to this up to the level of the surrounding masonry (Plate 31).

HUTS 136 and 109 (Fig. 2)

These small, unexcavated huts were examined at the beginning of the season. A stub of dividing wall standing to a height of about 0.3m could be seen. The masonry here was stable apart from a small amount of movement in the wall core. This was consolidated by the addition of two very small packing stones.

Hut 136 was visible as an overgrown circular hollow with a diameter of 3.2m. Hut 109 was less well defined although a sharp internal corner in the masonry could be seen in the north-west corner of the hut. The rest of the hut was overgrown and no further details could be seen. Pre-conservation photographs were taken and are retained in the archive (G1022/291/18 to 23). The packing stones added to the wall core of 136 were very small and could not be seen so no further recording was carried out.

HUT 56

This hut was excavated and planned by Hughes in 1906, his plan shows a circular hut with an entrance at the south-west (Fig. 3).

The excavation report states the following:

- (a) Fragment of iron
- (b) Charcoal
- (c) Pebbles

Griffiths' (1946) description was as follows:

A circular hut with an internal diameter of 16 ft. [4.9m], set against Hut 57 on the N and Hut 55 on the E. The floor is 2 ft. [0.6m] below the general ground level. The hut wall is 5 ft. 6 ins. [1.7m] Thick and has an inner face 3 ft. [0.9m] high on the S and W and 5 ft. [1.5m] high on the N and E. On the W is a narrow entrance 1 ft. 6 ins. [0.5m] wide.

Griffiths recorded no major damage. Dallimore however described collapses in the south and north wall. He also noticed that some facing stones had been lost from within the east wall. This damage had been noted by the writer during the fourth season when persons unknown had replaced the missing facing by well-packed but somewhat small new stones.

When the hut was recorded at the beginning of the present season substantial collapses were recorded in the north and south-eastern walls. The replacement facing in the eastern wall had fallen leaving a large void in the

wall. The whole of the north-eastern quadrant had either collapsed or was on the point of doing so. It was decided to stabilise this area first (56a, 56b and 56c).

Collapse 56a

Plate 32 shows the only masonry standing to a significant height in the north-east quadrant (56a). The masonry around the large void in the facing, as recorded by Dallimore, was extremely unstable. All of the stones in this length of wall were marked with a letter or number along with the corresponding stones on the relevant photograph (A to Z and 1 to 13). This would allow the masonry to be rebuilt in the event of a collapse. A few loose stones from the core were removed from the void. The collapse appeared to have occurred as a result of the undermining of the wall base to the north-west by a hole dug in the hut floor. The basal course had been displaced or lost and the facing had slumped down. The stones had fallen from the face because there was a large slab within the wall (now at the back of the void) which did not allow the facing stones to be tied into the wall core. The wall had slumped and these stones had been pushed out.

The void was carefully packed with new masonry and no *in situ* facing was disturbed. It was decided to attempt to clear part of collapse 56b, immediately to the north-west, at this point in order to see if the standing masonry could be preserved. The facing appeared to be supported by the fallen stones in collapse 56d. These were however carefully removed without causing any further damage. The facing was being supported by a long header, stone L, which was cantilevered into the wall core. Stones A and Z were reset very close to their original positions on the wall top as they were loose, no further masonry was disturbed. The only marked stones indicated on Plate 31 are those that are mentioned in the text. Plate 33 shows 56a and part of 56b after conservation.

Collapse 56b

This was a 2.0m wide collapse down to ground level (Plate 34). The wall was standing to a height of about 1.2m to either side. The collapsed stonework had been partially cleared during the conservation of 56a when it could be seen that the base of the wall had failed, probably as the result of a hole being dug in front of the wall. The rest of the collapse was cleared (Plate 35) confirming that the basal course had been lost. The majority of the stones in the lower part of the collapse were tilted downwards indicating that the base of the wall had indeed been undermined.

The line of the wall could easily be extrapolated across the collapse so new masonry was added up to the height of the wall on either side (Plate 36 and Fig. 7).

Collapse 56c

The masonry in other collapse in the north-east quadrant had been reduced to a 2.6m wide rubble slope with 0.6m of off-line facing surviving at the northern end (Plates 37 and 38). The off-line facing was stable but partially collapsed. The partial collapse here appeared to have been caused by an upright slab slipping forwards bringing the wall above with it (Plate 39). As this was stable and was supporting the masonry to the north it was decided to leave it in place.

The rest of the collapse was cleared revealing a convincing basal course across most of the collapse (Fig. 5 and Plate 40). No reason for the collapse was discovered during clearance but the level masonry at the base of the wall showed that it had not been undermined. New masonry was added above the *in situ* basal course (Plates 41 and 42). The off-line facing at the northern end of 56c was not disturbed and was left as a bulge in the base of the wall.



Fig. 5, Collapse 56c after clearance.

Collapse 56d

The upper part of the wall had slipped forward here and the top of the facing consisted of loose displaced stones (Plate 43). The loose stone was cleared and one stone (A) that had slipped forwards to a point of instability was pushed back into the wall. The stones that had been cleared from the wall top were used to produce a secure upper course (Plate 44).

Collapse 56e

The south-east side of the entrance passage had partially collapsed into a hole in the passage floor (Plates 45, 46 and 47). Erosion to the wall top had also resulted in some of the facing, particularly on the inner corner, falling back into the wall.

The hole in the floor was infilled. Several displaced stones in the facing in the centre of the passage were very unstable and could not be pinned in place. These stones were removed from the wall and replaced in different positions as it was not possible to reset the stones in a stable fashion in their original positions. The wall tops were stabilised by the addition of several heavy slabs. The new masonry is indicated on Plates 48 and 49.

Collapse 56g

The inner corner of the north-west side of the entrance passage was unstable but well defined (Plate 50). The outer end had however, completely collapsed and was showing signs of recent erosion. The inner end of the passage was stabilised by the addition of small pinning stones beneath the large slab that defined the passage corner (Plate 51). The collapse at the outer end was very unstable so several stones were cleared from the rubble and reset in a stable fashion. The base of the wall appeared to have been lost here so no attempt was made to define the outer corner of the entrance.

Collapse 56h

The inner facing on the western side of the hut was very irregular (Plates 52 and 53). Stones had been displaced from the wall top in several places resulting in some instability.

The loose stone was cleared from the wall top. These stones and several slabs from the scree were used to stabilise the upper courses. The core was then packed with small stones. The new and reset masonry is indicated on Plates 54 and 55.

Collapse 56f

The outer face on the western side of the hut could not be traced. There was however a lot of instability in this area with a steep rubble slope standing to the height of the inner face (Plate 56). A number of large stones had recently been displaced from this area and the inner face was not well supported. Several large slabs were recovered from in front of the slope and bedded into the collapse, thus making it more resistant to erosion (Plate 57).

HUT 55 (Fig. 2)

Hughes excavated this hut in 1906 and reported that 'a fragment of iron' was found. His plan depicts a small rectangular hut with an entrance at the north end of the south-eastern wall.

Griffiths' (1946) description was as follows:

A small rectangular hut, 11 ft. $[3.3m] \ge 6$ ft. [1.8m] internally. It is set against Hut 56 on the W, and its floor is 3 ft. [0.9m] below the general ground level, but is uneven. The hut wall has an inner face 2 ft. [0.6m] high. On the E is an entrance 1 ft. 6 ins. [0.5m] Wide, blocked by fallen stones.

Dallimore (1978) recorded facing up to 0.5m (0.05m in his report but presumably a typographic error). He noted that the west wall had collapsed and that the entrance was well defined although the west side was collapsing.

There appeared to have been little change from Dallimore's description when the hut was examined at the beginning of the current season. The north-eastern side of the entrance could however not be traced. This side of the entrance was shown to be continuous with the north-eastern wall of the hut by both Hughes and RCAHMW making the passage about 1.5m wide. Griffiths records the entrance as being 0.5m wide which is about average for the huts on Tre'r Ceiri. It was obvious that some facing had been lost from the north-eastern wall of the hut but Griffiths' description suggests that some further details may have been lost.

Collapse 55a

This was a 1.0m wide collapse in the north-western wall (Plate 58). There was some unweathered stone in the fallen masonry indicating recent erosion. The wall was standing to a height of 0.5m to either side and the collapse appeared to extend to close to ground level.

The loose stone was cleared from the collapse revealing intact masonry to a height of 0.2m beneath the rubble (Plate 59). No *in situ* masonry was disturbed and the dip in the facing was filled with new masonry (Plate 60).

Collapse 55b

The north-eastern half of the north-west wall was stable apart from the upper course which was loose and displaced (Plate 61). The loose stones were reset and the core was packed behind the facing (Plate 62).

Collapse 55c

The majority of the north-eastern wall had been lost since the hut was planned by RCAHMW in the late 1950s (Fig. 4). Plate 63 shows the remaining 0.8m length of masonry, the rest of the wall appeared to have been completely lost. The standing masonry was unsupported and unstable. Several heavy stones were used to buttress the end of the wall (Plate 64). This added considerably to the general stability of the *in situ* masonry.



Fig. 6, Collapse 55d after clearance

Collapse 55d

The south-western side of the entrance passage was reasonably well defined but had partially collapsed into a hole in the hut floor about 0.8m to the south-west (Plates 65 and 66). The standing masonry was unstable and consolidation was required.

The two obviously displaced stones on the top of the corner were cleared revealing two large, tilted slabs (A and B on Plate 67 and Fig 6). Two further stones (C and D) were resting on these slabs. Stone A was a long facing stone in the entrance passage which had been pushed out into the passage by about 0.1m because stone B was exerting a sideways pressure on it. Stones B, C and D were taken from the wall and stone A was pushed back into the wall. The void within the wall adjacent to stone A was packed allowing B to be reset in a horizontal position on the corner of the passage. Stone D was a thin but irregular stone that could not be reincorporated into the wall in its original position. This was reused elsewhere. Stone E was replaced close to its original position. Several more stones were added to the corner of the entrance in order to retain the core. The wall top was secured by a large heavy slab (Plates 68 and 69).

Collapse 55e

The south-western side of the entrance passage could be traced for 2.1m (Plate 66) before degenerating into a linear, roughly piled stone feature that was well defined for a further 2.6m. A rubble slope, 1.5m to the north-east, could be seen to run on a similar alignment. The long passage thus formed probably represented a pathway between the huts.

The 1.3m length of facing that had not been conserved as part of 55d was standing to a height of 0.3m to 0.5m. This was stable apart from the loose upper course. This was secured by the addition of the heavy headers indicated on Plate 69.

Collapse 55f

The core was packed behind the facing in the south-west of the hut in order to stabilise an eroded area between huts 54 and 55.

HUT 57 (Fig. 2)

Hut 57 was excavated by Hughes in 1906 who reported the following find:

An irregular mass of metal, about 1¹/₂ ins. by 1 in. by ¹/₂ in. A specimen of this material was submitted to Dr. Kennedy J.P. Orton, Professor of Chemistry at the University College of North Wales, Bangor. He reports:- "It consisted mainly of lead, with a trace of iron, encrusted, of course, with chalk, etc. There appeared to be no tin, zinc or copper."

His plan (Fig. 3) shows a subcircular hut with an entrance in the centre of the north-west wall.

Griffiths (1946) described the hut as follows:

A small square hut, 8 ft. [2.4m] square, set against Hut 58 on the N and Hut 56 on the S. The floor is 2 ft. [0.6m] below the general ground level. The hut wall has an inner face 3-5 ft. [0.9-1.5m] high. On the W is an entrance 1 ft. 6 ins. [0.5m] wide, partly blocked by fallen stones.

The RCAHMW plan (Fig. 4, 1960) shows a well-defined square hut with an entrance in the northern corner. Dallimore recorded a severe deterioration in the condition of the hut:

South wall collapsing. East and west walls up to 1.0m. West [? north-west] wall undermined by treasure hunter hack. Entrance preserved but collapsing.

There had been further deterioration by the time the hut was surveyed at the beginning of the present season. The south-eastern wall had totally collapsed and there was severe erosion to the north-western wall.

Collapse 57a

Dallimore recorded treasure hunter activity in this hut. The south-eastern wall appeared to have been undermined and to have fallen into a large hole (Plate 70). This is probably one of the most severe areas of damage caused by treasure hunters within Tre'r Ceiri.

The best clues as to the line of the wall in this type of collapse can often be found higher up the wall where stones have been held in place by intact masonry. Two such stones are marked with crosses on Plate 70 and probably represent the last remains of the facing in the corner of the hut. The facing was however supported by one small upright stone which was in turn held in place by loose rubble. A small amount of clearance was undertaken across the rest of the collapse. This demonstrated that the base of the wall had almost certainly been

lost and that it would not be possible to build a new wall as the other corner could not be traced. It was therefore decided to stabilise the collapse. The two poorly supported facing stones were held in place while the loose rubble was cleared from beneath them. This was then replaced with a few heavy stones from the scree in a stable but irregular fashion. This provided support for the *in situ* masonry and made the rubble slope less vulnerable to erosion. The south-western side of the collapse was more stable but was still vulnerable to erosion. Several pinning stones were therefore inserted. The stabilised slope is shown on Plate 71.

Collapse 57b

The corner of the south side of the entrance passage had collapsed down to ground level leaving the masonry to either side unsupported (Plates 72 and 73). The loose stone was cleared from the collapse revealing a stable and well defined basal course (Plate 74). New masonry was added above this up to the height of the surrounding wall (Plates 75 and 76).

Collapse 57c

The outer face continued for 2.4m to the south of the entrance before becoming ruinous (Plate 73). Three long stones were added to the end of the wall to provide support (Plate 76, to the right of the scale).

Collapse 57d

The north-west wall and the corresponding side of the entrance passage were somewhat ruinous having collapsed to close to ground level in places (Plates 77 and 78). There was a lot of unweathered stone on the wall top indicating recent erosion.

The displaced stone was cleared from the collapse revealing facing standing to a height of between 0.2m at the inner corner and 0.5m at the edges of the collapse (Plate 79). New facing was added above this to a height of about 0.5m (Plates 80 and 81) thus providing support for the surrounding masonry.

Collapse 57e

A few stones were loose on the top of the south western wall (Plate 82). The stones were reset and core was packed behind them (Plate 83).

Collapse 57f

Several stones had been lost from the top of the north-eastern wall leaving unsupported core (Plate 84). A small amount of loose core was cleared and the wall top was secured using large slabs taken from the scree (Plate 85).

