TOWER POINT RATH HILLFORT, PEMBROKESHIRE: GEOPHYSICAL SURVEY 2015





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TOWER POINT RATH HILLFORT, PEMBROKESHIRE: GEOPHYSICAL SURVEY 2015

Gan / By

Charles Enright

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Ymddiriedolaeth Archaeolegol Dyfed Cyf Neuadd y Sir, Stryd Caerfyrddin, Llandeilo, Sir Gaerfyrddin SA19 6AF Ffon: Ymholiadau Cyffredinol 01558 823121 Adran Rheoli Treftadaeth 01558 823131 Ffacs: 01558 823133 Ebost: <u>info@dyfedarchaeology.org.uk</u> Gwefan: www.archaeolegdyfed.org.uk

Dyfed Archaeological Trust Limited The Shire Hall, Carmarthen Street, Llandeilo, Carmarthenshire SA19 6AF Tel: General Enquiries 01558 823121 Heritage Management Section 01558 823131 Fax: 01558 823133 Email: info@dyfedarchaeology.org.uk Website: www.dyfedarchaeology.org.uk

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SUMMARY

DAT Archaeological Services were commissioned by the Pembrokeshire Coast National Park (PCNP) to undertake a geophysical survey within Tower Point Rath hillfort (SAM PE281, PRN 2618).

The interior of hillforts are often rich in archaeology and have been found to contain a plethora of archaeological features including rectangular and circular structures constructed of stone or timber, storage pits, enclosures and hearths.

Tower Point Rath hillfort is located on a promontory of land to the south of St Brides within the Pembrokeshire Coast National Park. There are three small quarry pits within the hillfort; aside from which the interior currently appears to be featureless.

The survey was conducted on the 17th – 19th February 2015 using a fluxgate gradiometer which detects variations in the earth's magnetic field. The purpose of the surveys was to attempt to identify possible areas of intense and/or prolonged burning which could be associated with hearths. Identifying the location of these hearths would allow these areas to be targeted for further investigation. These investigations may provide artifactual or environmental evidence that could give an insight into the lives of the occupants of this hillfort.

The survey was conducted along two orientations, east to west and north to south. The results of both orientations appear to provide evidence of possible former pits throughout the interior of the hillfort. Interestingly both surveys appear to have detected the same dipolar features that may indicate the presence of an area of burning, and possibly even an associated ditch like feature. The remaining features appear to be natural in origin and probably relate to an episode of general ground disturbance whose cause is not known.

1. INTRODUCTION

1.1 Project Commission

- 1.1.1 DAT Archaeological Services were commissioned by the Pembrokeshire Coast National Park to undertake a geophysical survey within Tower Point Rath hillfort (centred at NGR SM 78978 10816; Figure 1)
- 1.1.2 The purpose of the geophysical survey was to attempt to identify possible areas of intense and/or prolonged burning associated with hearths within the known Iron Age settlement.

1.2 Report outline

1.2.1 This report provides a summary and discussion of the geophysical survey and its results.

1.3 Abbreviations

1.3.1 Sites recorded on the Regional Historic Environment Record (HER) are identified by their Primary Record Number (PRN) and located by their National Grid Reference (NGR). Gradiometer readings are measured in nanoTesla (nT).

1.4 Illustrations

1.4.1 Printed map extracts are not necessarily produced to their original scale.

1.5 Timeline

1.5.1 The following timeline (Table 1) is used within this report to give date ranges for the various archaeological periods that may be mentioned within the text.

Period	Approximate date	
Palaeolithic –	<i>c</i> .450,000 – 10,000 BC	_
Mesolithic –	<i>c</i> . 10,000 – 4400 BC	Pre
Neolithic –	<i>c</i> .4400 – 2300 BC	hist
Bronze Age –	<i>c</i> .2300 – 700 BC	orio
Iron Age –	<i>c</i> .700 BC – AD 43	
Roman (Romano-British) Period –	AD 43 - <i>c.</i> AD 410	
Post-Roman / Early Medieval Period –	<i>c</i> . AD 410 – AD 1086	
Medieval Period –	1086 - 1536	Hist
Post-Medieval Period ¹ –	1536 - 1750	iori
Industrial Period –	1750 - 1899	0
Modern –	20 th century onwards	

Table 1: Archaeological and Historical Timeline for Wales.

¹ The post-medieval and industrial periods are combined as the post-medieval period on the Regional Historic Environment Record as held by Dyfed Archaeological Trust



Figure 1: OS map showing the location of Tower Point Rath Hillfort (Scheduled Area bounded in red).

