

A roman watch tower and surveyors' mark near Hardy's Monument

Peter Laurie, Feb 2014

Thanks to Laurence Keen, OBE, late Dorset County Archaeologist, for his encouragement and editorial advice.

A surprise on the way home

I am interested in Roman roads in Dorset. Before searching seriously for new examples, it seemed sensible to look at the *Ackling Dyke*¹, an undisputed example, to see what is left of it after 2,000 years and what remains one might expect to find elsewhere. It is the more interesting since very little of it is under tarmac.

The road runs north east from Dorchester to Badbury Rings, SE of Blandford. It then turns more to the north and goes on to Old Sarum. I explored the Dorchester – Badbury section, driving eastwards from Dorchester, and crossing the line of the Roman road as often as the modern road network would let me.

This section of the *Dyke* is almost arrow straight, with only three kinks. Two are needed to negotiate steep slopes, and one seems to be the result of a slight surveying mistake. Since the *Ackling Dyke* runs through fairly flat, heavily farmed land, not a lot is left, but there is enough to establish the line.

Badbury is about thirty miles from my home in Abbotsbury, which is itself near Hardy's Monument. The most interesting discovery of the day was that when I turned round to come home Hardy's Monument, still visible on the skyline, stayed in the centre of my car's windscreen all the way.

A few minutes with the OS map (sheets OL15,117) was enough to show that the *Ackling Dyke* points very near Hardy's Monument (SY 61315 87616). This might seem odd, since the monument was built some 1,440 years after the Romans left Dorset.

However the hill the Monument is built on is visible over a huge area and is an ideal site for display or observation. It seems likely that that the Romans had a tower here. Many centuries later the Hardy family picked very nearly the same site for their Monument.

Roman watchtowers

The Roman army built many watchtowers which had several possible purposes:

1. To enable a view of activity (possibly by the active or conquered enemy) in the landscape around.
2. To signal emergencies to friendly troops
3. Incidentally to act, as in this case, as a convenient sighting mark for laying out roads, land boundaries etc.

¹ Strictly speaking the name 'Ackling Dyke' applies only to the Roman road between Old Sarum and Badbury Rings (Davies p 169). But the same road clearly carries on from Badbury to Dorchester. Putnam (p 137) calls it 'Ackling Dyke' and so will I.



Roman watchtowers from Trajan's Column 101-106 ad (Scran.ac.uk)

Note the torch for signalling and the small, pallisaded defensive perimeter. These towers seem to be built of stone, but timber towers were often used where stone was not easily available. See *Gask Ridge*, below. Hardy's Monument is 72' high and this would not be excessive for a Roman tower.

Roman surveying

The Romans are famous for building straight roads. No doubt they had a striking value as permanent public relations messages in a conquered landscape. They said something like: 'Get out of our way, or we will flatten you. But turn round, walk the other way, and join the Roman empire'.

Nowadays some people like to say :” The romans didn't build any new roads – they just followed the old straight track” referring to Alfred Watkin's famous book published in 1923 on ley lines. This begs the question of the surveying necessary. Whoever laid out the road they had to survey it first. For instance, the *Fosse Way* runs 180 miles from Ilchester in Somerset to Lincoln and deviates 6 miles at most from the straight line.

The Egyptians had land surveyors in the Nile valley for many thousands of years. We know that the Romans understood surveying, they had the equipment, methods and mathematics needed for the job. As far as we know, the bronze age Britons had neither the need nor the skills to carry out such sophisticated work.

'Whoever set out the *Fosse Way* evidently knew in which direction Lincoln lay from Exeter to within a fraction of a degree' (Rackham 1994, 119). There has long been debate about how this was done. The late Hugh Davies, himself a trained civil engineer who in retirement took a PhD in archaeology, wrote an excellent book on Roman roads. He devotes a chapter to the surveying question and produces a method which is achievable given the Romans' measuring instruments and mathematical tools (Davies, pp 39 – 52).

Essentially his method involves mapping the high points along a path near to the proposed route. This is what the Ordnance Survey does. Many British walkers will have climbed a hill to find a benchmark at the top (one is carved into the base of Hardy's Monument). If one can start from a sufficiently long measured baseline, hilltops further away can be fixed by triangulation. By the time the *Fosse Way* was laid out the properties of triangles had been taught from Euclid's *Elements* for about 350 years, so there is no reason to suppose that the legion's *contemplatores*² could not handle the necessary calculations.