Collapse 57g

A large flat stone had fallen from the wall top and was leaning against the outer face of the north-western wall (Plate 86). Several other stones were also lying in front of the wall. The fallen slabs were used to secure an instability in the wall top (Plate 87).

HUT 58 (Fig. 2)

This hut was excavated by Hughes in 1906. The excavation report was as follows:

(a) Fragment of bone of ox, and one other small bone.

(b) Several fragments of pottery, much decayed, of a yellowish tint; in its present state very fragile. Similar to the remains of the Mortarium found in Hut 60.

His plan (Fig. 3) showed a rectangular hut with rounded corners. The entrance was at the north-west and there was a break in the north-eastern wall.

Griffiths recorded the hut in 1946:

A small hut, roughly circular, with an internal diameter of 9 ft. [2.7m], set against Hut 57 on the S. The floor is 3 ft. [0.9m] below the general ground level. The hut wall is 4 ft. [1.2m] thick and has an inner face 1 ft. 6 ins. – 3 ft. [0.5m-0.9m] high. On the W is a blocked entrance 2 ft. [0.6m] wide, with a sloping ramp leading up to it from the entrance to Hut 60.

Dallimore's survey shows that the hut was not well preserved by 1978:

West and south walls up to 0.25m with facing stones. Rest collapsed. Has treasure hunter hack.

When the hut was surveyed at the beginning of the present season there appeared to be little change from Dallimore's description. Very little remained of northern half of the hut and holes in the hut floor in this area again suggest that treasure hunting activities played a part in the destruction. It should also be noted that the north-eastern side of the hut was probably in a poor condition in 1906 as Hughes shows a break in the wall here. Griffiths' description of a 'roughly circular' hut seems to be suspect as both the Hughes and RCAHMW plans show well defined corners in the better preserved areas of the hut.

Collapse 58a

The northern side of the hut had been reduced to a 3.0m wide, featureless rubble slope (Plates 88 and 89). A small amount of material was cleared and it soon became clear that there had been a major collapse from low down in the wall. Any attempt to replace the facing would have required the removal of a very large amount of stone and, as the wall may wall have been undermined, the chance of success seemed to be slim. It was therefore decided to stabilise the collapse with the minimum of disturbance. Some of the small loose stone was therefore cleared and long, heavy pinning stones inserted into the scree to act as anchor points. The smaller stones were then packed back into the slope. The major pinning stones are marked on Plates 90 and 91.

Collapse 58h

The eastern wall was quite well preserved standing up to a height of 0.6m (Plate 92). The northern end of the wall had however begun to collapse since it was not supported by any adjacent masonry. The displaced stone was cleared from this area and replaced with stable facing that was blended into the stabilised collapse 58a in order to support the end of the wall. Two further stones were added to the top of the facing at the southern end of the wall. The new masonry is indicated on Plate 93.

Collapse 58b

There had been some recent damage to the south-eastern end of the south-western wall. A 1.1m length of the upper part of the wall had fallen forwards into the hut (Plate 94). The unweathered stone in the collapse showed that some of this damage had been recent.

The collapsed masonry was cleared revealing the lower few courses of masonry, which were stable. The recovered stone was then used build the new face shown on Plate 95.

Collapse 58g

The short length of wall to the south-west of the collapsed entrance had been reduced to rubble (Plate 96). There was however still some instability here so two small headers were added to the end of the south western wall (Plate 97) and one stone was added to the north-western wall (Plate 98).

Collapse 58c

The inner face to the north-east of the entrance was also ruinous but a 0.7m length of low, unstable facing had survived within the rubble (Plate 96). This facing consisted of small stones that could not be made stable without a total rebuild and consequently the loss of all *in situ* masonry. It was therefore decided to protect the masonry by the addition of the four large slabs shown on Plate 98. Plate 99 shows 58c after clearance of a small amount of tumbled stone.



Fig. 7, Plan of huts centred around hut 55 after conservation

Collapse 58d

The outer end of the north-eastern side of the entrance was well defined and stable apart from one long stone that had slipped towards the outside of the hut (Plate 100 stone X). The stone was pushed back onto the wall (Plate 101).

Collapse 58e

The outer face of the north-western side of the hut was standing to a maximum height of 0.6m. There was some instability where the wall graded down to the entrance (58d) at one end and an area of collapse or scree at the other. The wall top adjacent to the entrance was secured by the addition of several heavy slabs. The north-eastern end of the wall was supported by the addition of a single long header. The new masonry is indicated on Plate 101.

Collapse 58f

The outer corner of the south western side of the entrance was well defined but a little unstable (Plate 102). A large slab on the top of the wall was loose and the facing beneath was not locked together. A small pinning stone was added low down in the wall and the top two stones were slightly reset. Three further stones were added to the top of the outer face to the south-west of the entrance (Plate 103).



Fig. 8, Huts 59 to 61 before conservation.

HUT 60 (Fig. 8)

Hughes excavated this hut in 1906. The following was recovered from the excavation:

Many fragments of a Mortarium. Where cleanly broken, the material is of a yellow colour. The surface, however, has a drabby appearance, with a tinge of dull red. Portions are stained black, probably due to the peaty deposit accumulated on the floor level of the Hut, in which they were imbedded. The interior is sprinkled with fragments of quartz, which are more numerous at the bottom, and gradually decrease in number upwards, till they cease below the sinking carried round the vessel about 1 in. vertically below the rim. The quartz fragments are worn down from continued use. The diameter of the base appears to have been about 4¼ ins., and the full external diameter across the rim a little over 13 ins.

His plan (Fig. 9) shows a D-shaped hut with an entrance at the end of the straight side.

Griffiths' description (1946) was as follows:

A tiny oval hut, 10 ft. [3.0m] x 7 ft. 6 ins. [2.3m] Internally, set against scree on the NE, Hut 61 on the W, and Hut 59 on the S. The floor is 2 ft. [0.6m] below the general ground level. The hut wall has an inner face 2 ft. [0.6m] high. On the E is an entrance 3 ft. [0.9m] wide, with a sloping passageway choked with fallen stones.

Hogg (1960) produced a detailed plan of the hut (Fig. 10) and recorded intact facing around the majority of the interior. The eastern side of the entrance appeared to have been lost. He also undertook a small amount of clearance in the hut but this was apparently abandoned at an early stage.

Dallimore (1978) recorded that the south and west walls had collapsed.

When the hut was surveyed at the beginning of the present season the north-east wall roughly corresponded to Hogg's plan. The south-western wall was however, mainly ruinous.

Collapse 60a

The central 2.5m of the south-western wall had been reduced to an eroding slope of loose stone (Plate 104). The loose stone was cleared from the collapse but nothing remained of the facing recorded on this side of the hut by Hogg (Plate 105). The wall appeared to have been undermined and the facing to the south had also slumped somewhat. There had obviously been some severe damage since the hut was recorded in 1956 but it is not know if the wall was entirely intact at the time of recording. The correct line of the wall could therefore not be accurately determined so it was decided to replace the cleared stone in a stable fashion (Plate 106).

Collapse 60b

A 0.6m length of facing had collapsed to close to ground level at the northern end of the hut (Plate 107). This appeared to have been caused by a failure at the base of the wall as an off line basal stone could be seen beneath the collapse.

The fallen masonry was cleared revealing the off-line and forward-sloping basal stone (beneath the lower scale, Plate 108). Behind this was a 1.0m length of reasonably well-defined facing running obliquely into the wall (Fig. 11). The upper 0.5m of this facing was quite clear but the base of the wall was jumbled and unconvincing. No further facing could be seen running into the wall beyond this point. The facing could be the remains of an earlier phase of building in this hut; the angular northern end of the hut suggests that modifications may have been made at some time in antiquity. The lack of a convincing basal course however must cast some doubt on this hypothesis. The lower part of the wall could have been lost due to the wall being undermined but it is also possible that the short length of surviving facing was originally a temporary revetment designed to retain the scree while the hut wall was being built (This type of detail has been observed in several other huts, see collapse 59b below). The fact that the facing is continuous with the main hut wall does suggest that the first hypothesis is correct as all other temporary revetments so far observed have been set back into the wall and separate from



Fig. 9, Huts 59 to 61 (Hughes ca. 1906)



Fig. 10, Huts 59 to 61 (Hogg, 1960)

other facing. Only extensive excavation could have resolved the problem for certain and this was obviously beyond the remit of the current project.

The off-line basal stone was reset in a level position and a new panel of facing was built following the line of the extant hut wall (Plate 109).



Fig. 11, Collapse 60b after clearance

Collapse 60c

The upper part of the southern end of the eastern wall was extremely unstable. A single 1.0m long stretcher was precariously balanced on the top of 0.2m of small stones which were beginning to fall out of the wall (Plate 110). The long stone was taken from the wall and the loose small stones were cleared (Plate 111). This revealed the intact wall base and a number of large stones in the wall core just behind the line of the face. The small stones that had originally been beneath the long stretcher had obviously been used as facing stones in order to compensate for the lack of space for 'proper' headers. As the condition of the wall had deteriorated the stones had come loose because they were not tied into the wall core. It is unusual but not unknown to find large stones within the core that prevent the use of effective headers. This situation has occurred in other huts where collapses have been repaired or walls have been modified in antiquity. This anomalous building style again suggests that substantial modifications have occurred in this hut.

The small stones were replaced with wider stones that could be locked together and the long stretcher was replaced on the wall top. Five more heavy stones were added to the wall top in order to tie the facing into the core. The new masonry is indicated on Plate 112.

Collapse 60e

The eastern wall could not be traced beyond 60c but the scree slope here was suffering from recent erosion (Plate 113). Several large slabs were therefore embedded in the slope in order to hold back the loose stone (Plate 114).

Collapse 60d

The outer corner of the south-west side of the entrance was still reasonably well defined although there had apparently been some slumping of the masonry (Plate 115). The standing masonry was however not entirely stable as most of the south-western side had been lost thus leaving 60d unsupported. The *in situ* facing was stabilised by the addition of a new upper course of long heavy headers that filled the dips in the facing to the north-west and stabilised the wall top (Plate 116).

Collapse 60e

The remainder of the unconserved wall at the north-western end of the hut was stable apart from a few lose stones on the wall top (Plate 117). This was stabilised by the addition of the stones indicated on Plate 118.

HUT 59

This hut was excavated by Hughes in 1906 who reported thus:

(a) "Pot-boiler"

(b) "Charcoal"

(c) "Right humerus of ox (Bos-longifrons)

His plan showed a roughly circular hut with a break in the wall at the west. A pencil-drawn partition can be seen on the unpublished plan (Fig. 9). This does not however appear on the final published version.

The hut was described by Griffiths in 1946:

A large circular hut of excellent construction, with an internal diameter of 19 ft. [5.8m] The floor is ft. below the general ground level. The hut wall is 5 ft. [1.5m] thick and has an inner face 4 ft. [1.2m] high on the S and W, 6 ft. [1.8m] high on the N, and 7 ft. [2.1m] high on the E. There is no entrance. A blocking wall has been inserted across the middle of the hut from S to N; this is 4 ft. [1.2m] thick and stands 1 ft. [0.3m] high on the S and 4 ft high on the N, where it splays out to butt against the hut wall.

The hut was re-examined and planned by Hogg (1960). He made a little superficial clearance mainly in order to ascertain the plan of the entrance which he presumed would be on the south of the hut. This appears to be an error as the south side of the hut was apparently reasonably well preserved and the entrance was almost certainly on the west. He was convinced that there had been a great deal of modern building and that much excavation would be required to recover any information. It appears that the clearance was abandoned at this point.

There appears to have been a considerable deterioration in the condition of the hut after this examination, Dallimore (1978) recorded collapses in the north and south walls. When the hut was recorded at the beginning of the present season the majority of the south and west walls were in a state of collapse.

Collapse 59a

The first part of the hut to be examined was the stub of dividing wall. This extended out into the hut for 2m and was showing signs of erosion. The height of the facing dropped steeply from 1.1m, adjacent to the main hut wall, to ground level in the centre of the hut. It had been noticed that visitors were using this 'ramp' as a way into the hut and dislodging stones from the dividing wall. Plates 119 and 120 show the north-western and south-eastern sides of the dividing wall respectively. The north-western side of the dividing wall appeared to include an additional blocking wall of the type that was encountered in many of the subdivided huts that were encountered during seasons 8 and 9 (see Hopewell, 1996 and 1997).



Fig. 12, Collapse 59a after clearance

The whole of the dividing wall and associated structures was covered in loose stone. This was cleared in order to allow stabilisation works. The relationship between the various elements of the dividing wall and hut wall could be seen at this point (Plate 121 Fig. 12). Hogg had maintained that the dividing walls in the huts that he had examined were of one build with the roundhouse walls. The huts were however not particularly well preserved and he admitted that his observations fell short of proving the relationship conclusively. He also observed that there had been some modern rebuilding (probably by Hughes) in the huts. Subsequent work on the huts during seasons 8 and 9 of the present project has shown that at least some of the divided houses consist of more than one phase of building. The work has also suggested that some of the modern rebuilds that Hogg identified were original masonry (see hut 89, Hopewell 1996). Hogg did not venture an opinion about hut 59 but several things were immediately obvious when the hut was examined after clearance during the present season. The roundhouse wall could be seen to run behind the wedge of blocking wall and appeared to continue behind the end of the dividing wall. There were however some problems here. There was a very clear straight joint between the dividing wall and the roundhouse wall on the south-eastern side. The upper part of the roundhouse wall could be seen to run behind the end of the dividing wall for about 0.4m before being lost in rubble (Plate 122). A similar situation could be seen on the north-western side of the dividing wall but the two lengths of roundhouse wall followed different alignments. The facing on the south-east was running about 20° in front of that on the north-west. Unfortunately it was not possible to uncover any further details without disturbing in situ masonry. The dividing wall appeared to have been built against the roundhouse wall as masonry could be seen to run behind the facing on both sides of the division. The discontinuity in the line of the roundhouse wall is however difficult to explain. It could be the result of collapse or slumping but this seems to be unlikely because the facing would have been supported by the dividing wall. Similar anomalies have been observed in huts 3 and 4 (Hopewell 1998) and huts 17 and 18 (Hopewell 1997). See below (hut 61) for further discussion.

The top of the dividing wall was secured with heavy and where possible irregular slabs. It was felt that a rough appearance would help to dissuade visitors from using this feature as an exit ramp from the hut. The top of the wedge-shaped blocking wall was stabilised by the addition of masonry up to the height of the roundhouse wall. The new masonry was built in accordance with the phasing described above. The straight joints at the sides of the dividing wall were respected but the masonry behind the end of the division was not built to a definite line. The new masonry is indicated on Plates 123 to 125.

