History on the Hill – Christchurch Remembered

Report 1

St Catherine's Hill -

Archaeology, History and the Great War

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St Catherine's Hill – Archaeology, History and the Great War

St Catherine's Hill

St Catherine's Hill is situated north of Christchurch in Dorset (SZ 14288 95567) and separates the rivers Avon and Stour. A significant feature in the landscape it offers views to and from the surrounding landscape and is intimately linked to important sites such as Hengistbury Head.

The ridge is of scarp slope morphology with the steeper slope facing east into the Avon valley whilst the dip slope runs west into the Stour valley. The trig point on St Catherine's Hill is 45m above sea level with the whole ridge undulating between 30-60m above sea level. Geologically it is made up Branksome Sandstone, Parkstone Clay Member and Poole Formation – clay, silt and gravel.

The nature and location of St Catherine's Hill have meant it has been important to local populations for millennia; spiritually, territorially and for natural resources. The large area of Town Common which comprises the eastern side of the hill down to the river Avon has always leant itself to extra community activities such as gun ranges, military training and an isolation hospital, a tradition that continues to the modern day.

Archaeological Investigation

St Catherine's Hill has undergone different archaeological investigations over the past century and before; published work is listed below. Up until this report the military use of the hill has been known but hard to locate and differentiate from low level quarrying. The ideal outcomes for this survey would be to:

- Identify and locate WW1 and WW2 features
- Collate different sources and geo reference where possible
- Identify developments in tactics/training where possible
- Assess present condition of features on site
- Chart history of use in gun range – Dudmoor Lane

Methodologies:

1) Obtain lidar information from Environment Agency at 50cm resolution and produce 5 different Hillshades of various standards as suggested in Stular et al. (2012).
2) Compare features in different Hillshades to confirm trench like features and then ground truth with onsite survey.
3) Obtain aerial images taken by OGS Crawford in 1925/26 and RAF aerial images (1947/8) from English Heritage and geo reference. Use these images to identify and date Lidar features.
4) Obtain copy of original 1918 Trench Plan as reproduced in *Prepared for Battle* geo-reference and compare to aerial imagery
5) Obtain pictures taken on site during WW1 from New Zealand archive, pin point picture locations and compare with present day view.
6) Contact museums with any connection to regiments at St Catherine's Hill, both local and national to obtain any relevant information.

Once the Lidar information had been processed and analysed and referenced to aerial photos some areas could be quickly categorised and dated to various periods.

Two further areas of interest were located for ground survey, which took place with help from members of Christchurch Antiquarians on 8 August 2018. Trench features were discovered and with reference to the aerial photos dated to either of the WW's.

WW1

A copy of the 1917 Trench Plan was obtained from “Prepared for Battle” by Michael Hodges and geo referenced into a workspace in QGIS. The main question to answer was if this plan was ever dug by the trainees and if so how much evidence would be left on the ground.

Figure 1 uses one of the Crawford Aerials which shows a small part of this trench system in existence but also the lidar proves that 99% has been removed by modern quarrying. The trench plan is more securely geo referenced than the Crawford aerial and was used on the field survey.

Although the Crawford images were very useful in helping to locate and date areas of military activity, Crawford himself was interested in archaeological mapping so we only get snap shots of the war time activity as they relate to the older features on the hill.

The Crawford aerials did also allow us to track developments in tactics/ identify areas of different training; with photographs from the south end of St Catherine’s Hill showing defended hills (Figure 2 highlighted in red) compared to the “defence in depth” trench system in Fig. 1. It is likely that the NZ forces had already perfected hill top defence from their time in Gallipoli and that Fig. 2 is showing an earlier but continued training area.