Reproduced from the Ordnance Survey 1:25,000 scale Landranger Location map, based on the Ordnance Map with the permission of The Controller of Her Majesty's Stationery Office, © Crown Copyright Dyfed Archaeological Trust Ltd., The Shire Hall, Carmarthen Street, Llandeilo, Carmarthenshire SA19 6AF. Licence No 100020930.

2. SITE AND LOCATION

- 2.1 Tower Point Rath hillfort (SAM PE281) is located on a promontory of land to the south of St Brides within the Pembrokeshire Coast National Park (Figure 1).
- 2.2 The hillfort is bounded to the north, west and south by steep cliffs. To the west the land falls gently away from the site and is protected by ramparts.
- 2.3 The ramparts are approximately 140m long consisting of an inner bank and outer ditch, then a slight central bank, another ditch and finally a slight outer bank. The entrance to the hillfort lies to the north of the centre of the ramparts.
- 2.4 Excavations in the 1970s (Wainwright 1972) revealed the inner bank was constructed in two phases; the first phase of clay faced with stone and the second phase was a more stony bank revetted with stepped walls. A hut circle was also excavated.
- 2.5 Currently on the ground within the hillfort there is evidence of three small quarry pits; aside from which the interior appears to be featureless.

3. ARCHAEOLOGICAL POTENTIAL

- 3.1 The interior of hillforts are often rich in archaeological deposits and features. Past archaeological excavations at other hillfort sites have found evidence for, amongst many other features, rectangular and circular structures constructed of stone and/or timber, storage pits, enclosures, gullies and hearths.
- 3.2 A hearth is essentially a fire pit used for heating, cooking and the processing of natural resources. They would have been an integral part of any settlement and can be found associated with areas of habitation and industry.
- 3.3 Identifying the location of hearths could help to pinpoint areas of significance or activity within an Iron Age settlement. Excavation of such areas may provide artifactual or environmental evidence that could give an insight into the lives of the occupants of the Iron Age settlement.

4. METHODOLOGY

- 4.1 A fluxgate gradiometer with a DL601 data logger was used to conduct the detailed survey, which detects variations in the earth's magnetic field. A sample interval of 0.25m (four readings per metre) was used with 0.5m wide traverses across 20m x 20m grids using the zigzag traverse method of collecting data. The gradiometers sensitivity was set to detect a magnetic variation in the order of 0.1 nanoTesla.
- 4.2 Gradiometer survey is a non-intrusive form of survey requiring an intense walkover of the site area. Grid markers are used (bamboo canes and survey poles) to enable accurate measurements to be made, these are removed at the end of the survey. The survey area is tied in to the local ordnance survey grid by measuring to fixed points in the landscape.
- 4.3 The survey was conducted along two orientations (north-south and east-west) in order to aid interpretatios and increase confidence levels in judgments.
- 4.4 The data was processed using *Terrasurveyor 3.0* and presented with a minimum of processing. The presence of high values caused by ferrous objects, which tend to hide fine details and obscure archaeological features, have been 'clipped' to remove the extreme values allowing the finer details to show through.

- 4.5 The processed data has been presented as a grey-scale plot, overlaid on local topographical features. The main magnetic anomalies have been identified and an interpretation of those results is also given.
- 4.6 The resulting survey results and interpretation diagrams should not be seen as a definitive model of what lies beneath the ground surface; not all buried features will provide a magnetic response that can be identified by the gradiometer. In interpreting those features that are recorded, the shape is the principal diagnostic tool along with comparison with known features from other surveys. The intensity of the magnetic response could provide further information, a strong response for example indicates burning, high ferric content or thermoremnancy in geology. The context may provide further clues but the interpretation of many of these features is still largely subjective.
- 4.7 All measurements given will be approximate as accurate measurements are difficult to determine from fluxgate gradiometer surveys. The width and length of identified features can be affected by its relative depth and magnetic strength.