Collapse 59 b

Most of the facing on the southern side of the hut had collapsed. There was some surviving facing about half way along the collapsed area and it was decided that the best way to preserve this was to conserve this wall in two sections. The north-eastern end (59b) appeared to be the least stable and was consolidated first. A roughly V-shaped area of facing had collapsed here leaving unsupported masonry standing to a height of 1.5m to the north. The facing to the south-western side of the collapse was partially collapsed and unstable.

The masonry to either side was numbered (Plate 126) and the rubble was cleared from the line of the wall. This revealed one *in situ* basal stone in the centre of the collapse and off line semi-collapsed facing at the south-west (Plate 127 and Fig 13). No *in situ* masonry was disturbed during clearance. An interesting feature of this collapse was what initially appeared to be an additional face set back into the core behind the line of the wall. After clearance it became obvious that the face did not extend down to the hut floor. This type of masonry has been observed in other huts on Tre'r Ceiri. The huts appear to have been constructed by digging a hole into the scree and then building facing around the edge of the hole. It seems likely that these lengths of rough masonry high up in the scree represent revetting on the edge of the hole designed to stop loose stone falling on the builders. No further clearance could be undertaken without disturbing this feature so the offline header (Stone BB on Fig. 13) was not moved and new masonry was added above both this stone and the newly uncovered basal stone AA. The base of the wall was built 10cm in front of stone AA in order to allow the provide a stable lower course. The wall above this was then stepped in to the correct line. The new masonry was built up to the height of surviving wall at the north-east and to the height of stone U at the south-west. This provided sufficient support for the facing and the core to allow the clearance of 59c. Plate 128 shows the collapse after conservation of 59c and the addition of further new masonry.

Collapse 59c

There had been a serious slump in the base of the wall at this point. Jumbled masonry was still standing to a height of 1.0m but the lower courses had slipped forwards by close to 0.5m. The masonry had retained some structure but at the centre the stones were all tilted forwards and were too far off line to be reset. All stones that appeared to be close to their original positions were marked (1 to 7 and 12 to 24 at the left of Plate 129 and A to W at the right) and the collapsed masonry was cleared. The base of the wall appeared to have been undermined as most of the rubble that had been cleared was tipped forwards at an acute angle. The core was however remarkably stable and contained what appeared to a number of long pinning stones suggesting that this was a continuation of the revetting observed in 59b. The marked stones W, V and U in the centre of the collapse were too far out of position to be replaced and were used elsewhere. All of the marked stones apart from number 7 on the right of Plate 129 were taken from the wall and retained because the base of the wall had been lost and the stones were standing on unstable rubble. The marked masonry on the right of the collapse was stable and was not disturbed. Plate 130 shows the collapse after clearance (the stone marked with an X is not original), as expected no basal course had survived.

The surviving masonry at either side of 59c gave a good indication of the line of the wall so a new basal course was laid across the collapse. Most of the marked stones from the right of the collapse were replaced close to their original positions after the new basal course had been constructed. The stones had to be set back into the wall by a few cm to compensate for the bulge at the edge of the collapse so a few minor adjustments had to be made. Stones 12, 14, 15 and 26 were all short packing stones and could not be reset. Stone 2 was reset upside down. Stone 7 could not be incorporated in the rebuilt masonry because there was not enough space for it after the masonry was set back in line with the rest of the wall. The new and rebuilt masonry is indicated on Plate 131.



Fig. 13, Collapse 59b after clearance

Collapse 59d

The majority of the south-western wall of the hut had been reduced to rubble (Plates 132 and 133). The entrance was probably in this wall but was not recorded by Hughes or Griffiths suggesting that this area had been damaged in excess of 100 years ago. Hogg carried out a little superficial clearance here but concluded that there had been a great deal of modern rebuilding and that much excavation would be necessary to recover the original shape. The survey carried out at the beginning of this season (Fig. 8) produced similar results to Hogg's plan (Fig. 10). The only surviving masonry was a 1.2m length of rough facing running at an oblique angle to the south-eastern wall. Modern rebuilds tend to consist of roughly laid masonry that do not always follow the line of the basal course. This tends to be very distinctive and was recorded in many huts, two good examples being Huts 61 and 57 (see below for further details). The upper part of the surviving masonry appeared to be modern but the basal course matched the style of the adjacent facing and was presumed to be original. The whole of the south-western side of the hut had been suffering from recent erosion. It was therefore decided to attempt to stabilise the area because visitors will continue to walk over the rubble to gain access to the hut.

The upper layer of loose stone was cleared revealing some possible alignments of stone and a black peat deposit. Two large slabs were uncovered towards the south-west of the cleared area that may have formed the outer end of the entrance passage. There was still a large amount of loose stone that could not be stabilised so further clearance was undertaken and the peat deposit was excavated in order to clarify the extent of survival of masonry around the entrance. The deposit was carefully examined and was found to consist of the very fine peat which tends to wash into any hollow on Tre'r Ceiri. This has a much finer texture than *in situ* peat deposits. This was excavated and found to be on average about 0.2m thick and was concentrated in a hollow that appeared to be the remains of the entrance passage. No finds were recovered from the deposit. The area was planned and photographed.

Plates 134 and 135 and Fig. 14 show the south-western wall after clearance. The remains of the entrance passage are clearly visible with two heavy slabs, one on top of the other, defining the outer end of the northern side. The centre of the northern side had collapsed and could not be traced although the rough remains of the inner corner and a wall abutting the northern side of the hut could be identified. This masonry was however partially collapsed and may not have indicated the exact line of the wall. The southern side of the entrance

passage was also partially collapsed. The inner end was well defined but a collapse had occurred in the outer end that had dragged much of the rest of the facing into the passage.

There was enough evidence here to show that the entrance was 0.6 to 0.7m wide and that it occurred in the centre of a wall that probably abutted the original roundhouse wall. The exact line of the wall and entrance was however, not well defined. It was therefore decided to infill the excavated area with stable stone and mark the extent of excavation with the usual polypropylene cord. Three heavy slabs were added to the top of the end of the surviving roundhouse wall. Plate 136 shows the area after consolidation.

The standing masonry to the south-west of the entrance was still unstable (Plate 132). This was examined and found to be close to collapse. Most of the stone was loose, including the basal course. Several attempts were made to pin the facing but it could not be locked into place. It was decided that any attempt at a rebuild would probably result in the total loss of the feature so it was decided to support the extant masonry. The loose stone and modern rebuild was cleared from the top of the wall. The end of the wall was supported and the wall top was secured by the addition of a layer of heavy headers. The additional weight helped to lock the wall below together. The new masonry is shown on Plate 137.

Collapse 59e

The was some instability in the wall top on the south side of the hut (Plate 138). This was stabilised by resetting two stones and adding two new headers (Plate 139). No *in situ* masonry was disturbed.

HUT 61 (Fig. 8)

This hut was originally excavated by Hughes in 1906 who reported the following finds:

The base, and several fragments of a red earthenware vessel. The diameter of the base is $^{2}/_{3}$ in. The formation of the vessel is spiral. The clay is worked on a curve, which continually recedes as it rises upwards from the centre of the bottom of the vessel, about which it revolves. The external face appears to have been slightly glazed, and finished to a terra-cotta surface.

His plan (Fig. 9) suggests that only half of the hut was excavated. The hut is currently visible as a large roundhouse with a central dividing wall. Hughes' plan shows only the southern half of the hut and even here does not define any facing.

Griffiths' description (1946) was as follows:

Originally a circular hut with an internal diameter of 16 ft. [4.9m] The Wall was 6 ft. [1.8m] thick; its footings only remain on the NW, but on the NE, E and SE it has an excellently built inner face 6 ft. [1.8m] high. The floor is 4 ft. [1.2m] below the general ground level. A W entrance is doubtful. On the S the hut wall has a poorly built outer face 1 ft. 6 ins. [0.5m] High. Later a blocking wall was inserted across the hut from NE to SW; its NW face is ruined, but it has a good SE face 5 ft. [1.5m] high.

He obviously recognised the dividing wall but underestimated the diameter of the hut (about 6.0m). The 6ft. high facing also seems to be unlikely.

Hogg (1960) excavated the northern half of the hut and reported the following:

This was a round house about 22 ft. [6.7m] N.-S. by 20 ft. [6.1m], divided into two unequal compartments by a cross-wall. The S. compartment was cleared in 1906, and produced scattered fragments of a Roman pot. As the N. part seemed to be undisturbed, it was decided to examine it in the hope (unfulfilled) that sherds might be found in a significant relationship to the partition wall.

The floor of the hut was mostly formed by a thin layer of clay, but part was covered by an L-shaped patch of rough paving, above which two smallish stones set on edge projected a few inches, possibly to retain the edge of



Fig. 14, Collapse 59d after clearance

a couch. Two stones near the middle of the partition wall may have formed the packing of a shallow post-hole, but it is more likely that their position was fortuitous. No occupation soil was found on the floor.

The walls, mainly of laid stones, were about 4 ft. [1.2m] thick, and the original masonry stood to a height of about 2 ft. [0.6m], to which a further 2 ft. [0.6m] of modern rebuilding had been added. There were indications that the outer face existed throughout most of the circuit, but it was not followed up.

The entrance was on the W. Its N. side was badly ruined, but it seems originally to have been a gap about 9 ft. [2.7m] wide, divided by the partition wall. The end of this was set back about 2 ft. [0.6m] from the outer face of the house wall, leaving openings 3 ft. 6 ins. wide on the S. and about 2 ft. [0.6m] wide on the N. The building thus formed in effect two separate D-shaped compartments set back-to-back, with separate entrances from a single shallow porch.

The inner face of the N. compartment was found to be very badly ruined; no satisfactory line could be established. The outer face was traced round for about 15 ft. [4.6m] from the entrance, but its curvature was such that if continued it would pass well within the established line of the inner face. It was found, however, that this apparent anomaly resulted from the method of construction of the wall, and its subsequent collapse. Where the hut floor was below scree level, the wall had been formed by setting upright slabs against the excavated face of the scree, and then building up a wall of normal thickness with its inner face resting on the top of the upright slab and its outer face on the retained scree. This type of building usually collapses into a confused mass of slabs and rubble, but at the place considered the upright slabs had tilted forward and the scree behind had moved also, carrying with it the whole of the wall above for about 2 feet without much disturbance to its outer face (see section Fit. 14).

About 6 ft. [1.8m] of the N.E. end of the partition wall was removed, to investigate the junction with the outer wall and to look for stratified material beneath its foundations. Superficially, there was a straight joint between the end of the partition wall and the enclosing wall, but this proved to be the result of modern rebuilding.

There was no straight joint in the original structure, but the adjacent facing of the outer wall had fallen into complete ruin, so once again the evidence is unfortunately not absolutely conclusive. There can, however, be no real doubt that partition and outer walls were one build.

The absence of any straight joint here is significant. Although the adjacent facing of the outer wall has now all collapsed, it seems very improbable that the partition would have been built after that had occurred; and once the partition had been built, it would preserve any wall-face against which it abutted. It follows therefore that the partition was of one build with the outer wall.

This is confirmed by the absence of occupation material beneath the partition, which had apparently been built directly upon the mass of small flattish stones which is characteristic of the floor left when a hollow is cleared in the scree. Once again, however, the evidence falls short of absolute proof, as there was very little trace of occupation in the compartment cleared.

The hut was surveyed at the beginning of the present season and there appeared to be only a little deterioration since Hogg's excavations. Most of the southern wall was in very poor condition. Original facing could be seen standing to a height of between 0.2 and 0.5m beneath unstable piled stone that was presumably from Hughes excavations. The original facing was very distinctive, consisting of large well-weathered slabs and blocks built to a rough face. The modern rebuild contained a higher proportion of small stones many of which were not well-weathered and there had also been no attempt to build this to a face. Photographs from 1956 show that the northern half of the hut was in very poor condition with the only *in situ* facing being on the partition. The southern side had not been photographed in detail but appeared to consist of low original facing with loose stone piled on top of it.

A small rectangular structure had been built by visitors to the site using stone from hut 61 during the early years of the project. This was dismantled and the stone was used in the conservation process.

Collapse 61a

This was a 1.2m wide collapse to close to ground level (Plate 140). The wall had failed close to the base leaving an intact basal course. The rubble was cleared from the collapse and new masonry was added up to the height of the surrounding wall (Plate 141). The modern rebuild was replaced with rough but stable new masonry.

Collapse 61b

The wall to the west of 61a was poorly preserved. This 3.6m length of masonry consisted of rough original facing standing to a height of 0.3m with unstable piled stone standing to an additional height of 0.6m above this (Plates 142 and 143). The piled stone had fallen forwards over the original facing at one point but the base of the wall appeared to be intact. The fallen stone was cleared from the collapse along with much of the unstable piled stone (presumably modern rebuild). Plate 144 shows the collapse after clearance; the original masonry was well defined and stable across the whole of 61a. New masonry was added up to the height of the surrounding scree. This was built in an irregular fashion but no attempt was made to replicate the modern rebuild as this style of masonry could not be made stable. The original height of the wall was presumably at least as high as the surrounding scree so the new masonry could be assumed to be 'archaeologically correct'. Plates 145 and 146 show the collapse after conservation.

Collapse 61c

The end of the roundhouse wall was low and unstable with loose stone again piled on the wall top. Plate 147 shows the inner face, Plate 148 the end of the wall and Plate 149 the outer face. There had been little change in the condition of the wall since 1956. Plate 150 shows the end of the wall during Hogg's excavations. Some of the more precarious stones on the top of the outer face had fallen by the beginning of the present season but there had been no major changes. Some of the masonry was on the point of collapse so the piled stone was cleared from the wall top revealing the original stonework beneath (Plates 151 and 152). This was clearly a well constructed end to the wall and was presumably one side of the entrance to the hut. A collapse had occurred just to the inside of the entrance and the masonry in this area was rather unstable. There was little doubt about the line of the wall so this dip in the top of the facing was filled with new masonry before any further work was carried out. The outer face was higher than the inner and had started to collapse back into the wall. This had presumably occurred because the core had eroded away leaving no support for the facing stones. The collapse must also have taken place before the modern rebuild was erected on top of the wall as the stone was piled on top of the backward tilted slabs. The inner face was presumably low and buried before Hughes' excavation as his plan shows no definite inner face. The outer face was however clearly defined in several places. This strongly suggests that the modern rebuild of piled stone was constructed from stone cleared from the interior of the hut during Hughes' excavations in 1906. As the outer face was inclined backwards the weight was concentrated in the centre of the wall and the masonry was stable. Up to 0.4m of new masonry was added to the top of the original facing in order to provide a stable end to the wall. The new masonry is indicated on Plates 153 to 155.