Fig. 1 Lidar, Crawford Aerial and Trench plan 1917

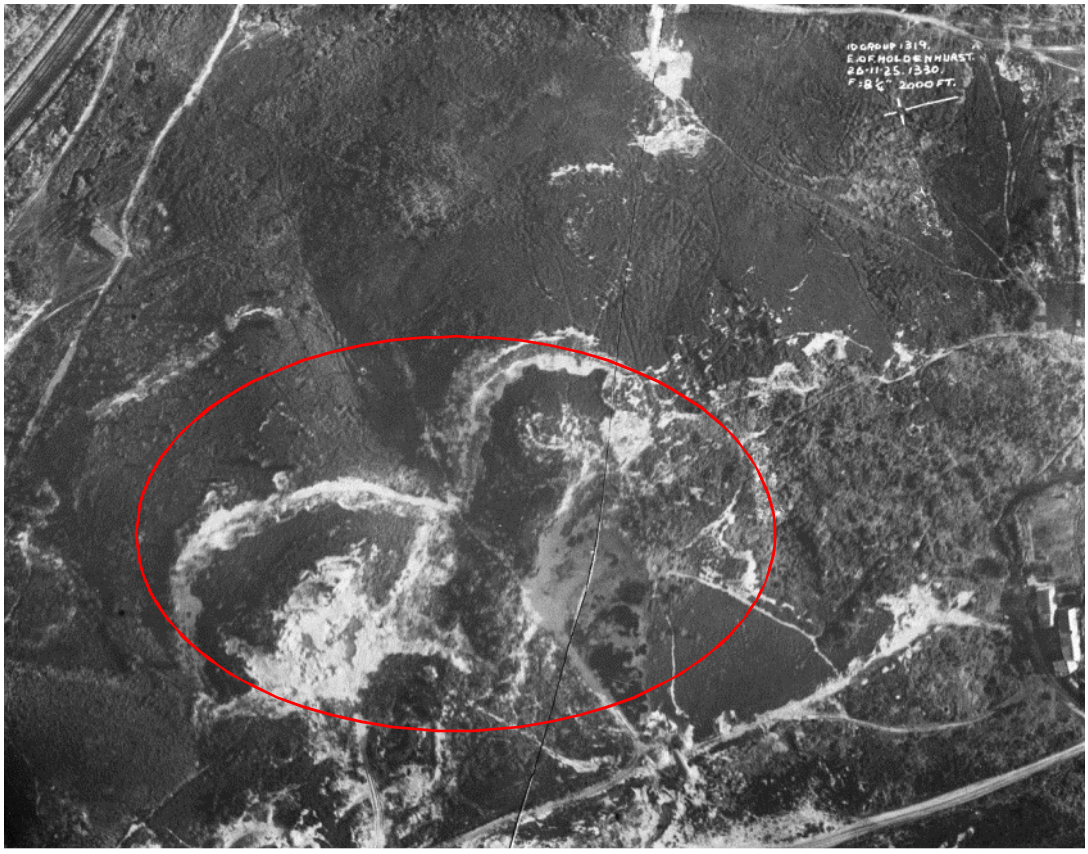

Fig. 2 Defended hill tops – highlighted in red

WW2

Although the nature of war had changed remarkably during the interwar years, relying less on static trench systems it was still an important technique to practice. WW2 trenches systems on St Catherine's Hill tend to be smaller and less regular than WW1; there are intact systems on the western edge of the Hill but also isolated foxholes spread over the whole site. It is unclear still if these are training or actual defence trenches and the likely answer is a mixture of the two.

It is harder to see WW2 trenches on the 1948 RAF aerials as discrete features as they tend to be lost in large areas of disturbance but we can see arears in the NW of the main plateau which were confirmed by Lidar and ground survey.

Defining areas WW1/WW2

Although each set of aerial photos (Crawford 1925/RAF 1947) miss some sections of the site we can be fairly sure that the main areas of use during each war are covered. There are large areas that have seen use in both periods but it does seem that the needs of training/defence were different enough to spatially separate activity (Figures 3-5). The 1947 RAF aerials are slightly problematic as it is difficult to tell whether the areas of largest disturbance are left from vehicle movements in the war or the start of commercial quarrying. For the purposes of this report I have included them

in military use areas as it is likely areas of disturbance were targeted for quarrying first and probably used in the war effort anyway.