5. **RESULTS AND DISCUSSION (Figures 2 & 3)**

- 5.1 The site was surveyed on the 17th 19th February, 2015. The gradiometer survey was based on 20x20m grids with some partial grids due to constraints of working within the interior of the hillfort and the presence of deep quarry pits.
- 5.2 Figure 2 shows the survey data results and interpretation plot of the survey conducted along an east to west traverse. The area was notably free from ferrous anomalies that are usually caused by modern interference.
- 5.3 The gradiometer survey identified a large number of discrete positive anomalies (shown in green) across the internal area of the hillfort. These could be evidence of possible pit like features and of archaeological origin. However, it should be noted that they could also be caused by natural features such as tree root holes or natural depressions in the ground that have become infilled over time.
- 5.4 To the south of the survey area a large amorphous area of high (positive) magnetism was detected [A] with an associated area of low magnetism. This is probably associated with the earthen rampart to the southeast; perhaps a former ditch that has become infilled or a build-up of magnetically enhanced material against the rampart.
- 5.5 The survey detected four individual dipolar anomalies (an anomaly that consists of a positive and negative response of equal polarity), which is caused by a thermoremanent process (when a feature has acquired its own magnetic field as a result of heating). Each of these may relate to an area of discrete burning within the hillfort. The most central one of these [B] may possibly be associated with a cut feature and may sit within a ditch like feature.
- 5.6 The remaining features appear to be more natural in origin and could relate to an episode of general ground disturbance or the nearby quarrying activity.



Figure 2: Processed gradiometer survey data (east-west) with interpretation.

Positive features are represented in green; negative features are represented in yellow; areas of possible burning are represented in red; orange hatching represents areas of general disturbance

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- 5.8 Figure 3 shows the survey data results and interpretation plot of the survey conducted a long a north to south traverse. As in Figure 2 the results show that the area is generally clear from modern magnetic disturbances which can mask more subtle archaeological features.
- 5.9 A number of discrete positive anomalies were detected which could possibly be evidence of pit like features. Many of these correspond to those identified in the east-west traverse but interestingly additional ones have been identified near the eastern edge of the survey area. These now appear to resolve into a linear formation [A] of possible pit features; possibly a line of large post holes. This direction of survey has also detected the positive magnetic reading and associated negative reading against the southern rampart of the hillfort that is marked as [A] in Figure 2.
- 5.10 The survey detected three out of the four dipolar anomalies that were seen in the north-south traverse survey (the fourth at the most western edge of the hillfort lies outside of the survey area for this direction of traversing), as well as an additional one. A large dipolar anomaly [B] that appears to sit adjacent to a possible ditch-like feature corresponds neatly with that seen in the east-west orientated survey.



Figure 3: Processed gradiometer survey data (north-south) with interpretation.

Positive features are represented in green; negative features are represented in yellow; areas of possible burning are represented in red; orange hatching represents areas of general disturbance.

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6. CONCLUSION

- 6.1 The surveys have been successful in identifying evidence of possible archaeological features within the hillfort; including a series of possible postholes in a linear formation and discrete areas of burning activity.
- 6.2 The results of both survey traverses largely confirm the results of each other. The north-south traverse provided additional information; including the apparent linear formation of possible post holes near the eastern edge of the hillfort interior.
- 6.3 Both surveys have identified a number of discrete areas of possible burning within the internal area of the hillfort. These episodes of burning may relate to a period of occupation within the hillfort and therefore be worthy of further investigation as they could yield artifactual and/or environmental evidence of that occupation. Interestingly the most central possible area of burning [B] does appear to sit adjacent to a positive anomaly that typically represents a cut feature; indicating the possible good survival of associated archaeological features within the hillfort.
- 6.4 Further archaeological features may exist within the hillfort but due to lack of variation in the magnetic susceptibility of the features from their natural surroundings, they may not be possible to detect by geophysical survey alone.

7. SOURCES

Published

Wainwright, G J 1972 `Excavations [of defended promontory] at Tower Point, St Brides, Pembrokeshire' Archaeol Cambrensis 120, 1971 (1972) 84-90.

Databases

Dyfed Archaeological Trust Historic Environment Record, housed with Dyfed Archaeological Trust in The Shire Hall, Llandeilo, Carmarthenshire, SA19 6AF

RCAHMW Coflein Database <u>http://www.coflein.gov.uk/</u>

Cartographic

Ordnance Survey, 2003, 1:25 000, Pembrokeshire.

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Paratowyd yr adroddiad hwn gan / This report has been prepared by

Charles Enright

Swydd / Position: Archaeologist DAT Archaeological Services

Dyddiad / Date 15/03/15 Llofnod / Signature

Mae'r adroddiad hwn wedi ei gael yn gywir a derbyn sêl bendith This report has been checked and approved by

Fran Murphy

ar ran Ymddiriedolaeth Archaeolegol Dyfed Cyf. on behalf of Dyfed Archaeological Trust Ltd.

Swydd / Position: Project Manager DAT Archaeological Services

Llofnod / Signature F.A. Murphy Dyddiad / Date 15/03/15

Yn unol â'n nôd i roddi gwasanaeth o ansawdd uchel, croesawn unrhyw sylwadau sydd gennych ar gynnwys neu strwythur yr adroddiad hwn

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