The dividing wall (61e), general discussion on phasing.

A 1.8m length of the north-eastern end of the dividing wall was removed by Hogg (Plate 156) in an attempt to find stratified deposits. Nothing was found and it appears that the wall was reinstated. Hogg claimed that the dividing wall and the roundhouse wall were all of one build and that an apparent straight joint between the two was a result of modern rebuilding. The line of large stones that can be seen adjacent to the scales on Plate 156 are still visible and appear to be original facing running behind the end of the division. It also seems to be unlikely that the almost random modern rebuilding seen elsewhere in the hut would have been constructed to a careful straight joint between the two walls particularly as Hughes did not appear to have recognised that hut 61 was a subdivided roundhouse. Hogg's results unfortunately do not demonstrate a clear relationship between the two walls because there was no base to the roundhouse wall at the level of the base of the dividing wall (or to the wall to the north-west). Similar anomalies have been observed in huts 3 and 4 (Hopewell 1998), huts 17 and 18 (Hopewell 1997) and hut 59 (above). One possible explanation is that the divisions were added as part of a change in the method of roofing the huts. The radical remodelling of the majority of the original large roundhouses suggests that the use of high conical roofs was not a feature of the later phases of house building. This may have necessitated a reduction in the floor levels in the remodelled houses in order to accommodate a lower roof. This could easily have been achieved by digging out the floors and underpinning the wall. It would not however have been necessary to underpin the wall behind the dividing wall in a way that respected the division between the two phases of masonry. These three huts may however be somewhat anomalous. The majority of the early large roundhouses were radically modified in a fairly uniform fashion. The house was first subdivided and then one or in some cases both ends of the resulting semicircular structures were squared off with a short length of masonry to form two roughly rectangular structures. The entrance was usually found at one end. Doorways through the dividing walls have been identified in some cases. Various modifications to the line of the roundhouse walls have also been identified. These complex structures have been shown to contain several phases of construction and the dividing walls seem to form an integral part of the remodelling process. In some cases, such as subdivided hut 89/90/53, it is clear that the dividing wall was built against the roundhouse wall and in other cases such as hut 59 it is less clear. It does however seem probable that the dividing walls formed part of the secondary modifications that occurred in almost all of the roundhouses on Tre'r Ceiri.


Fig. 15, Huts 59 to 61 after conservation

Collapse 61e

The top of the dividing was covered in loose rubble. Facing could be seen beneath this, standing to a height of between 0.2 and 0.8m. This all appeared to be original apart from the masonry reinstated by Hogg. The end of the wall was low and somewhat ruinous but had not deteriorated significantly since 1956 (see Plate 150). A large slab close to the top of the wall, about half way down the south side of the division, was very unstable. One stone was projecting from the wall beneath this (marked with an X on Plate 159) and was acting as a lever on the stones above. Plates 157 to 159 shown the southern side of the partition before conservation, Plate 160 shows the end of the wall and Plates 161 to 163 show the northern side.

The top of the wall was cleared of loose stone. The large slab was removed from the wall and stone X was pushed back into line. Plates 164 and 165 show 61e after clearance. The wall top was secured by the addition of a course of heavy headers some of which some were imported from the scree. The large slab was reset close to its original position. The masonry that had been reinstated after Hogg's excavation was reasonably stable. Three stones were added to the wall top on the southern side of it where there was a minor instability. Plates 166 to 171 show 61e after conservation.

Collapse 61d

The roundhouse wall in the area of its junction with the dividing wall was somewhat unstable. The northern side (Plate 172, the dividing wall is indicated with a dotted line) was largely ruinous but most of the stones that were visible in 1956 (Plate 155) were still present. The facing on the southern side was better preserved but there was a void at the base of the wall and the masonry was rather unstable (Plate 173).

A small amount of rubble was cleared from the wall top and the void was packed. New masonry was added to the top of the wall in an irregular fashion (as there was some doubt about the relationship of the roundhouse wall to the partition) in order to retain the scree behind the hut (Plates 174 and 175).

The northern compartment of hut 61

This side of the hut was examined and was as recorded by Hogg. The small amount of surviving masonry was low but stable so no consolidation was necessary.

HUT 59A (Fig. 8)

A circular hollow in the heather, 3.0m in diameter, was recorded about 1.0m to the west of hut 59. There was no exposed masonry and no action was taken.



Fig. 16, Huts 62 to 65 before conservation.

HUT 62 (Fig. 16)

HUT 62 was excavated by Hughes in 1906 who recovered the following finds:

(a) A hone or whetstone. $7\frac{1}{2}$ ins. long.

(b) Thirteen small pebbles

Griffiths described the hut in 1946:

A good hut, but of very irregular outline, approximately 16 ft. [4.9m] x 7 ft. 6 ins. [2.3m] internally. There is a sharp inner corner on the NE. The hut wall averages 6 ft. [1.8m] in thickness, and has an inner face 2-4 ft. [0.6-1.2m] high. The floor of the hut is 3 ft. [0.9m] below the general ground level. On the S is an entrance 3 ft. [0.9m] wide.

Dallimore (1978) noted no changes to the above but recorded 'severe recent treasure hunter activity'.



Fig. 17 Huts 62 to 65 (Hughes ca 1906)



Fig 18, Huts 62 to 65 (RCAHMW, 1960)

When the hut was examined at the beginning of the present season there appeared to have been some deterioration from the above descriptions. The hut was roughly semi-circular with a sharp north-eastern corner. The masonry in this corner was unfortunately rather jumbled making it impossible to recognise the relationship between the two walls. The acute angle gave the impression that two phases of building were present here. Hut 62 could be seen as half of a subdivided roundhouse with hut 120 being the infilled second half. The angle of the possible join in the masonry however, implied that hut 62 was built against hut 120. No further information could be obtained without excavation and consequently the relationship could not be resolved. Serious collapses were recorded at the southern end of both the eastern and western walls.

Collapse 62a

The facing at the southern end of the eastern wall was partially collapsed and very fragile (Plates 176 and 177). This 2.9m length of masonry was standing to a rough face but the wall appeared to have failed close to the base at the centre of the collapse. Much of the standing masonry had fallen sideways from the wall to the south and was sloping forwards at an acute angle. Fallen stone obscured the southern end of the wall.

All of the collapsed masonry was cleared from the line of the wall revealing an intact basal course (Plate 178). New masonry was constructed above this up to the height of the ground level on the outside of the hut (Plate 179).



Fig. 19, Collapse 62b after clearance

Collapse 62b

The southern end of the western wall had collapsed and was obscured by fallen stone. Plate 180 shows the inner face and Plate 181 the end of the wall, further details of the outer face can be seen below, in the report on 62d. The facing to the north was standing to a height of 1.0m the lower part of which was stable. The upper courses were loose and needed lateral support. The loose stone therefore was cleared from the end of the wall in order to provide a base for stable masonry. Plate 182 and Fig 19 show 62b after clearance. No definite facing could be identified but possible basal stones could be seen on both sides of the collapse. Two stones set on top of each other were uncovered on the outer face but these were slightly off line from the facing to the north. A single possible facing stone was identified close to the line of the inner face. There was however, only rubble beneath both of these possible lengths of facing and the wall would be expected to continue to below this level. It was

therefore decided, in view of the dubious nature of the facing, to reinstate the rubble as a stable but irregular collapse. Plates 183 and 184 show the new masonry.

Possible entrance passage

A large void, about 1.0m in length, could be seen just below ground level between the outer ends of the east and west walls. Little detail could be seen, but it is possible that the entrance passage is preserved below the present ground level.

Collapse 62c.

The rest of the western wall was stable up to a height of between 0.2m and 0.5m (Plates 185 and 186). Loose stone was standing above this but it was not clear if this was modern rebuilding or a result of instability in the upper wall. The loose stone was cleared from the wall top and replaced with new masonry (Plates 187 and 188). A deep hole in the hut floor in front of the southern end of the collapse was infilled.

Collapse 62f

The top of the northern end of the eastern wall was loose and unstable (Plate 189). This was secured by the addition of a course of heavy headers (Plate 190).

Collapse 62d

The outer face could be traced around much of the north-western side of this hut. The end of the wall had been stabilised during the conservation of 62b. There were two areas of partially collapsed masonry in the 3.0m of facing to the north of this which were threatening the stability of both the surrounding masonry and the inner face (Plates 191 and 192). The collapsed masonry was stripped out of the wall leaving a well defined basal course and a few original facing stones (Plates 193 and 194). One large upright stone, embedded in the ground close to the north end of 62d, did not appear to be collapse and was probably a natural stone that had been left by the original builders. It was in an awkward position on the line of the wall but could not be removed. The upright was incorporated into new masonry that was used to fill the two areas of collapse. The new masonry is indicated on Plates 195 and 196.

Collapse 62e

The line of the wall turns quite sharply to the east at this point and the upper courses had started to slip out. One long stone (X on Plate 197) was pushed back into the wall. The loose stones were cleared from the wall top and reset in different positions. The rest of the wall top was secured by the addition of a few heavy headers (Plate 198).

Collapse 62g

There was a very unstable 1.2m length of outer facing at the north of the hut. The facing was marked (A to L, Plates 199 and 200) and an attempt was made to pin the unstable masonry. Unfortunately the facing collapsed as soon as it was touched, a long basal stone (D) had slumped forwards and had come to rest at an acute angle. The rest of the masonry had slipped forwards off this stone. Stone D was levered back into a level position and an attempt was made to reinstate the marked masonry in its original position. It soon became apparent that was not possible. The face was partially collapsed when photographically recorded at the beginning of the season and the arrangement of stones was inherently unstable. Several of the major stones (D, F, G, L and K) were

replaced close to their original positions but the remainder of the marked stones were reused in a different arrangement (Plates 201 and 202).

HUT 62A (Fig. 16)

This small circular hut contained a single 1.8m length of facing (Plate 203). Elsewhere the hut was defined by a rough circle of piled stone. The facing was reasonably stable and little could be done to add any further supporting masonry so no action was taken here.

HUT 63

This hut was excavated by Hughes in 1906 who reported the following:

(a) A bronze pin, in the form of a sickle. Although much corroded, it bore indications of gold-plating. The "sickle" shape may be accidental.

(b) Pebble

His plan (Fig. 17) showed a roughly rectangular hut with no entrance.

Griffiths described the hut in 1946:

A rectangular hut, 13 ft. [4.0m] x 8 ft. [2.4m] internally, set on the W against Hut 64, from which it is separated y a thick wall (7 ft. [2.1m]). The hut wall elsewhere is 4 ft. 6 ins. [1.4m] Thick and has an inner face 2-3 ft. [0.6-0.9m] high. The floor is 3 ft. [0.9m] below the general ground level. There is no entrance, but at the SW corner of the wall is reduced to mere footings.

Dallimore however recorded some deterioration in the hut in 1978:

Entrance collapsed. Facing stones in all walls, but all are collapsing. Maximum height is 0.50m.

When the hut was examined at the beginning of the present season it was found to be in a very poor condition. Most of the walls had been undermined and were in a state of either partial or total collapse. It was initially suggested in the monthly site meeting that there was no point in attempting to conserve such poorly preserved masonry. It was eventually decided to carry out some stabilisation work in order to preserve at least the rough outline of the hut.

Collapse 63a

The eastern wall had almost completely collapsed (Plates 204 and 205). The central 3.0m of the wall appeared to have been undermined and to have collapsed into a hole in the hut floor. Unstable stubs of wall had however survived at the ends of the wall and these defined the corners of the hut. The northern corner was only defined by a few stones that had been bonded into the northern wall. This masonry was very unstable as the collapse to the south was not providing any support. The loose stone was cleared from the collapse and reset in a stable position (Plate 206). This provided support for the end of the wall and allowed the stones immediately adjacent to it to be pinned into place with a small wedge-shaped stone.

A 0.8m length of masonry had survived at the southern end of the wall. This appeared to be slightly off line from the expected line of the wall and terminated in a roughly square end leading to some speculation that this was one side of the entrance. The outer face was also examined and low but well defined facing could be seen to run across the line of the possible entrance suggesting that the square end to the wall was a chance occurrence. The stub of masonry was carefully examined and was found to be unstable as the base of the wall had been lost. The facing had survived because it was tied together by several long stretchers and was supported

by a large basal slab. The basal slab had however begun to tilt and slide forwards bringing the wall above with it.

Several pinning stones were inserted into the base of the wall in an attempt to stop the wall from sliding any further forwards. Lateral support was then provided by the addition of a number of heavy stones to the collapsed area immediately to the north (Plate 207).

Collapse 63b

The eastern end of the southern wall was standing to a height of 0.7m (Plate 208). The height of the facing gradually fell to ground level over the next 1.5m and the western half of the wall could not be traced. The top of the wall consisted of a number of displaced slabs. These were reset in a stable fashion. The end of the facing was well supported by two large slabs. The lower slab was however a little loose and a void beneath its outer end was packed. Several stones were also added to the core in order to prevent further erosion at this point. Plate 209 shows 63b after conservation.

Collapse 63c

The western end of the northern wall appeared to have fallen into a hole dug into the hut floor (Plate 210). The collapsed masonry was cleared from the line of the wall (Plate 211). A 0.8m length of the basal course could not be traced but three upright slabs set about 0.3m behind the projected line of the wall could be seen in the core. These slabs seemed to be too regularly arranged to be a chance artifact caused by the subsidence of the wall and may represent stones levered up from the scree to retain loose stone when the hut was originally constructed.

There was enough surviving masonry at the eastern end of the wall to allow the line of the wall to be projected across the collapse. New masonry was added along this line up to the height of the surrounding masonry (Plate 212).

Collapse 63e

The wall top at the eastern end of the northern wall was unstable (Plate 210). This was consolidated by the addition of several heavy slabs and a small amount of small core material (Plate 211).

Collapse 63d

The western wall was in a poor condition (Plates 213 and 214) The central part of the facing had slipped forward, probably as a result of the wall being undermined, and was resting on three large slabs that were cantilevered into the wall. No basal stones appeared to be present here. The wall had completely collapsed close to its northern end and the lack of supporting masonry was threatening the already fragile masonry in the central part of 61d. The lower part of the southern end of the wall was well preserved and could be seen to curve to the south-west. This suggests that the outer face of hut 64 forms the western wall of hut 63 and that hut 63 was therefore built against an earlier roundhouse.