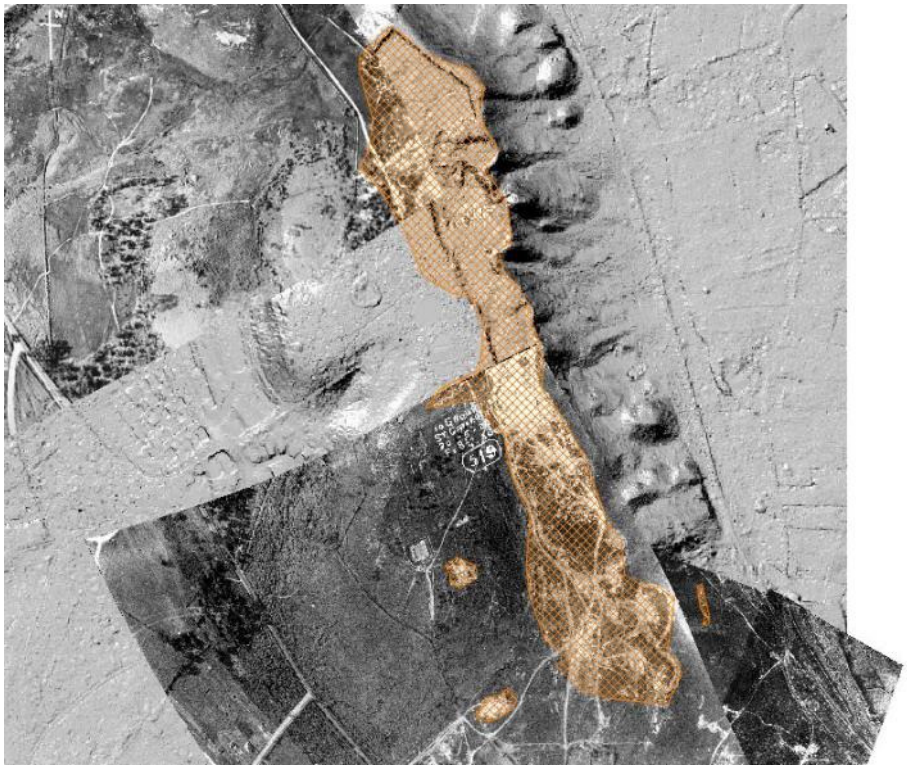

Fig. 3 Areas of use during WW1over Crawford Aerials and lidar

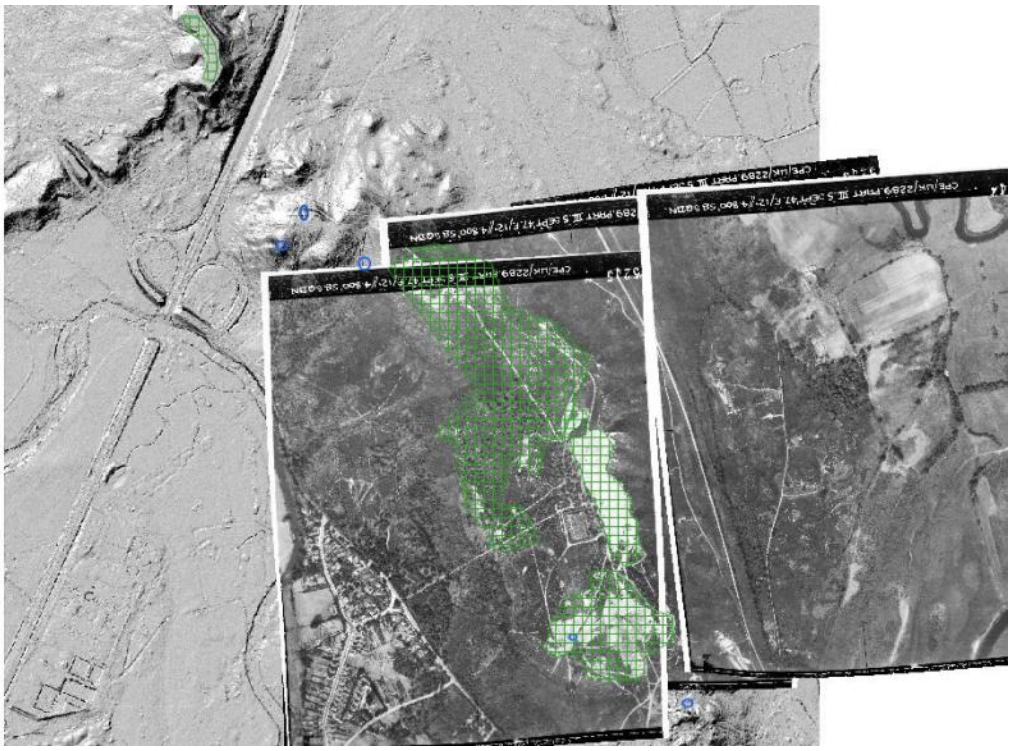

Fig. 4 Areas of use during WW2 over 1947 Aerials and lidar – with caveat from text above