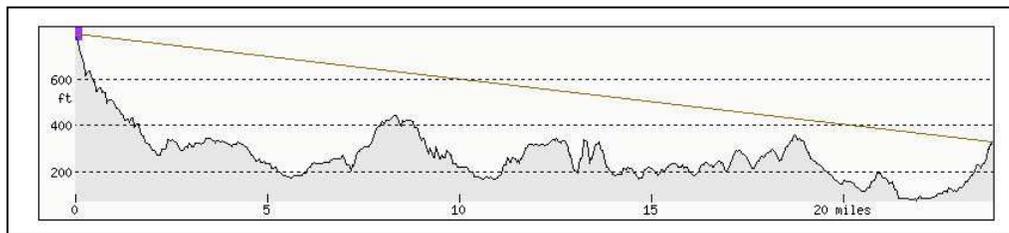
Once these peaks are established and mapped, the best topographic route, taking in towns, forts, river crossings etc. can be chosen. The geometric process favours straight lines and as Davies says, Roman roads are straight because it simplifies the surveying (p 52)

² 'Surveyors', presumably the root of our word 'contemplate'.

It would simplify matters even more to put some sort of tower at each end and markers along the line on intermediate hill crests: It would then only be necessary to peg out a straight road between each pair of hill top markers. We would expect to find straight lengths of road, occasionally changing direction at the markers. Margary writes:

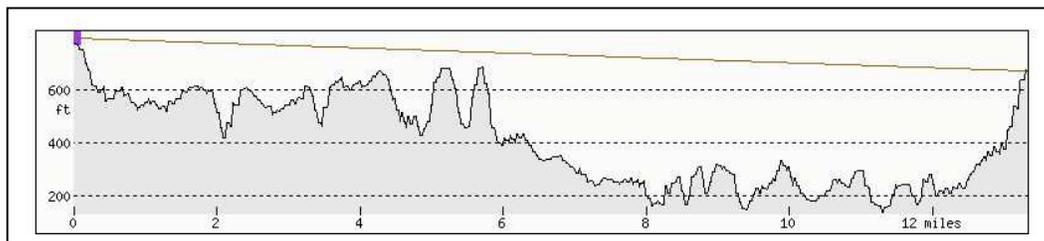
...it is noteworthy that Roman roads nearly always make important turns upon high ground at points from which the sighting could be conveniently done (Margary 1973 p 18)

By a happy chance for the *Ackling Dyke's* designer, the ridge Hardy's Monument stands on and Badbury Rings can just be seen from each other. The surveyor was able to choose a site on the ridge so that the line passes within a few yards of Maumbury Rings in Dorchester, the Roman legion's amphitheatre and, it seems, the point of departure for their roads out of town.



Hardy's left, Badbury right. A clear view

A tower at Hardy's would also be able to see the roman fort at *Waddon Hill*:



Hardy's left, Waddon right. A clear view

There is a Roman fortlet just half a mile away from Hardy's Monument to the west and about 120' lower at Blackdown. It was dug by Putnam (p26) and interpreted as a signal station, able to see *Waddon Hill* and *Dorchester* Roman forts. In fact the line of sight to *Waddon* is marginal since Eggardon gets in the way. It would not be able to see Badbury either. It would make sense for the tower to be on the highest point of the hill and for the soldiers who manned it to live a little distance away since the very visible tower would invite attack³.

Gask ridge

The largest collection of Roman watchtower sites in Britain is probably along the Gask Ridge in Perthshire. See <http://www.theromangaskproject.org.uk/>. A chain of fortlets and towers were built here in about 80ad, thirty years or so after the occupation of Dorset.

There are 18 watchtowers along the Gask ridge of which about 7 were sited inside 20' (7m) diameter defensive banks, separated from their fortlets, while the other 11 were more substantial affairs built to another basic design which combined tower and accommodation within a defensive perimeter.. If there were a tower at Hardy's standing in the bowl described below it might have been rather like the Trajan's Column towers above, but made of wood. It might also have been rather like several sites on the Gask Ridge:

³ During WW2, army commanders had large radio stations to communicate with their forces and home governments. These stations were very visible to enemy radio surveillance and invited attack, so they were usually sited some miles from the commander's actual HQ.