The main sources of instability in the central part of 61d were the lack of basal stones and the collapse at the northern end of the wall. The wall was therefore stabilised by packing the voids beneath the large slabs at the base of the wall with irregular masonry. The collapsed area at the end of the wall was then filled with rough but stable masonry thus providing enough lateral support to allow any loose stones in the standing facing to be pinned. Two large slabs at the south end of the wall had sipped forwards from the wall top to form an unstable overhang. The stones were reset on the top of the wall and one further slab was added in order to retain the core. Plates 215 and 216 show the wall after consolidation.

HUT 64

Hughes excavated hut 64 in 1906. He reported that the following find was made:

(a) Fragment of leg-bone of horse or ox.

His plan shows a roughly circular hut with extended walls at the west.

Griffiths described the hut in 1946:

A circular hut with an internal diameter of 13 ft. [4.0m], set on the SE against Hut 63, from which it is separated by a thick wall (7 ft. [2.1m]). The floor is 2 ft. [0.6m] below the general ground level. The hut wall is 5 ft. [1.5m] thick and has a fairly good inner face, 2 ft. 6 ins. [0.8m] High on the N and 4 ft. [1.2m] high on the SE. On the W there is a wide gap (8 ft. [2.4m]) in the wall; a squared end of walling on the SE side of this gap may represent the SE side of an entrance.

There had apparently been some deterioration in the condition of the hut by 1978 as Dallimore recorded a serious collapse in the eastern wall.

When the hut was surveyed at the beginning of the present season it was seen to be in reasonably good condition apart from the collapse in the east wall.



Fig. 20, Diagrammatic section through collapse 64a

Collapse 64a

A 1.9m section of the eastern wall had collapsed down to ground level and the line of the wall was obscured by a considerable amount of fallen stone (Plate 217). The rubble was cleared from the line of the wall revealing the remains of the lower part of the wall. This partially collapsed masonry provided a very good illustration of the process that had caused the majority of the serious damage in the huts examined during the present season. A few stones could be seen in the collapse (on Plate 218) that appeared to be *in situ* facing. This facing was

however standing 0.4m in front of the line of the wall. It was also very unstable and was cleared from the collapse revealing rubble consisting of headers tipped forward at about 45°. The displaced headers were lying on loose scree which contained numerous voids. The sequence of events that caused the collapse were as follows; a hole was dug in the hut floor to below the base of the wall, the natural scree below the wall eroded away thus undermining the front of the basal course of the wall which slipped forwards into the hole. The wall above fell forwards with each header overlapping the one beneath. At one point further up the facing a large flat slab was held back by the core which allowed it to ride forwards on the collapsing masonry beneath and also carry a section of intact facing with it. In most cases however, the upper part of the wall collapses into a confused mass of rubble. Fig. 20 shows a diagrammatic sketch section through the collapse. This type of collapse is difficult to conserve because the basal course is almost always lost or severely displaced. The intact section of facing cannot be reconstructed when its original position cannot be reliably estimated.

Plate 219 shows the collapse after clearance of all of the collapsed masonry; as expected there was no surviving basal course. The basal course had survived to both sides of the collapse allowing the line of the wall to be extrapolated across it. New masonry was added along the projected line but only the lower courses were put in place at the south as the building could not be completed before the conservation of 64b. Plate 220 shows the collapse after the conservation of 64a and 64b.

Collapse 64b

The upper part of the facing immediately to the south of 64a had been pulled forwards when the collapse occurred. The resulting overhang was unstable and could not be tied into the new masonry to the south. The relevant stones were therefore marked (A to N on Plate 221) and removed from the wall. This revealed two further stones one of which was a large basal stone that had been undermined in the first part of the process described above and had tilted forwards (Plate 222). The stone had been held in place by the adjacent masonry and had not moved from its original alignment. The basal stone was reset in a level position. The other stones that had been removed from the wall were then replaced close to their projected original locations, i.e. along the line of the wall before the overhang was formed. Plate 223 shows the reinstated masonry.



Fig. 21, Collapse 64c after clearance

Collapse 64c

The curving line of the hut wall became more acute at its south-western end (Plate 224). The wall also seemed to be square ended (Plate 225). Griffiths recorded a square end to the wall in this position and interpreted it as being one side of the entrance. The masonry here was unstable particularly on the wall top which was covered in displaced slabs.

The top of the wall was cleared revealing a buried face standing a maximum of 1.0m behind the inner face of the hut (Plate 226 and Fig. 21). This appeared to be a continuation of the main roundhouse wall that could be seen to bulge out at the junction with the later facing. It is not entirely clear if the function of the later facing was to buttress a collapse in the hut wall or if it was utilising a bulge in the hut wall in order to remodel the shape of the hut. The latter seems to be a more likely explanation because the later facing is not centred on the weakness in the roundhouse wall. The original roundhouse wall could be traced beyond the added facing for about 0.5m before being lost in rubble. The projected line of the roundhouse facing suggests that the original diameter of the hut was close to 5m.

The *in situ* masonry was stabilised by carefully packing core material behind the standing facing and securing the wall top with heavy stones (Plate 227). It was necessary to add several courses of masonry at the eastern end of the collapse in order to retain the core. The line of the wall at the south-western end of the added facing could not be traced. The slope was therefore stabilised by the addition of random stone to produce a stable slope (Plate 228).

Collapse 64d

The northern quadrant of the hut wall consisted of low but stable facing, standing to a height of 0.5m at the west before gradually falling to ground level at the east (Plates 229 and 230). The wall top was unstable and loose core was standing up to 0.3m above the face. The instability at the west end of 64d was beginning to threaten hut 65 that was standing 1m to the north-east. The wall was therefore cleared of displaced stone. Two large stones were set at the lowest end of the wall and up to 0.3m of well-set facing was added above the *in situ* masonry (Plates 231 and 232).

HUT 65 (Fig. 16)

Hughes excavated this hut in 1906. The report was as follows:

(a) Humerus of ox.

(b) Three "pot-boilers"

(c) Two small pebbles

His plan (Fig. 17) shows a subcircular hut with no entrance.

Griffiths recorded the hut in 1946:

A rectangular hut, 16 ft. $[4.9m] \times 10$ ft. [3.0m] internally. The floor is 1 ft. 6 ins. [0.5m] below the general ground level. The hut wall is 5 ft. [1.5m] thick and has an inner face 1 ft. 6 ins. -3 ft. 6 ins. [0.5m-1.1m] high. At the SE corner there is a possible entrance 3 ft. wide.

Dallimore's description in 1978 suggests that there had been some erosion as the south wall had collapsed and an entrance was not recorded.

When the hut was recorded at the beginning of the present season there were signs of erosion to both the north and east walls. The west wall was reasonably well preserved and the south wall could not be traced.

Collapse 65a

There was a serious 2.0m wide collapse in the eastern wall. The presence of a high proportion of unweathered stone in the rubble demonstrated that some of the erosion was recent. The wall was standing to a height of 0.5m to either side of the collapse (Plates 233 and 234).

The rubble was cleared from the collapse revealing two lines of facing standing behind the current wall line (Plate 235 and Fig. 22). One was a continuation of the northern wall that could be seen to curve through 90° to form the eastern wall of the hut. A large slab then defined the corner of an entrance through the eastern wall. All of this facing was well preserved and was standing to a height of 0.5m. A further length of low facing could be seen to link the inner end of the entrance passage through the outer wall to the end of the surviving inner wall. The southern side of the entrance could not be traced and no standing masonry had survived across the southern side of the collapse (Plate 236).

New masonry was added to the top of the surviving entrance passage and to the top of the inner face in order to retain the core and to support the previously buried face. Plate 237 shows an oblique view of the northern side of the collapse and the entrance passage after conservation. The southern side is shown on Plate 238.



Fig. 22, Collapse 65a after clearance

Collapse 65b

The southern end of the eastern wall was standing to a height of 0.5m. The southern wall had been reduced to ground level leaving unsupported masonry at the end of the eastern wall (Plate 234).

A small amount of loose stone was cleared from the top and the end of the wall. A large slab had become firmly wedged into the scree at the end of the wall. This was used as a support for a large header that was added to the end of standing masonry. Several smaller stones were then added to the wall top and core. (Plate 238).

Collapse 65c

The dividing wall between huts 65 and 117 was standing to a height of 1.0m (Plate 239). The central and eastern parts of the wall however consisted mainly of unweathered, piled stone. Original facing was standing to a height of 0.2m beneath this. The piled stone was obviously a recent addition and was cleared from the top of the wall. The *in situ* masonry beneath this was stable. The rubble was used to add some height to the wall in order to provide support for the surrounding masonry (Plate 240), see also collapse 117a.

Collapse 65e

The western wall was standing to a height of 1.1m at the north before grading down to ground level at the south. The top of the wall consisted of displaced stones and the southernmost end had been reduced to rubble (Plates 241 and 242). The loose stone was reset in a stable fashion in order to provide support to the outer face (Plates 243 and 244).

Collapse 65d

The outer face of the western side of the hut was stable apart from at the north-western corner. The wall had bulged out here and the upper courses had collapsed (Plates 245 and 246). A large slab had fallen from the wall top and was partially obscuring the collapse. This and the rest of the rubble were removed from the collapse revealing an intact basal course (Plate 247). New masonry was used to fill the resulting dip in the facing. Long headers were used as collapses are generally caused on the outside of sharp curves in the line of the wall by poorly tied-in headers being pushed out of the face by the weight of the masonry to either side. Plates 248 and 249 show the wall after conservation.

HUT 117 (Fig. 16)

This small (3.0m x 1.4m) rectangular hut has not been officially excavated. It appeared on Hughes' plan as a small, unnumbered D-shaped hut.

It was described by Griffiths in 1946:

A tiny rectangular chamber, 8 ft. [2.4m] x 6 ft. [1.8m] internally, set against the N wall of Hut 65. The walls are about 4 ft. [1.2m] thick; their inner faces as now visible are 2 ft. [0.6m] high, but the hut is filled with fallen stones.

Low facing could be traced on the northern, eastern and southern walls when the hut was recorded at the beginning of the present season.

Collapse 117a

The southern wall was conserved at the same time as collapse 65a. The piled stone on the wall top had spilled into the hut and was partially obscuring the intact lower courses (Plates 246 and 250). The stone was cleared from in front of the wall and from the wall top and used to add height to the wall in order to support the surrounding masonry (Plates 249 and 251).

Collapse 117c

The base of the eastern wall was standing to a height of 0.2m and could be seen to abut the southern wall, i.e. the outer face of hut 65 (Plate 252). A further 0.5m of random rubble was standing above this. The rubble was stable apart from a few loose stones about half way down the facing. These were wedged into place with small packing stones. The packing stones are indicated on Plate 253. They were not drilled at the end of the season because the hammer drill would have dislodged them.

Collapse 117b

Rough facing was visible at the eastern end of the northern wall (Plate 254). Its stability was threatened by a 0.4m wide collapse in the upper part of the wall. The loose core was cleared from the collapse revealing stable masonry. Two courses of heavy headers were used to fill the resulting dip in the facing (Plate 255).



Fig. 23, Huts 62 to 65 after conservation



Fig. 24, Huts 66 to 69 before conservation

HUT 66 (Fig. 24)

Hughes excavated this hut in 1906 but he recorded no finds. His plan (Fig. 25) depicts the hut as a roughly rectangular structure with an entrance in the southern corner.

Griffiths' (1946) description suggests that the hut was in an unusually good state of preservation.

A roughly square hut of very good construction, 9 ft. [2.7m] square internally. The floor is 3 ft. [0.9m] thick, and has a good inner face 3-4 ft. [0.9-1.2m] high, also (on the SW) a good outer face 2 ft. 6 ins. [0.8m] high. On the S is an entrance of excellent construction, 1 ft. [0.3m] wide.

There had obviously been some damage by 1978 (Dallimore):

North, south, east and entrance wall preserved, west wall collapsed. Walls up to 1.0m high. Collapse of west wall due to treasure hunter hack.

Further damage was recorded when the hut was recorded at the beginning of the present season. The north-eastern wall had almost completely collapsed and the south-western wall and the entrance were in an



Fig. 25, Huts 66 to 69 (Hughes ca. 1906)



Fig. 26, Huts 66 to 69 (RCAHMW, 1960)

unstable state. Dallimore presumably made an error in his observations as he records a collapse in the western wall. This description appears to refer to the north-eastern wall.

A possible extension or buttress to the outer north-western side of the entrance passage was recorded. This had almost completely collapsed and no conservation work was carried out here.

Collapse 66a

The north-eastern wall had almost completely collapsed leaving only a short length of overhanging facing in the northern corner of the hut (Plate 256). The instability also extended 0.6m along the north-western wall (Plate 257). The stones in the surviving facing were marked A to O and the collapse was cleared. This revealed a line of tilted forward basal stones typical of a collapse caused by the undermining of the wall by treasure hunters. The stones in the centre of the collapse had almost certainly slipped off-line. The facing at the north-west had tipped forwards but appeared to have been held in place by the adjacent wall. One possible basal stone had survived at the south-east end; this is indicated with an X on Plate 258. A single stone was not sufficient to definitely indicate the line of the wall. The collapse appeared to be recent (see Dallimore reproduced above) so it can be assumed that the RCAHMW and the Hughes plans show the original line of the wall. A plan of the hut was made using the single basal stone as an indicator of the line of the south-eastern end of the north-eastern wall. There was a good correlation between this and the two earlier plans. It could therefore be assumed that the correct line of the wall had been found.

Most of the marked stones had been removed from the wall during clearance. Stones A, B, C, D, M and O were still in place. Stone M was standing on loose rubble and was unstable. It was removed from the wall along with stone D. The loose scree along the line of the wall was then stabilised. Stone O had slipped forwards and was pushed 10cm back into the wall. Stone M was reset in its original position and the void beneath stone A was packed. The front of stone A was lifted in order to accommodate the new facing. The rest of the marked stones were replaced in their original arrangement with only minor adjustments to compensate for the overhang. New facing was then added across the rest of the collapse, up to the height of the external ground level (Plate 259 and 260).

Collapse 66b

There was a 0.7m wide collapse in the south-western wall (Plate 261). The wall adjacent to an edge-set stone in the corner of the hut had bulged out and the upper courses had collapsed. The loose stone was cleared from the collapse (Plate262) revealing stable but off-line facing at the base of the wall. This could not be reset without disturbing the adjacent wall. The collapsed facing was therefore replaced with new masonry (Plate 263).