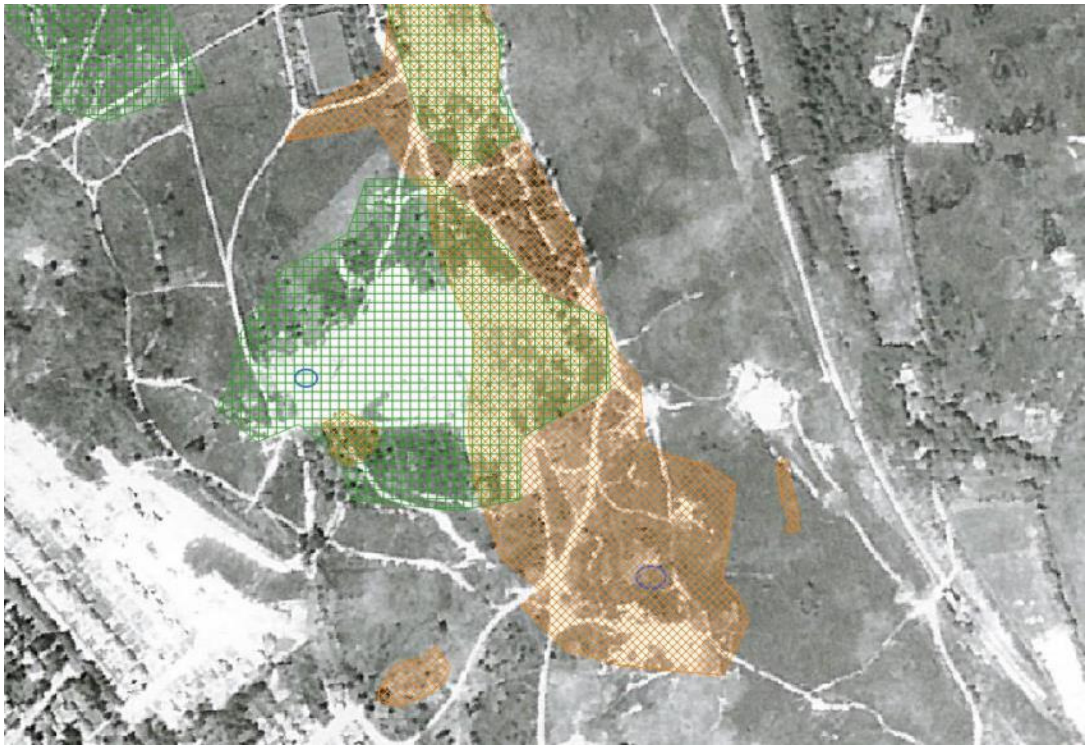

Fig. 5 WW1+WW2 over 1961 aerial

Figure 5 uses the 1961 aerial to show the extent of modern quarrying, which ceased in this decade, and areas of WW1 archaeology (orange) which survive to the present day.

Specific features

Reservoir Trench

This is a trench feature that clearly shows on the Crawford Aerials and runs east to west just north of and parallel to the Causeway. For the most part it looks well defined in WW1 except at east end (Figure 6); we can trace this feature through time to the present day and is a good example for the survival of features from WW1 on the hill.

Fig.6 WW1 Reservoir Trench

By 1947 and the RAF aerials the trench is still visible but has become much more ill-defined.

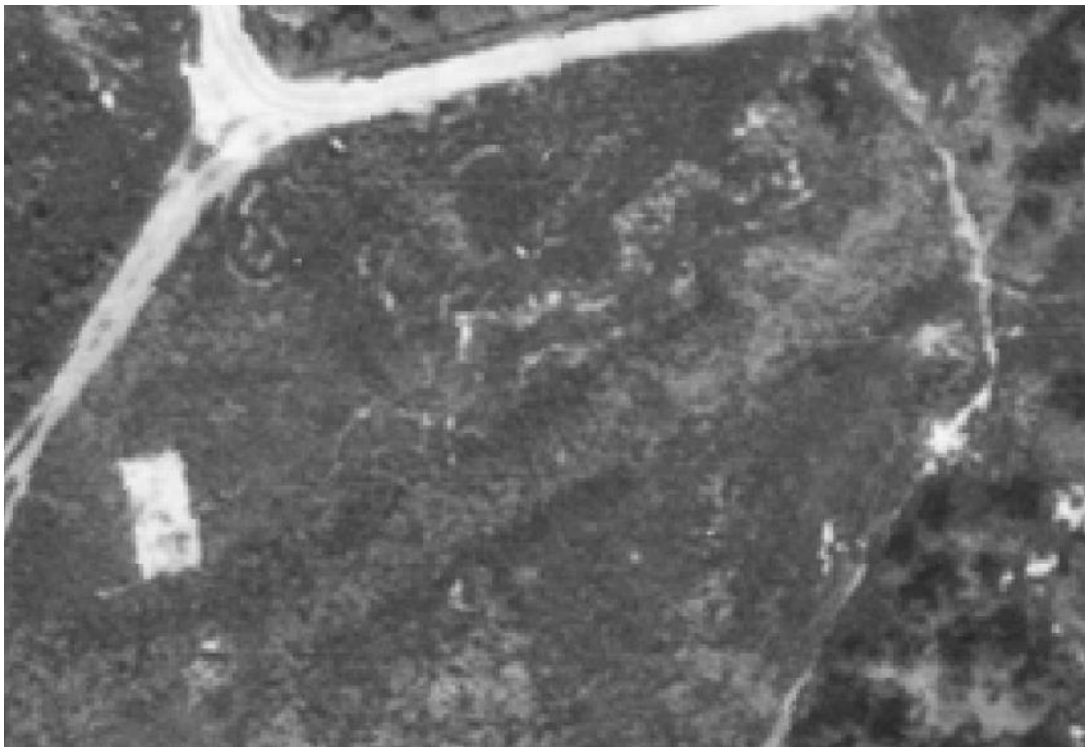

Fig. 7 Reservoir Trench in 1947

By the present day, using the lidar information we can only see the east end which looked the most ill-defined in the aerial photos but turns out to be the deepest part of the trench.