*Gask Ridge: Fendoch fort and its tower on a heathered hillock ½ mile away
A rather similar arrangement to that proposed for the Blackdown site*

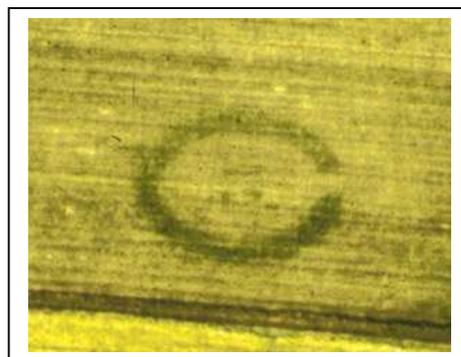
Possible tower site

The existence of a signal station suggests the existence of a tower, but where might it have been? The obvious spot would have been the highest point in the locality. This is not actually the site of Hardy's Monument, but about 150 yards to the NW.



Possible tower site on the highest point near Hardy's Monument

At this highest point there is a small bowl in the ground, about 20' (7m) in diameter and 4' 6" (1.5m) deep (SY61142 87655). It opens to the SE. It might have been similar to:

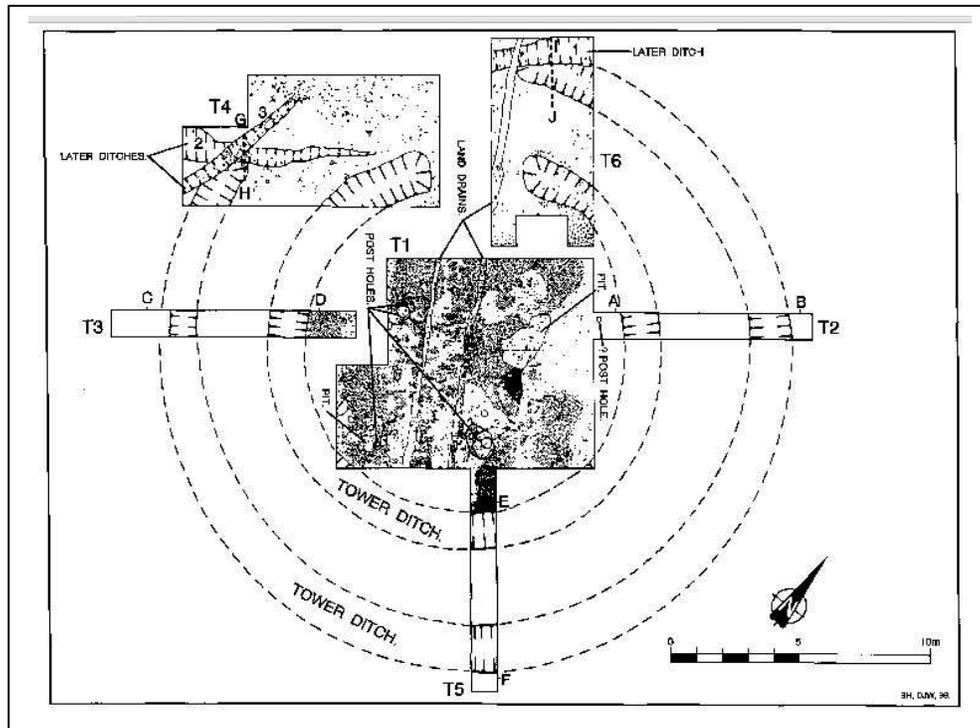


*Cropmark of tower perimeter bank at Roundlaw, Gask Ridge
showing defensive parapet, entrance and post holes.*

http://www.scran.ac.uk/packs/exhibitions/learning_materials/webs/56/Gask.htm

A similar site has been dug and recorded at Greenloaning on the Gask Ridge. This one is about three times the size of the bowl – about 20' diameter - found near Hardy's Monument,

but 4 other tower sites on the Gask Ridge are the same but without having been drawn in such detail.