Collapse 66c

The inner corner of the north-western side of the entrance passage was beginning to collapse and was very unstable (Plates 261 and 264). The unstable stones around the collapse were marked A to I and removed from the wall (Plate 265). All but one of the basal stones across 66c (and apparently across 66b as well) were edge-set. Two of these had fallen forwards thus precipitating the collapse. These stones were not reset, as they could not be made stable without embedding them in the scree. This would have entailed the excavation of a large hole and the loss of even more original masonry. The two collapsed basal uprights were replaced with long headers thus forming a stable base to the wall. Stone H was very short and was replaced because stone F had broken in the wall in antiquity and needed additional support if it was to be reset. All of the rest of the marked stones were replaced close to their original positions although stone B was tilted slightly inwards and stone I was reset at a different angle. Several heavy stones were added above the reset masonry. Plates 263 and 266 show the rebuilt facing.

Collapse 66d

The south-eastern wall was generally sound (Plates 267 and 268). There was a bulge in the facing towards the north-eastern end of the wall but this had settled into a stable state. A loose area on the wall top in the middle of the collapse was threatening the stability of the adjacent masonry. Two loose slabs were reset and one stone was added at this point (Plate 269). The end of the wall was supported by the addition of two heavy stones (Plate 270)

Collapse 66e

There were a few loose stones on the top of the otherwise well-preserved north-western wall (Plate 271). This was stabilised by the addition of a course of heavy headers (Plate 272).

Collapse 66f

There was some instability in the outer face of the south-west wall (Plate 273). There had been some movement at the top of the step scree slope above hut 98 causing the base of the wall to bulge out. The scree slope was stabilised by the addition of several heavy blocks of stone (marked with an X on Plate 274). This provided sufficient support for the wall base and no further action was taken. Four additional stones were added to minor instabilities in the wall top elsewhere in the collapse and these are indicated on Plate 274.

Collapse 66g

A small amount of stabilisation work was carried out on the 3m of outer face at the north of the hut. The wall was low and poorly defined and there was some instability in the top of the surviving masonry (Plate 275). A number of stones were added in order to lock the masonry in place (Plate 276).

HUT 67 (Fig. 24)

Hughes excavated hut 67 in 1906. The report was as follows:

(a) Fragments of black pottery

(b) Tooth of ox.

(c) A white pebble.

Griffiths reported on the hut in 1946:

An excellent oval hut, 13 ft. $[4.0m] \times 8$ ft. [2.4m] internally, set against Hut 68 on the N. The floor is about 3 ft. 6 ins. [1.1m] below the general ground level, but is uneven and littered with loose stones. The hut wall is 5 ft. [1.5m] thick and has an inner face 4-5 ft. [1.2-1.5m] high. On the S is a very fine entrance 3 ft. [0.9m] wide; its E side stands 3 ft. [0.9m] high, its W side 4 ft. [1.2m] high.

Dallimore recorded some damage to the hut in 1978:

All walls preserved to height of 1.75m. Two treasure hunt hacks, one has undermined north wall. Entrance is well preserved.

This hut is superficially the most impressively preserved hut on Tre'r Ceiri and photographs of it appear in several guide books. Careful examination of the hut at the beginning of the present season revealed a number of instabilities. The hut floor was level and grassed over and there were no signs of the treasure hunter hacks recorded by Dallimore. The floor level was however, lower than the base of the walls leaving voids at the foot of the facing for the whole circumference of the hut. The facing was standing to a height of between 1.0 and 1.4m above the hut floor. The lower 0.8m of the wall consisted of masonry built to a good face from large stones. The upper part consisted of 0.6m of loose piled stone that was almost certainly modern rebuild (see hut 59 for discussion). Several areas of the wall had begun to slump and there was a danger that the hut would be totally destroyed if the facing was not underpinned.

Collapse 67a

The inner face of the hut was examined and it was decided to leave the modern rebuild on the top of the wall in place. It was reasonably stable and was protecting the original masonry beneath. The main cause of instability was the series of voids around the base of the wall.

These were packed in one continuous process. The loose core that had accumulated at the bottom of the first void (Plate 277) was cleared. Carefully selected stones collected from the scree were then inserted into the void along with replacement core material. The aim of the process was to get as greater length of stone as possible under the facing and to avoid leaving large numbers of stones protruding into the hut. This process was continued around the hut. Only small lengths of voids were cleared and packed at one time in order to avoid the destabilisation of the wall. Plates 277 to 282 show the inner face before conservation and 283 to 287 show it after conservation. The majority of voids were packed using the above technique. In some instances where the void was small, e.g. Plates 281 and 287, a stone could only be partially inserted and additional buttressing was constructed. The *in situ* facing above the voids was examined and was found to be stable; the weight of the piled stone above was helping to cantilever the longer headers into the wall. Two packing stones were inserted into voids within the facing as a precautionary measure. A small amount of stone had been left over after the conservation of several nearby huts and the demolition of the modern structure adjacent to hut 61. This was collected and spread across the lower parts of the hut floor in order to provide additional support to the wall base.

Collapses 67b and 67c

The western side of the entrance passage and the 2m of inner facing immediately adjacent to it were very unstable (Plates 289 and 291). A large void beneath the inner facing was beginning to undermine the wall above. This was packed before any further action was taken. Masonry was standing up to a height of 1.2 m at the corner of the entrance but only 0.7m of this was original. The piled stone above was very unstable and the weight of this was starting to push the facing in the entrance passage forwards. The facing was unstable because it was not well tied into the rest of the wall. The piled stone was cleared from the wall (Plate 292) and was replaced with well-built facing that included a number of long headers. The core behind the outer end of the entrance passage (67c) was suffering from erosion and was obscuring the line of the outer face. This core was cleared as part of the conservation of 67b revealing a 0.9m length of the basal course of the outer face (Plate 293). This was stabilised by the addition of several heavy stones. Plates 294 to 296 show 67b and 67c after conservation.

Collapse 67d

The outer end of the wall on the eastern side of the passage was poorly supported and the core was being eroded away from behind the facing (Plate 297). The *in situ* facing was stable and was therefore not disturbed. Three large heavy slabs were added to the end of the facing. These were long enough to run well into the core and cover the surface thus preventing further erosion. Plate 298 shows the new masonry, the back of the wall can be seen at the right of Plate 295.

Collapse 67e

The majority of the outer face had either been lost or was stable as it was covered with piled stone. Two areas, 67e and 67f, were suffering from erosion. Collapse 67e was on the western side of the hut and is shown on Plate 299. The piled stone had become very unstable and there had been recent erosion to this area. The loose stone was cleared and reset in a stable but irregular fashion (Plate 300).

Collapse 67f

This area of erosion was at the end of a length of low facing at the north of the hut (Plate 301). A few stones, indicated on Plate 302, were added to the end of the facing and the core in order to stabilise the area.

HUT 119 (Fig. 24)

This unexcavated hut was recorded at the beginning of the season. The low walls consisted of piled stone and were reasonably stable. No further action was taken in this hut.

HUT 68 (Fig. 24)

Hughes excavated this hut in 1906 but 'nothing was found'. His plan (Fig. 25) shows an oval hut with an entrance at the north-east. Facing is only shown on the south-east side of the entrance.

Griffiths' description suggests that the hut was in poor condition in 1946:

A small circular hut with an internal diameter of 8 ft. [2.4m], set against Hut 67 on the SW and Hut 69 on the E. The floor is about 2 ft. [0.6m] below the general ground level, but is very uneven and littered with loose stones. The hut wall averages 5 ft. [1.5m] thick; it has a poor outer face, but the inner face stands in places 2-3 ft. [0.6-0.9m] high. On the N is an entrance 2 ft. 6 ins. [0.8m] Wide, with a steeply sloping passageway leading down into the hut.

Dallimore recorded further damage in 1978:

All but south wall and part of north wall collapsed. Part of west wall endangered by treasure hunter hacks. Also other hacks in interior. Walls up to 0.50m.

The hut was recorded at the beginning of the present season. The inner face of the north-west and south-west wall had been completely lost. Low facing had survived in the eastern half of the hut and several lengths of the outer face could be traced.

Collapse 68a

The south-eastern wall was standing to a height of between 0.4 and 0.7m (Plate 303). The lower part of the wall was untidy but stable. The upper part of the facing consisted of loose stones. These stones were cleared and reset (Plate 304).

Collapse 68b

The north-eastern wall and the remains of the south-eastern side of the entrance passage were partially collapsed and very unstable (Plates 305 and 306). Both had been undermined by treasure hunter hacks leaving large voids at the base of the wall. The north-eastern wall was also not well tied into the core as it was standing only 0.6m in front of the outer face of hut 69. An edge set stone in the entrance passage had tilted forwards at an angle of about 30° bringing the wall above and the corner of the entrance with it.

The holes in the hut floor were infilled and the voids in the base of the wall were packed. This provided adequate support for the surviving facing. The loose stone covering the wall was beginning to spill forwards into the hut. This stone was cleared and the core was retained by the addition of two courses of masonry (307 and 308).

Collapse 68c

The north-western wall had been reduced to a very unstable rubble slope (Plates 309 and 310). The erosion here was threatening the stability of the outer face.

Some of the rubble was cleared from the collapse in the hope of finding extant facing. A single upright slab with one further stone on top of it was identified (stone A, Plate 311). This was not enough to indicate the line of the face and could have been a chance occurrence. The rubble was therefore reinstated in a stable but random fashion (Plate 312). The rest of the north-western wall could not be traced and no further action was taken.

Collapse 68d

The line of the outer face could be traced for 3m at the north-west of the hut (Plate 313). The facing was standing to a maximum height of 0.3m and was somewhat obscured by fallen stone (Plate 314). This was cleared revealing a well defined basal course. A course of heavy headers was added to the wall top in order to retain the core (Plate 315).

Collapse 68e

The outer face at the south-east of the hut was low and untidy (Plate 316). Two large slabs had fallen from the wall top. One was reset on the wall and the other was packed in place in front of the line of the face. A long header had come loose at the top of the western end of the wall. This was reset and core packed around it. The two stones that were reset on the wall are indicated on Plate 317.

HUT 69 (Fig. 24)

Hughes excavated this hut in 1906. The report was as follows:

(a) Five pieces of black pottery, including a fragment of a rim of a vessel.

(b) An iron article of uncertain use, consisting of a disk about 3¼ ins. in diameter, on a stem. The total length of disk and stem is 1 ft. 0¼ in. The surfaces are much corroded. The ironwork of the disk bulges out on either face, but to what extent it originally did so it is impossible to say. On one face, for the greater area, and on the other side, in patches, the ironwork has split and corroded away, revealing, apparently, a flat disk or plate, forming the core of the superimposed metal. The original section of the stem appears to have been rectangular. The disk may have had flat faces. The superimposed metal, in that case, would entirely be the result of corrosion.

(c) fragment of a tooth of ox.

His plan (Fig. 25) shows a D-shaped hut with a break in the centre of the northern wall.

Griffiths described the hut in 1946:

A good circular hut with an internal diameter of 8 ft. [2.4m]. The floor is about 3 ft. [0.9m] below the general ground level. The hut wall is 4 ft. 6 ins. [1.4m] thick; it has a poor outer face standing 2-3 ft. [0.6-0.9m] above the general ground level; and a good inner face 3-4 ft. [0.9-1.2m] high on the S and W, and 5 ft. [1.5m] – 6 ft. 6 ins. [2.0m] high on the E. On the N is an entrance of undetermined width, partly blocked by fallen stones. On the SW side of the entrance a curving hood wall runs out for 10 ft. [3.0m] towards the N; it is 3 ft. [0.9m] thick and 2 ft. [0.6m] high

Dallimore recorded little change in 1978:

Maximum height of walls is 1.75m. Nearly all surviving walls have facing stones. North wall destroyed.

The hut was recorded at the beginning of the present season. The inner face was well preserved apart from the northern wall which could not be traced, The facing was of an untidy construction but was generally stable and was standing to a height of 1.0m in places. One side of an entrance at the western end of the north wall was still standing. There were old treasure hunter hacks in the floor at the eastern and western ends of the hut. The outer face was also well preserved at the west and south of the hut. The 'hood wall' recorded by Griffiths was still visible as a step 0.7m in front of the outer face of the south and south-western walls. This function of this wall and its relationship to the hut wall was not immediately obvious.

Collapse 69a

Plate 318 shows the western side of the entrance passage and Plate 319 the inner face adjacent to the corner. The upper part of the wall had collapsed leaving a large amount of unstable rubble standing above the intact lower courses. The rubble was cleared and was used to construct new facing up to the level of the core (Plates 320 and 321).

Collapse 69b

There was a serious collapse in the outer face at the south-west of the hut. This was threatening the stability of the inner face and therefore had to be consolidated before work could continue on the inside of the hut. Plates 322 and 323 show the collapse before conservation. A 1.6m length of facing had collapsed and the fallen stone was obscuring the line of the wall. The rubble was cleared revealing an intact basal course (Plate 324). New masonry was added up to the height of the inner face (Plates 325 and 326).

Collapse 69c

The north-eastern wall of the hut was beginning to collapse into a deep hole in the hut floor (Plate 327). The hole was infilled and a void in the base of the wall was packed. The end of the wall was ruinous and open to erosion so a heavy stone was set into the rubble on the wall top in order to provide a stable end to the intact masonry. The rest of the wall top was stabilised using a course of heavy headers (Plate 328).

Collapse 69d

There was a large amount of unstable piled stone on top of the north-eastern end of the south-eastern wall (Plate 329). This was beginning to spill forwards into the interior of the hut. The stone was cleared and the larger

slabs and blocks were used to construct a stable upper course of facing (Plate 330). The left-over stone was used in the backfilling of the holes in the hut floor.

Collapse 69e

This was a 1.1m wide collapse in the upper part of the inner face at the south of the hut (Plate 331). The loose stone was cleared from the collapse and new facing was used to fill the dip in the wall top (Plate 332).

Collapse 69f

This collapse corresponds to the inner face collapse 69d. The piled stone on the wall top was cleared as described in 69d (above) and the wall top was secured with a course of heavy slabs recovered from the cleared stone. Plates 333 and 334 show the collapse before and after conservation respectively.

Collapse 69g

Two small dips in the top of the facing were filled with new masonry (Plates 335 and 336).

Collapse 69h

There was a 1m wide collapse in the upper part of the outer face at the point where the south-eastern wall of hut 68 abutted the south western wall of hut 69 (Plate 322). The loose stone was cleared from the collapse and several new headers were used to retain the core (Plate 325).