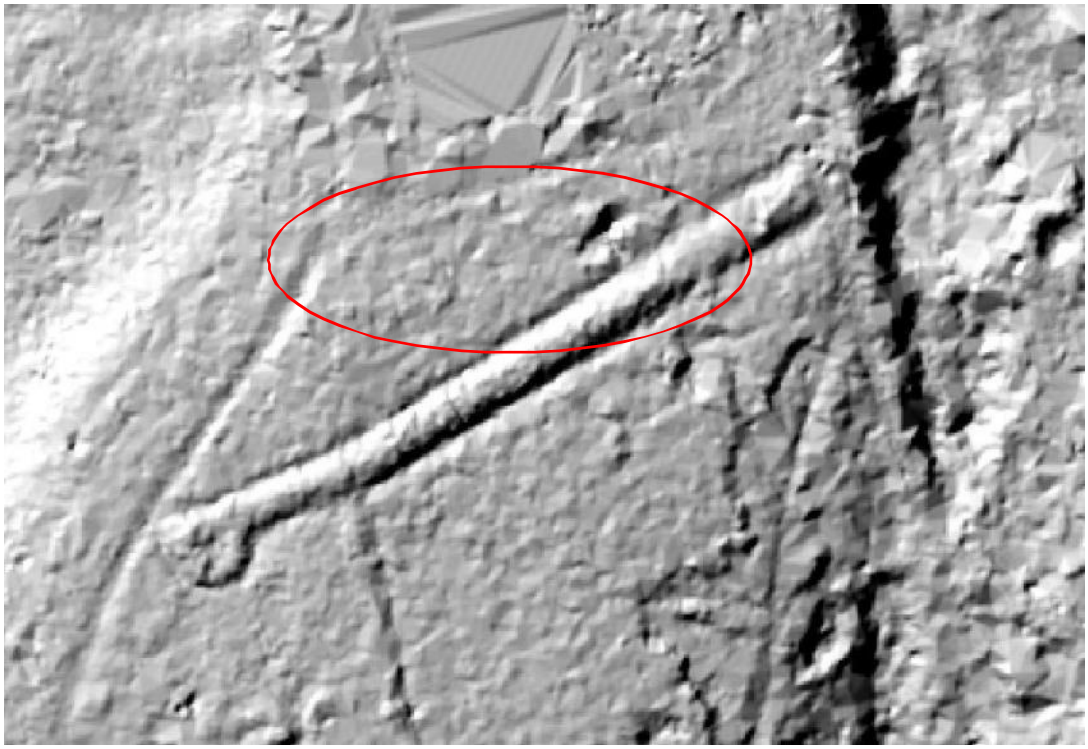

Fig. 8 Reservoir Trench

In Figure 8 we can see the pit at the east end of the trench and just vaguely trace the outline of the rest heading west. Areas to the east and west of this trench have survived to a better degree but are harder to trace through the photographic evidence due to tree cover over the site.

Gun Range

The old gun range lies on the west side of St Catherine's Hill and is 500 yards long; it was first installed by Lord Malmesbury for militia training in the 1800's and has been used by the NZ forces in WW1 () and by troops in WW2.

The present remains are in relatively good order with original firing positions and buts present and even some of the target mechanism left. The issue is that there is a slight miss alignment between the present target line and the original firing positions (Figure 9). There is also a tongue of higher land which protrudes from the target line but stops short of the first firing point; this tongue of land is on the same alignment as the present target line suggesting a shorter range and 2 phases of use.