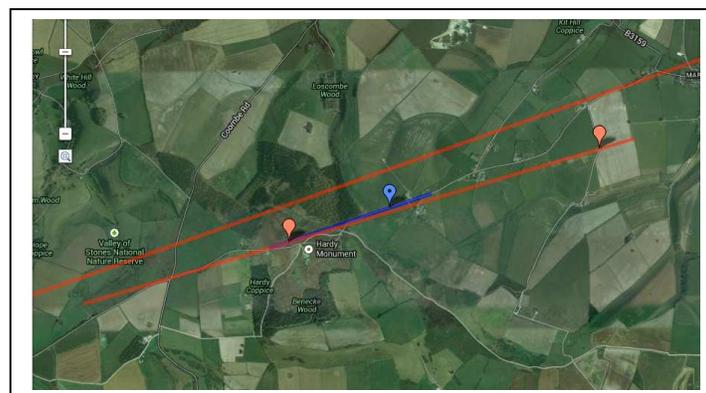
*Drawing of a dig on the Greenloaning tower site, Gask Ridge .
(Woollicroft, D. J. and Hoffmann B)*

Alignments on the Tower

One can imagine that as soon as a prominent mark was erected, surveyors would use it whenever possible to save time and effort. The alignment of the *Ackling Dyke* near Hardy's Monument has been mentioned. Given that the last mapped stretch of the *Dyke* is 10 miles away on the other wide of Dorchester, the line points equally accurately at the site of the bowl mentioned above.

Nearer by, we have two examples of minor local alignments that also point at the proposed site:

- 1 A straight stretch of modern road running up to a local hump in the ground
2. A straight length of farm hedge, lining up with a kink in the next stone wall along.

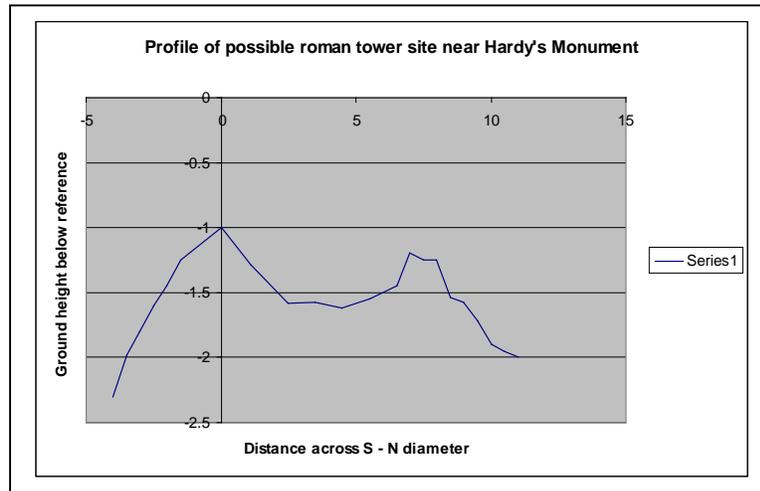


*Alignments on the proposed tower site (left red, point marker)
: Extension of Ackling Dyke, top red line.
Local straight road, blue line, field boundary lower red line, right marker.
Live map at <http://goo.gl/maps/h4I2A>*

A 50' tower on this site would be able to see Bulbarrow, Badbury and Corfe Castle.

Excavation

A ground level survey across the S – N diameter of the bowl near Hardy's Monument gave this profile:



*Ground profile across the N-S diameter of the Hardy's bowl.
Measurements in metres*

If this site is that of a tower, excavation might reveal a characteristic set of 4 post holes, 2 – 3m apart – see *Roundlaw* and *Greenloaning* above.

Unfortunately there is a small Site of Special Scientific Interest (SSSI) around Hardy's Monument that effectively prevents excavation.

References

Davies, Hugh, 2002, *Roads in Roman Britain*, Tempus

Margery, I. D., 1973, *Roman Roads in Britain*, 3rd ed. John Baker, London

Putnam, Bill, 2007, *Roman Dorset*, Tempus

Rackham, O, 1994, *An Illustrated History of the Countryside*, Book Club Associates, London

Woolliscroft, D. J. and Hoffmann B., *THE ROMAN GASK SYSTEM TOWER AT GREENLOANING, PERTSHIRE*,

<http://www.theromangaskproject.org.uk/Pages/Papers/Greenl.html>, accessed Feb. 2014