HUT 69A (Fig. 24)

A 3.5m diameter hollow was recorded in the heather covered ground just to the south of hut 68 and to the south-west of hut 69. This previously unrecorded feature could be the remains of a small hut.

HUT 121 (Fig. 28)

This hut remains unexcavated but appeared on Hughes' Plan (Fig. 29). He recorded a large circular hut about 8m in diameter.

Griffiths' records suggest that the hut was in a poor condition in 1946:

A hut of irregular outline, roughly circular, with an internal diameter of 13 ft. [4.0m]. Its features are obscured by large masses of fallen stones which block the whole hut. On the E an inner face is visible, 2 ft. 6 ins. [0.8m] High. On the N an outer face is visible, 1 ft. [0.3m] high. On the W is an out-turned entrance of uncertain width; this appears to have a blocking wall thrown across it.

Dallimore recorded no further damage in 1978. The hut was planned at the beginning of the present season revealing some further details. The outer face could be traced for much of the circumference of the hut and showed that the hut was circular in plan with a diameter of 8.5m. The interior of the hut was full of rubble.

It was possible to trace four lengths of the inner face. This masonry did not however, follow the line of the outer face. Enough facing had survived to show that the interior of the hut was rectangular, with dimensions of



Fig. 27, Huts 66 to 69 after conservation

2.9m by 5.0m. No definite entrance could be seen but a large void at the western end of the north wall could have formed during the collapse of the entrance.

Collapse121a

There was a large void close to the western end of the northern wall (Plate 337). The void could be seen to run 1.5m into the wall, giving the impression of being the remains of an entrance. The western side of the void consisted of roughly faced masonry. The eastern side was less well-defined but the inner corner formed a straight edge. A large slab and several smaller stones were lying over the top of the possible entrance. The masonry at both sides of the entrance/void was very unstable and any attempt to remove the slabs above it would almost certainly have resulted in the total collapse of this feature. It was therefore decided to add packing stones to the unstable parts of the masonry. Several stones were wedged into the loose stone in the hut floor immediately in front of 121a thus stabilising the base of the wall. Two stones on the wall top were reset and several packing stones were hammered into small voids in the facing in order to lock the masonry together. The wall was considerably more stable after conservation. Plate 338 shows 121a after consolidation.



Fig. 28 Huts 70, 71 and 121 to 124 before conservation



Fig. 29, Huts 70, 71 and 121 to 124 (Hughes ca. 1906)



Fig. 30, Huts 70, 71 and 121 to 124 (RCAHMW, 1960)

Collapse 121b

A 0.4m length of facing in the northern wall had begun to slip forwards. Three headers (A to C, Plate 339) were taken from the wall and a tilted basal stone was reset. The three stones were replaced close to their original positions although stone A had to be rotated slightly in order to lock it into the wall (Plate 340).

Collapse 121c

The surviving 1.9m length of the eastern inner face was stable apart from the large slab at the southern end of the wall (Plate 341). A single pinning stone was added to the wall in order to support the end of the slab. This is indicated on Plate 342.

Collapse 121d

A 1.0m length of facing could be seen within the rubble on the south side of the hut. This was planned but no further action was necessary.

Collapse 121e

The remains of the western wall were not immediately obvious. Plate 343 shows the area before conservation and all that could be seen was an unstable rubble slope. Closer examination revealed the top of a 1.2m length of facing that was just visible within the rubble. A small amount of loose stone was cleared and replaced in a more stable fashion. Three heavy stones were placed on top of the facing (Plate 344).

Collapse 121f

There was a 2.5m wide collapse in the south-western side of the outer face (Plate 345). A stub of wall had survived to the north-west of the collapse and this could be seen to abut the outer face of hut 69. The rubble was cleared from the collapse revealing the tipped forward lower courses of the wall (Plate 346). This masonry was probably not on its original alignment but had collapsed to a point of stability. The stones that had been cleared from the collapse were reinstated in a stable but random arrangement above the partially collapsed masonry, which was left *in situ*. Three heavy stones were added to the top of the stub of wall to the north-west. Plate 347 shows the collapse after conservation.

Collapse 121g

A 2.0m length of facing could be traced to the east of 121f (Plate 348). This did not stand to more than 0.2m above ground level and was obscured by loose stone that was eroding from the core above. A patch of loose core was cleared from the top of the wall and was replaced with longer stones in order to give some protection to the *in situ* facing below (Plate 349).

Collapse 121h

The outer face on the north of the hut was low and partially collapsed (Plate 350). A layer of fallen stone protected much of the facing. One area was vulnerable to erosion because movement in the stones on the wall top was threatening to destabilise the facing underneath. Two large stones were reset and core was packed behind them. The two stones are indicated on Plate 351.

HUT 71 (Fig. 28)

This hut was excavated and planned by Hughes in 1906. He reported that 'the hut drew blank'. The plan (Fig. 29) shows a simple roundhouse with no defined entrance although facing was not recorded on the south side of the hut.

Griffiths recorded the hut in 1946:

A circular hut with an internal diameter of 13 ft. [4.0m], constructed of large stones. The floor is deeply sunk (5 ft. [1.5m]) below the general ground level. The wall is 5 ft. [1.5m] thick; it has no outer face, but the inner face stands 5 ft. [1.5m] high on the N and E, and 6 ft. [1.8m] high on the W and SW. The S and W parts of the hut are filled with earth and stones perhaps the remains of a ruined cross-wall. On the S is an entrance 5 ft. 6 ins. [1.7m] Wide, with a sloping passageway leading down into the hut.

Dallimore noted the following in 1978:

North, east and west walls faced. North and east up to 1.75m. South wall is low scatter of stones.

When the hut was recorded during the present season facing could be seen to have survived to a height of 1.2m. The northern wall had been undermined by a deep hole in the hut floor and the southern half of the hut was filled with stone and soil, possibly corresponding to Griffiths' description of a cross wall. This material appeared to be spoil from the hole in the hut floor. The entrance was no longer visible although Griffiths description of a 1.7m wide entrance suggests that there must have been some collapse in 1946 as the usual width of a hut entrance is between 0.5m and 0.7m.

Collapse 71a

The wall in the south-eastern quadrant of the hut had completely collapse leaving a steep rubble slope (Plate 352). Any further erosion here would have threatened the stability of the hut wall to the north. The slope was therefore stabilised by inserting long stones into the rubble. Plate 353 shows 71a after conservation.

Collapse 71b

The southern end of the western wall was standing to a maximum height of 0.2m (Plate 354). A large slab was poorly bedded and was tending to lever up the surrounding stones. This was turned upside down and one further stone was added (Plate 355). The facing was examined and found to be stable. There was however some instability in the core on the wall top so this was repacked. No facing was disturbed.

Collapse 71c.

The remaining 4.0m length of inner face at the northern end of the hut was reasonably stable (Plates 356 and 357). There had been some slumping as a result of a large hole in the hut floor. This hole was infilled with stone imported from the scree and this successfully stabilised the base of the wall. There was some instability in the upper course of masonry. One stone (A, Plate 356) had slipped out of the wall close to the southern end of the collapse. This was pushed back into the wall and supported with one additional stone. Elsewhere the wall-top was secured with a number of heavy headers. These are indicated on Plates 358 and 359.

HUT 70 (Fig. 28)

This hut was excavated by Hughes in 1906 and some charcoal was recovered. His plan (Fig. 29) depicts a roughly oval hut. Facing was only recorded in the northern half of the structure.

Griffiths' description (1946) confirms the general impression given by Hughes' plan:

A fairly well-built hut of irregular outline, roughly oval, 17 ft. [5.2m] x 11 ft. 6 ins. [3.5m] internally. The walls are built of large stones. The hut is set against the NW wall of the fort, its wall on this side being 5 ft. [1.5m] thick, with an inner face 2 ft. [0.6m] high. The floor of the hut is 2 ft. [0.6m] below the general ground level. The E wall is ruined but stands roughly 2 ft. [0.6m] high. The wall is well-preserved on the NE, where it is 5 ft. [1.5m] thick and has an inner face 3 ft. 6 ins. [1.1m] high and an outer face 2 ft. [0.6m] high.

Dallimore recorded little change in 1978.

This season's pre-conservation recording revealed further damage to the hut in the form of a collapse down to ground level in the northern wall. The main footpath on the northern side of Tre'r Ceiri runs just to the south of the hut and some erosion had occurred here.

Collapse 70a

This was a serious 3.1m wide collapse down to ground level in the northern wall (Plate 360). Facing was standing to a height of 1.1m to the east. The edge of the collapse consisted of off-line facing that had been dragged forward when the adjacent masonry failed.

The rubble and off line facing were cleared from the collapse. The wall had failed from the base and no masonry had survived across the whole of the collapse (Plate 361). Bedrock was uncovered close to the expected level of the wall base suggesting that the wall had not been undermined. Another wall face was uncovered during clearance standing about 0.5m behind the projected line of the hut wall and 1.0m in front of the rampart. The hut wall had presumably collapsed because the facing could not be tied into this wall. The newly revealed facing was constructed from large blocks of stone and was standing to a height of between 0.6m and 0.8m and could be traced for a total length of 3.5m. The stone was angular and not significantly weathered suggesting that the face had not been exposed to the elements for any great length of time.

A small amount of clearance was undertaken in front of the rampart behind the newly uncovered face exposing a 1.0m length of rampart and what appeared to be the original ground surface (Plate 363). The rampart did not continue down behind the facing for more than 0.25m. All of the stones in both the rampart and the ground surface were rounded and well weathered, showing that the rampart had been exposed to the elements for some time before the wall had been built in front of it. The characteristic rounded appearance of the stones was similar to that of the exposed rampart elsewhere in the fort except for the lack of grey crustose lichen that covers almost every exposed stone on the mountain. This lichen is the climax phase of vegetation on the scree and careful examination of areas that are known to have been disturbed by excavation show that it takes at least 70 to 100 years to become fully established. The lichen penetrates the surface of the stone which eventually breaks down (Syers and Iskandar, 1973).



Fig. 31, Profile across hut 70 and the ramparts



Fig 32 Huts 70, 71 and 121 to 124 after conservation

When the lichen covered stone is buried the light necessary for the survival of the algal component of the organism is lost. The lichen therefore dies leaving a characteristic rounded surface to the stone. The speed of the lichen penetration into the surface of the stone on Tre'r Ceiri is not known but even if it is assumed to correspond to the first colonisation by the crustose lichen it shows that the wall must have been open to light for at least 70 years. This type of weathering was not present on the face built in front of the rampart, showing that it was buried by the hut wall soon after construction. We can therefore assume that the hut was built in excess of 70 years after the rampart. The unweathered face was probably associated with the construction of the hut and may have been built as a revetment, when the initial hole was dug, in order to prevent the collapse of the rampart. A profile of the various components of the ramparts and hut was drawn (Fig. 31). Hughes' plan (Fig. 29) shows the northern wall of the hut as being somewhat flattened in plan. The projected line of the wall to the west suggests that the hut wall originally ran 0.5m in front of the surrounding masonry (Plate 364). The post-conservation plan (Fig. 32) shows the alignment of the various components of the various components of the surrounding masonry (Plate 364). The post-conservation plan (Fig. 32) shows the alignment of the various components of the masonry. The shallow hole in the hut floor in front of the wall was infilled after the photograph was taken.

Collapse 70b

The 2m length of surviving facing in the west wall was examined and found to be ruinous but stable. Several large voids could be seen within the wall at the junction with 70a. One long stone was running along the southern side of the void giving the impression that this was a partially collapsed entrance. It was not possible to make any further investigations without destabilising the hut wall. The voids could alternatively have been formed when the facing was disturbed by the serious collapse to the west.

Collapse 70c

The north and north-western parts of the inner face were standing to a typical height of 1.0m. There was some instability on the wall top at the north where several stones had been lost (Plate 365). This was stabilised by the addition of a course of heavy headers. One further stone was added to the wall top 1.0m to the west. The new masonry is indicated on Plate 366.

Collapse 70d

The southern wall of the hut had almost completely collapsed. A 0.6m length of the lower facing had survived at the eastern end of the wall (Plate 367). The wall above had collapsed but was stable apart from a patch of loose stone that had been dislodged because of erosion to the footpath that running to the south of the hut. This was stabilised by the addition of three heavy slabs (Plate 368).

Collapse 70e

A 1.1m length of low ruinous outer facing had survived at the western end of the south wall (Plate 369). This was surrounded by loose rubble and, given its proximity to the footpath, was vulnerable to erosion. The loose rubble was cleared and reset in a stable fashion (Plate 370). The *in situ* masonry was not disturbed.

Collapse 70f

There was a shallow 0.6m wide dip in the outer face at the east of the hut (Plate 371). This was filled with the three stones indicated on Plate 372.

HUT 129 (Fig. 33)

This small oval enclosure sits at the north-eastern end of the sequence of low meandering walls that form huts 130 to 132. Hut 129 has not been officially excavated but is shown on Hughes' 1906 plan (Fig. 34) as a small D-shaped hut with an entrance at the north-east.

The hut was described by Griffiths in 1946:

A fairly good oval hut, 9 ft. $[2.7m] \times 6$ ft. [1.8m] internally, set against Hut 130 on the SE. The floor is <u>not</u> sunk below the general ground level. The walls are 5 ft. [1.5m] thick and stand 1-2 ft. [0.3-0.6m] high. On the NW is a possible entrance of undetermined width.

Little change was recorded either by Dallimore in 1978 or by the writer at the beginning of the present season. The walls were low and consisted mainly of piled stone. Some facing had survived at the south-western end of the hut.

Collapse 129a

The south-western wall of the hut was low and there had been some recent erosion at the end of the south-eastern wall (Plate 373). Several slabs that had slipped off the wall top were cleared from the collapse. This revealed facing across the end of the south-eastern wall (Plate 374). The area was carefully examined and the wall could be seen to continue no further around the south-western end of the hut. The slabs that had been cleared from the collapse were used in the construction of 0.3m of new masonry on top of the *in situ* facing (Plate 375). This provided a stable end to the wall and supported the facing to the north-east.

Collapse 129b

The end of the north-western wall was also examined (Plate 376). One large slab was leaning against the wall. This was cleared, again revealing facing across the end of the wall. The facing at the end of the north-western and south-eastern walls was not aligned in a way that suggested that there was a conventional entrance at this end of the hut. The end of the two walls formed a funnel-shaped passage leading from hut 130. Griffiths noted that huts 129 to 133 did not have floors dug to below ground level. The anomalous construction of these huts suggests that they were not built as dwellings. The funnel shaped entrance to hut 139 would not act as an effective doorway; its position at the end of the long passage formed by the walls of huts 130 and 133 suggests rather that it formed part of a series of stock enclosures. The facing was stable apart from the wall top which was secured by the addition of one heavy slab (Plate 377). There was no surviving outer face to the north-east. Several supporting stones were added here during the conservation of 129c.