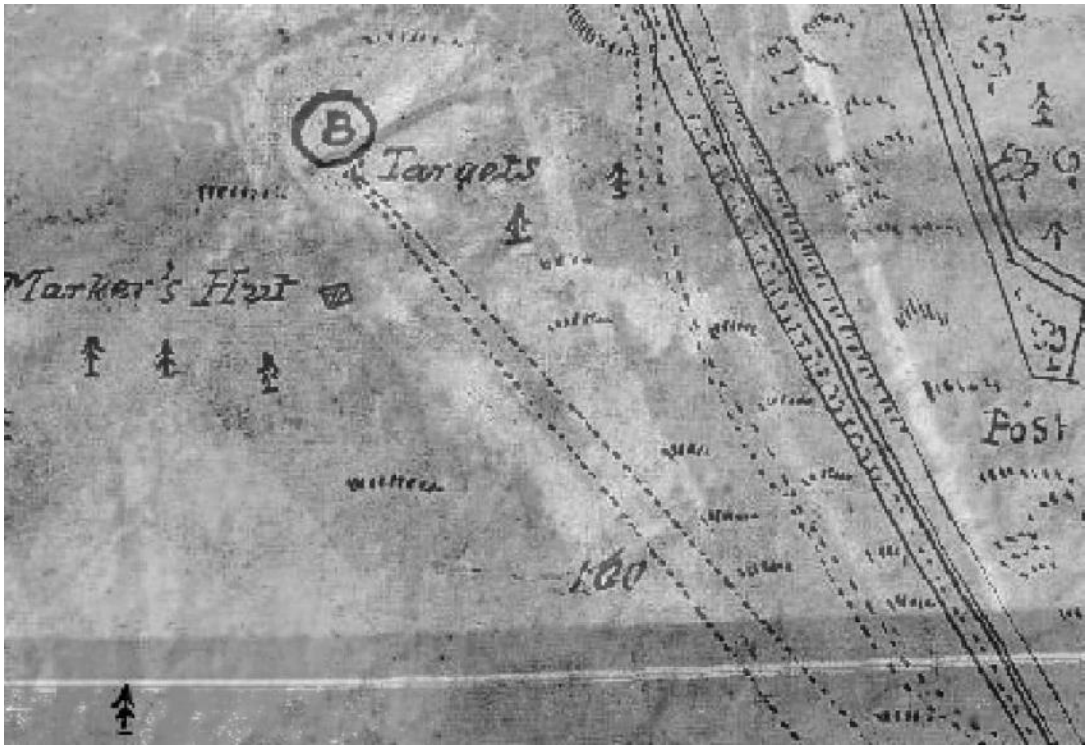

Fig. 9 original plan for rifle range overlain on 1947 aerial and lidar.

The present target line can be seen in Figure 9 as well as the firing point at 100 yards and how the alignment is off. The tongue of land is not visible in the Crawford/1947 aerials but its presence is hinted at by how the paths run (Crawford Aerials) and the land is disturbed (1947 Aerials). The range may well have had short and long range uses (utilising a natural feature) but it would seem that the present construction is as it was originally designed.

This project did gather some living history through John Vale who as a 16 year old had joined the Home Guard (C Company 7th Brigade). Their training took place at the gun range and involved live grenade practice (which may highlight the greater ground disturbance in the 1947 aerials), trench digging on the slope above the range (similar to WW1) and advancing on the range whilst "shooting from the hip".

Chapel Enclosure

The Chapel Enclosure is one of the most complicated earthworks on St Catherine's Hill with three separate earthworks linked together and a curious double bank and single bank construction to the Chapel enclosure itself. The chapel enclosure has been heavily modified/damaged on its southern bank and this has always been linked to horse artillery training in the 1800's as well as WW1. If we look at the Crawford Aerial Figure 10, we can see some WW1 works to the north but the southern boundary shows little sign of disturbance with only a slight bank.

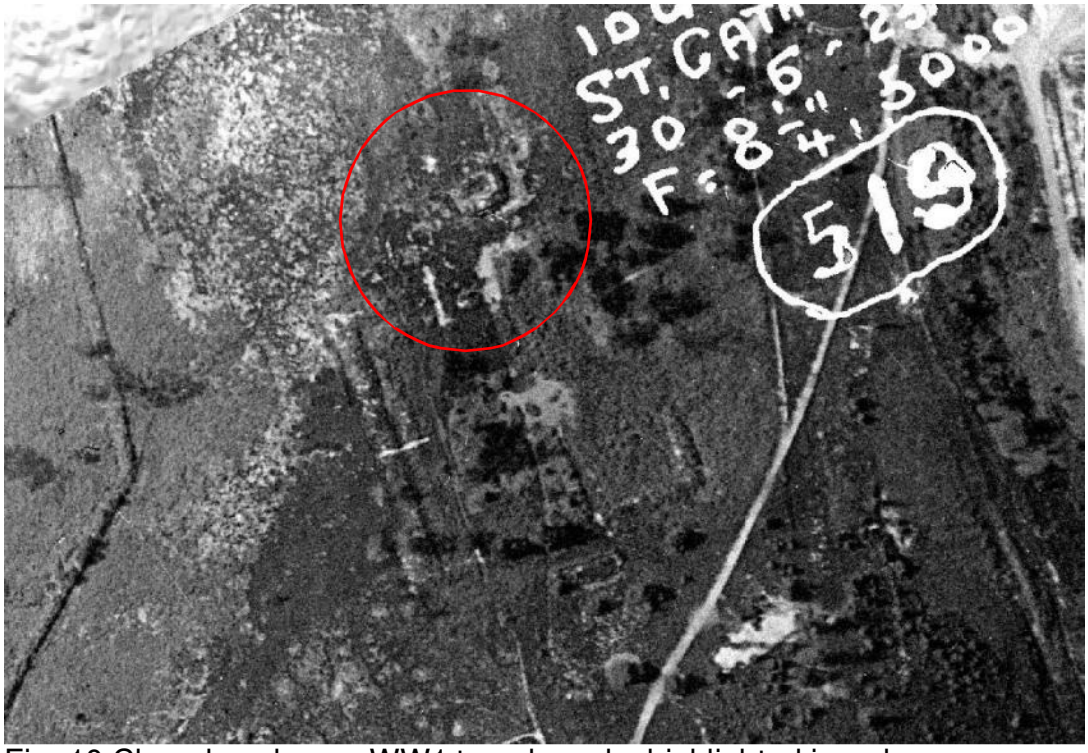

Fig. 10 Chapel enclosure WW1 trench works highlighted in red

By 1947 the area to the south of the Chapel is highly disturbed and this is likely when the large irregular bank seen in the lidar is created (Figure 11).

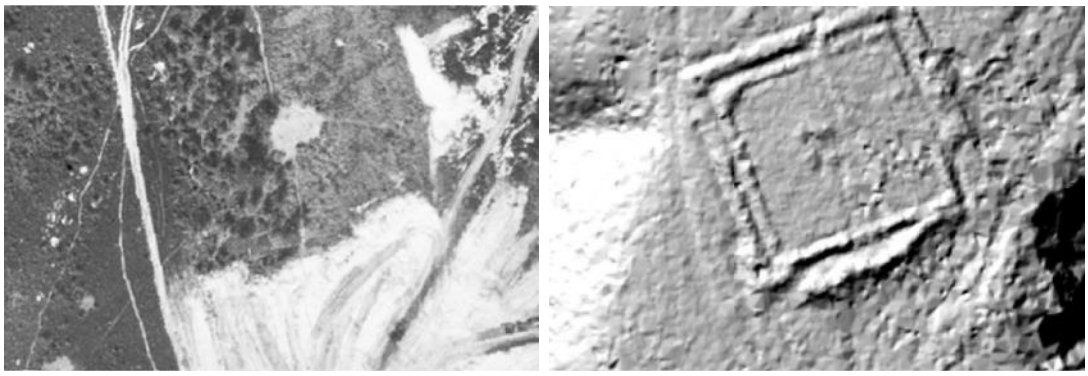

Fig. 11 WW2, showing a large area of ground disturbance to left, Lidar to right

Condition Assessment

Many features that appear in the aerial photographs are now destroyed by later commercial quarrying and areas that had use in both WW1 and WW2 are by their nature very confused archaeologically though still extant.

Areas on the North West (WW2) and South (WW1) of the main summit plateau are much better preserved with many extant features surviving to a depth of 50cm or deeper (trenches). The main issue here will be the continuation of tree cover, mainly mature coniferous woodland, which will damage the remaining archaeology through root action and windthrow.

Locating New Zealand Archive Pictures

There are three pictures from the New Zealand archive in the Alexander Turnbull Library attributed to St Catherine's Hill. Only one can be located with a real degree of accuracy as it shows identifiable landmarks (Figure 12); namely cottages off St Catherine's Hill lane which can be identified in the Crawford Aerials and Southbourne Water Tower from which an arc of view can be mapped.

New Zealand Engineers building a light railway at their camp in England. Royal New Zealand Returned and Services' Association :New Zealand official negatives, World War 1914-1918. Ref: 1/2-014029-G. Alexander Turnbull Library, Wellington, New Zealand.

Fig. 12 Cottages can be seen in the mid ground whilst Southbourne Water Tower is on the horizon.

Using the arc of view and landscape features shown in the Crawford Aerials we can pin point the location of this photo to within 5m (Figure 13, 14). Luckily it is within an area of extant WW1 features that has suffered little from further disturbance at the south end of the hill.