Collapse 129c

This was a 2.0m wide collapse in the outer face at the south-western end of the north-western wall (Plate 378). The wall appeared to have failed from the base. The loose stone was therefore cleared from the collapse and reinstated in a stable fashion (Plate 379).



Fig 33, Huts 129 to 133 before conservation

Collapse 129d

The outer face could be traced for 1.6m around the southern side of the hut (Plate 380). The eastern end of the facing had collapsed leaving unsupported masonry. A small amount of displaced core was removed and three large stones were added to the end of the wall (Plate 381) thus supporting the facing to the west.

HUTS 130 to 132 (Fig. 33)

The walls of all of these enclosures consisted of randomly piled stone and were generally stable. Four stones that had been knocked from the walls were replaced (132a and 132b). Plate 382 shows collapse 132a after conservation and Plate 383 shows collapse 132b.

HUT 133 (Fig. 33)

Hughes planned this hut in 1906 and showed a rectangular hut with an entrance in the south-west wall (Fig. 34).

Griffiths' (1946) description was as follows:

A good rectangular hut, 17 ft. $[5.2m] \times 8$ ft. [2.4m] internally. The floor is about 2 ft. [0.6m] below the general ground level, but is very uneven and littered with fallen stones. The walls are 3-4 ft. [0.9-1.2m] thick; the inner face stands 3 ft. [0.9m] high on the E, and 4-6 ft. [1.2-1.8m] high on the W; there is no outer face on the N, but a ruined one appears on the E, and on the W it reaches 3 ft. [0.9m] in height. On the E is an entrance 1 ft. 6 ins. [0.5m] wide, partly blocked by fallen stones.

Dallimore (1978) recorded some deterioration:

North wall preserved to height of 1.50m. Treasure hunter hack has caused collapse of west wall. East wall is collapsing. Entrance clear but collapsed. South wall is in fair condition.

The hut was recorded at the beginning of the present season. The south-eastern wall had mostly collapsed but the undermined north-western wall had survived. The entrance was clearly visible in the south-western wall suggesting that Griffiths had made an error in his recording (he recorded it in the east).

Collapse 133a

The central part of the south-eastern wall had collapsed into a hole in the hut floor (Plate 384). The corners of the hut were still standing as the end wall was tied into the side walls and this had been holding the upper part of the wall in place. The collapsed stone was cleared and new facing was constructed in the centre of the wall (Plate 385).

Collapse 133b

The masonry to the east of the entrance was very loose and could not be preserved *in situ*. The stones were therefore marked (Plate 386) and the wall was examined for points of weakness. Stone F had slipped off the base of the wall and had brought all of the facing above with it. All of the marked stones were taken from the wall and stone F was pushed back into line with the base of the wall. The rest of the stones were then reset close to their original positions and the top and end of the wall was secured with heavy headers. Stones C and G were replaced upside down in order to lock the facing together. Plate 387 shows the rebuilt masonry. The corresponding outer face had been completely lost. Three stones were therefore added in order to provide support for the core and inner face (Plate 388).

The hut floor

There was a large treasure hunter hack in the floor close to the south-eastern end of the hut. Stone had been piled up around the hole and was obscuring the north-western and south-western walls. This rubble had presumably come from the hole and was therefore used to backfill it.



Fig. 34, Huts 129 to 133 (Hughes ca. 1906)



Fig. 35, Huts 129 to 133 (RCAHMW, 1960)



Fig. 36, Huts 129 to 133 after conservation

Collapse 133c

The north-western side of the entrance was standing to a height of between 0.4m and 0.6m beneath the rubble (Plates 389 and 390). The wall top was however littered with small stones. These were cleared and new masonry was added above the *in situ* facing in order to stabilise the upper part of the wall. A large stone taken from the hut floor was used to secure the inner corner of the entrance. Plates 391 and 392 show the collapse after conservation.

Collapse 133d

The north-western wall had not been badly damaged as the treasure-hunter hack had not been dug directly in front of the wall. Plate 393 shows the wall before the hole was infilled. The only instability was a small dip in the upper part of the facing towards the north-east end of the wall. This was infilled with two stones (Plate 394).

Collapse 133e

The outer face adjacent to hut 50 was standing to a height of 0.5m (Plate 395). There were a few loose stones on the wall top. These were reset and are indicated on Plate 396.



Fig. 37 Huts 144 and 145 before conservation

Collapse 133f

There was an unstable area at the north-west end of a 1.1m length of low outer facing in the north-eastern wall (Plate 397). This was stabilised by the addition of one heavy stone (Plate 398).

SITE REVIEW

The completion of hut 133 marked the end of designated work for season 10. The site had not been inspected in detail since the end of season 5. It was decided, during the site meeting early in the season, to carry out a review of the site in order to assess the stability of the conserved masonry and to check for any omissions in the consolidation programme. A long-term management plan was also prepared, based on the results of the survey.

Three huts were found to be in need of conservation. All three had been left unconserved during earlier seasons because the consolidation work required was beyond the scope of the techniques that had been

established at the time. Conservation techniques had progressed considerably over the intervening years and it was felt that the three huts would benefit from some basic stabilisation. Several other minor instabilities were identified. Most of these required nothing more than the resetting of a stone that had been displaced from conserved, i.e. not original, masonry and as such did not require any detailed recording. There were however a few problem areas in the *in situ* masonry. These were stabilised and are described below along with the conservation details of the three remaining huts.


HUT 144 (Fig. 37)

This hut remains unexcavated but was planned by Hughes in 1906. His plan (Fig. 38) shows a rectangular hut with an entrance in the western wall.

Griffiths recorded the hut in 1946:

A ruined rectangular hut, 14 ft. [4.3m] x 7 ft. [2.1m] internally, full of fallen stones. It is set against hut 145 on the N and against the scree of the summit cairn on the E. An inner wall face stands 4 ft. 6 ins. [1.4m] in two places on the NE and N.

Dallimore recorded further damage to the hut in 1978:

West side completely collapsed. North wall and part of east wall has collapsed. South wall reasonably preserved. Maximum height of walls is 1.0m. Severe mutilation to interior by treasure hunters.

The hut was surveyed before consolidation works commenced. Most of the north-west corner of the hut along with the entrance recorded by Hughes had been completely destroyed by a 3m wide treasure-hunter hole. There was also a severe collapse in the eastern wall. Elsewhere the walls were reasonably stable having been constructed from unusually large stones.

Collapse 144a

This 1.0m wide collapse had been caused by the movement of the two massive uprights that had formed the base of the wall. These stones had slipped forwards and had become immovably embedded at an angle in the hut floor. The facing above had collapsed (Plate 399). The rubble was cleared from the line of the wall and was used to build new facing behind the uprights which could not be moved without digging a large hole in the hut floor (Plate 400).

Collapse 144b

The wall to the north of 144a had been undermined leaving large voids at its base (Plate 401). The masonry above was stable but appeared to have slipped forwards. Large stones were wedged into the voids in order to support the surviving facing (Plate 402).

Collapse 144c

The northern wall had been severely damaged by a deep treasure hunter hack in the floor of the hut (Plate 403). A short length of facing had survived at the western end but this had ridden forwards on a large slab and was clearly not even close to its original position. It was also very unstable. Nothing could be done to stabilise this facing so no further action was taken beyond the infilling of the treasure hunter hack.

The central part of the wall had been reduced to a rubble slope. Several stones were reset here in order to prevent further erosion. The north-eastern corner of the hut was reasonably stable although loss of core from behind the facing was beginning to cause instability. Several large blocks of stone were dragged down from the scree and piled behind the face in order to retain the core. One stone was reset on the end of the surviving facing (Plate 404). The stones placed behind the facing can best be seen on Plate 402.

HUT 145 (Fig. 37)

Hughes planned hut 145 in 1906 and depicted a large sub-rectangular structure with a break in the western wall (Fig. 38).

Griffiths' description, from 1946, was as follows:

A rectangular hut, 18 ft. $[5.5m] \times 12$ ft. [3.7m] internally. Set against Hut 144 on the S and against the scree of the summit cairn on the E. The S end is ruined and full of fallen stones. The floor is <u>not</u> sunk below the general ground level. The W wall is 4 ft. [1.2m] thick and stands 2-3 ft. [0.6-0.9m] high; the E wall shows an inner face 3ft. [0.9m] high. At the SW corner is an entrance of undetermined width.

Dallimore (1978) added little to the above description although some damage to the E wall was recorded.

The correct outline of the hut was traced when it was examined during the present season. The basal course of the southern wall was clearly visible. The internal dimensions of the hut were $6.5m \ge 4.2m$ and the rough remains of the entrance could be seen close to the southern end of the western wall.

Collapse 145a

There was a collapse close to the southern end of the eastern wall, the wall falling steeply from a height of 0.8m to ground level. The wall top to the north of this was loose and littered with displaced stones (Plates 405 and 406).

The collapsed end of the wall was supported with several heavy stones that were imported from the scree. The displaced stones were cleared from the wall top and a course of heavy headers was added. Plates 407 and 408 show the wall after conservation.

Collapse 145b

The western end of the northern wall had almost totally collapsed leaving a confused mass of shattered bedrock and rubble (Plate 409). The base of the wall appeared to have been undermined by treasure hunter activity. Two stones were however still tied into the upper part of the wall and these appeared to define this corner of the hut. This area was very unstable and the two stones had nearly become detached from the rest of the wall. The treasure hunter hole was backfilled and one heavy slab was set against the remains of the corner (Plate 410).

Collapse 145c

The outer face of the western wall was low and unstable (Plates 411 and 412). A 0.9 m length of tidy facing had survived at the northern end of the wall. The southern end of the wall had almost collapsed and the entrance passage could not be traced. Two large slabs were lying on the end of the wall, both of which were unstable and threatening to destabilise the masonry beneath. The central part of the wall consisted of loose, jumbled stones above an intact basal course. The loose stones were cleared from the wall top and the wall was secured with a course of heavy headers (Plates 413 and 414).

Collapse 145d

A semi-collapsed length of outer face had survived to the south of the entrance (Plate 415). The slab on the top of the wall was slightly reset and was supported by the addition of small packing stones. The end of the wall was stabilised by the addition of a number of irregularly laid heavy stones. The new masonry is indicated on Plate 416.



Fig. 41, Hut 110



Fig. 42, Hut 110 (Hughes)



Fig. 43, Hut 110 (RCAHMW, 1960)

HUT 110 (Fig. 41)

This poorly preserved hut stands on the line of the main footpath on the north-western side of Tre'r Ceiri and remains unexcavated. Hughes (1906) depicted the hut as being circular with an entrance on the north-west (Fig 42). Another small hut on the north-eastern side of 110 is also shown on his plan.

Griffiths (1946) discussed the entrance in some detail in his description of the hut:

A circular hut with an internal diameter of 10 ft. 6ins. [3.2m]. The floor is 2ft. [0.6m] below the general ground level. The inner face of the hut wall stands 1 ft. [0.3m] high on the W and 3 ft. [0.9m] high on the E. An outer face is only visible on the S and SW, where it reaches a height of 2 ft. 6 ins. [0.8m]. There is a doubtful entrance on the W; the wall footings are carried across it but on the other hand the wall on the S side of the gap ends in a good squared face 2ft. 6 ins. [0.8m] high.

The RCAHMW (1960) plan confusingly shows an entrance in the south-eastern wall of the hut (Fig. 43).

The hut was examined before conservation, the area where the RCAHMW plan shows the entrance was overgrown and no detail was visible. A blocked entrance was however clearly visible in the south-western wall. Elsewhere the hut was poorly preserved and there was little scope for conservation work.

Collapse 110a

The area around the entrance had been suffering from erosion mainly as a result of its proximity to the path. Plate 417 shows the inner face and 418 the outer. The outer face stepped in by 0.4m on the south-eastern side of the entrance. Facing continued on this alignment for 0.9m. The north-western side was less well defined but the facing appeared to step out again. Corresponding straight joints could be seen in the inner face. There was little doubt that this was a deliberately blocked entrance. Hughes' plan and the rather vague remains that now remain suggest that the hut was originally larger and was subsequently divided in half. The relationship of the entrance to the possible modifications of the hut could only be resolved by excavation.

The upper part of the masonry was rather unstable and the wall top was littered with displaced stones. The displaced stones were cleared revealing the north-eastern and part of the north-western side of the entrance passage (Plate 418). The outer part of the north-western side had collapsed and the facing that can be seen behind the nearest scale on Plate 418 is the edge of the blocking masonry exposed by the loss of the passage wall.

It was necessary to add new masonry to the top of the blocking wall in order to retain the stone standing to the north-east and also to stop visitors from walking over the *in situ* masonry. This resulted in a standing face marking the edge of the blocking masonry. This makes interpretation of the remains a little difficult but is not technically incorrect. There is a good chance however that this interesting detail in the masonry will now survive the ravages of visitor erosion. Plates 419 to 421 show the collapse after conservation.

Collapse 110b

The path through the hut crosses the remaining stub of stub of the north-western wall (Plate 422). The stones on top of the wall were beginning to come loose. One facing stone was added along with some small core material (Plate 423) but further erosion is inevitable.

Collapse 110c

The inner face of the south-western wall had been reduced to a rough slope because most of the facing stones had been lost. Two large stones, indicated on Plate 419, were bedded into the loose core in order to add some stability to the area.

The ramparts: site review

There had been some erosion to the banquette immediately to the south-west of the north postern (Plate 424). Several stone had fallen from the top of the face. These were replaced in a stable fashion (Plate425).

The wall core had begun to erode away on a steep part of the wall top 23m north-east of the north postern (Plate 426). The loose stone was cleared away and several long pinning stones were inserted vertically into the core. The surface of the core was stabilised by the addition of several large stones.

There was a small area of instability in the top of the inner face 14m to the south-west of the north postern (Plate 427). One large stone was reset on the wall top (Plate 428).

There had been a minor collapse at the outer end of the north-eastern flanking wall to the outside of the north-west entrance (Plate 429). Several supporting stones were added to the end of the wall (Plate 430).

It was noticed during the site review that the majority of the work that had been carried out during season 1 had not been drilled. The relevant site records were consulted and the drilling was carried out at the end of the present season.

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