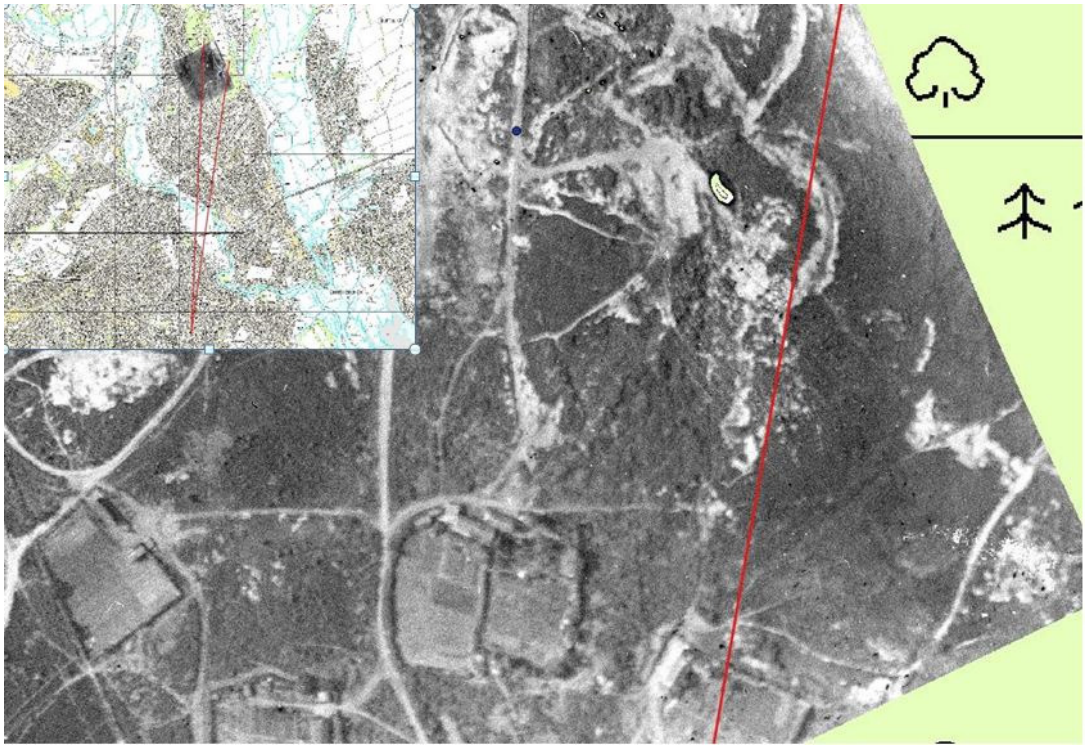

Fig. 13 showing the arc of view (insert) and the photo location – blue dot

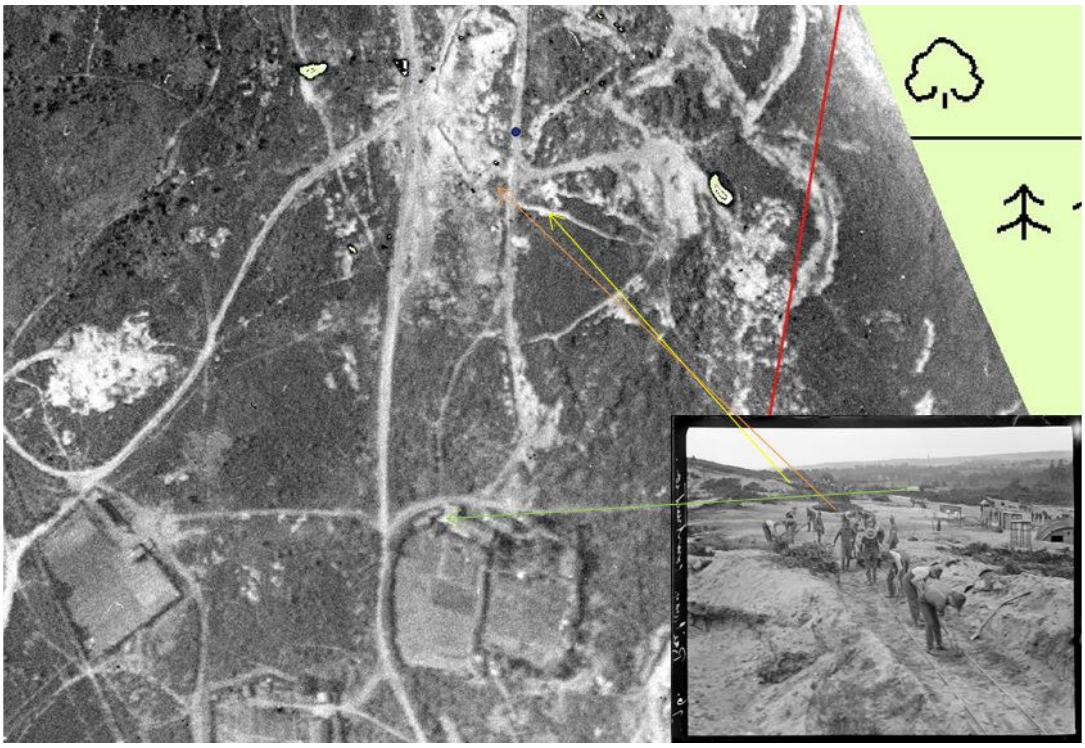

Fig. 14 showing WW1 photo (insert) and location of features on Crawford Aerial

Past Archaeological work

W G Wallace 1921 excavation of Tumuli and Square Enclosure/ Chapel Site reported in the Proceedings of the Bournemouth Natural Science Society

M Ridley 1966-68 excavation of Square Enclosure/ Chapel site un published and finds lost

M Ridley 1966 excavation of Tumulus correspondence and manuscript/plan at Bournemouth Council

P Aitken 1974 Condition assessment of Scheduled Monuments + consolidation work to two Tumuli

R Sharp 2012 Revetment/fencing/signage works on Tumulus to consolidate and prevent further erosion.

R Sharp 2012 Dissertation Oxford University CONTED

R Sharp 2012/13 Condition Assessment of Schedule Monuments including map regression study on behalf of English heritage

Bibliography

Stular, B. et al. 2012, Visualization of lidar-derived relief models for detection of archaeological features in *Journal of Archaeological Science, vol 39 p. 3354-3360*

Hodges, M. 1982, *Prepared for Battle*, self published.

Wareham, C. 2013. *The Echoes That Remain*, Natula publications.