The Folkestone Warren landslides and the East Cliff Roman Villa

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ABSTRACT

The Roman Villa on Folkestone's East Cliff overlooks East Wear Bay and the Folkestone Warren landslide complex, with both the villa and the railway which crosses the Warren at risk from coastal erosion, a process that restarted somewhere between 6 and 7 ka b.p. as sea levels in the English Channel recovered from a low level during the last major glacial period. Part of the villa has been lost to erosion, but the main part of the Warren landslide system and the railway have been protected by sea walls and other works, some of which are in progress at the present time. Sadly, no such works are contemplated to protect the villa site. This paper provides a summary of the history of investigations in both the landslide system and the villa complex, and, taking into account information on how the coast has eroded during the past two centuries, permitting speculation on how the coast might have appeared when the villa was in use.

Keywords: Roman villa, coast erosion, landslide

INTRODUCTION

Geographical Setting

Since the formation of the English Channel, east Kent has stood as the closest part of Britain to mainland Europe. The distance between Folkestone and the historic French port of Boulogne is 49km (30 miles), with the distance from Dover to Calais somewhat shorter (34km, or 21 miles). From this, it will be readily apparent that people crossing the English Channel have very often passed through this part of Kent. Significantly, the eastern end of the long-distance prehistoric North Downs Trackway reaches the Channel coast on the high cliffs above Folkestone, overlooking East Wear Bay. During prehistoric and early Roman times this bay apparently served as a landing ground and haven for ships. While modern developments at Dover have eclipsed those at Folkestone, both coastal settlements have long histories related to cross-channel travel.

Located on the south-east coast of Kent overlooking the Strait of Dover, the historic town and port of Folkestone has long been understood as an important settlement since Anglo-Saxon times. Unlike Dover which has clear evidence of Roman occupation, it was not until the early twentieth century that archaeological discoveries on East Cliff, north-east of the main historic settlement, dramatically revealed evidence of Folkestone's earlier, Roman and pre-Roman past, otherwise forgotten (Winbolt 1925). The remains as now recorded on East Cliff, are principally of late Iron Age and Roman date, and are of very considerable archaeological significance.

The East Cliff Roman Villa site overlooks, to the East, a bay known as East Wear Bay, the landward side of which is occupied for about 1.7 km by the coastal landslide complex named Folkestone Warren. The geotechnics of the Folkestone Warren landslide complex have been investigated on numerous occasions because it is crossed by the Folkestone to Dover railway line, and ground movements of various degrees of severity have affected the line on numerous occasions. The present understanding of the geology and geotechnics of the site obtained through the railway-related investigations allows for a reconstruction of aspects of the coast when the Roman villa was constructed and in use, and thus informs us of the likely reasons for its construction in that particular location.

The continuing threat of coastal erosion along this unstable part of the Kent coastline, is of some major concern, in the certain knowledge that a key archaeological site will ultimately be lost to the sea, as it is not protected in any way, not even by the coastal defences to secure the railway.

PART 1: THE FOLKESTONE WARREN LANDSLIDE COMPLEX

Geological Setting

The Cretaceous strata present in the Folkestone area comprise the lower part of the Chalk, underlain by some 45m of Gault Clay, which in turn is underlain by the beds of the Lower Greensand, with only the Folkestone Beds of the Lower Greensand outcropping at the Copt Point headland which marks the western edge of East Wear Bay. These beds dip slightly coastwise and also slightly inland, as a consequence of being folded into the north eastern limb of the Weald (UK-side) – Boulonnais (French side) anticlinal dome. The Folkestone Warren landslide complex occupies the extent of the outcrop of the Gault Clay where its base is at current high tide sea level in the west, to where the top of the Gault descends below sea level to the east. East of the Warren the coast is formed of steep Chalk Cliffs, and to the west, by slipping slopes of Gault Clay. **(Figure 1)**

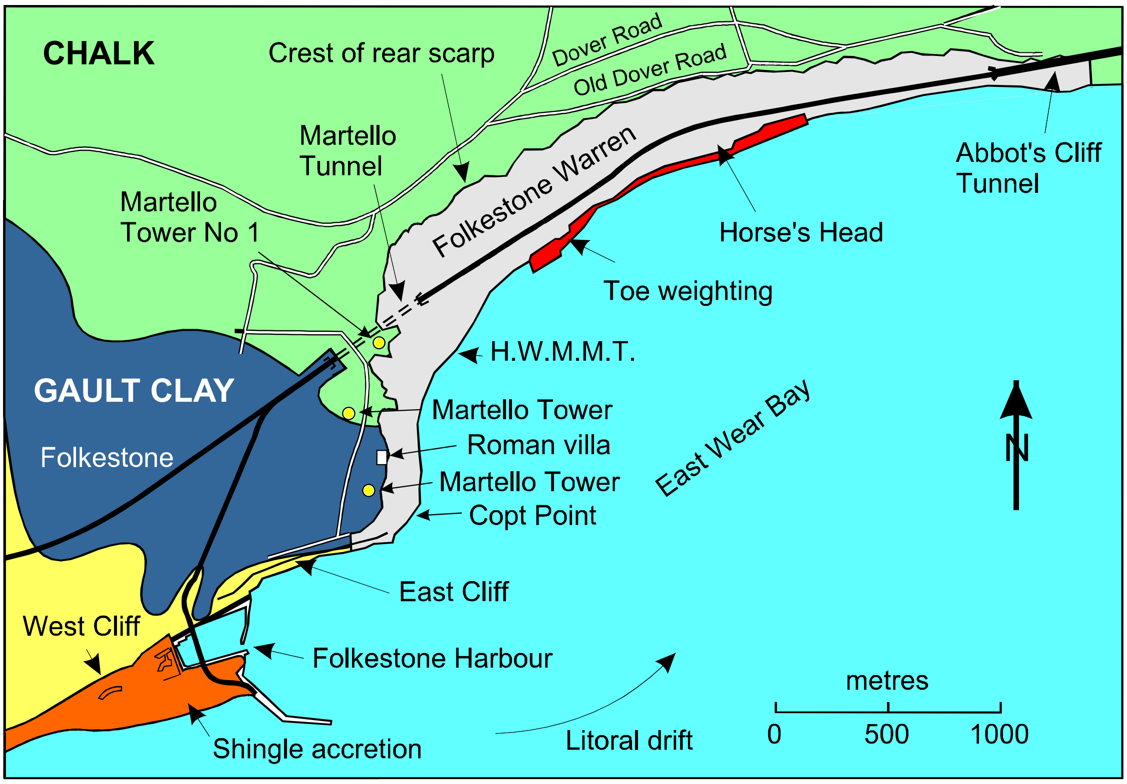

Figure 1. *Site map showing location of Folkestone Warren landslide complex and the East Cliff Roman Villa.*

Situated below the escarpment of the North Downs, Folkestone is built across the Greensand and Gault beds that underlie the Chalk. At the coast, East Wear Bay has been formed where the sea has eroded into softer Gault clay deposits to form a shallow embayment between the chalk escarpment and the Greensand headland forming Copt Point.

Pressure on the Gault from the adjacent Downs is also squeezing out the softer clay, leading to a gradual seaward movement and making the whole area unstable and liable to constant slippage. The toe of the sloping clay cliffs here (East Cliff), some 40–50 metre high, are subject to wave action at high tide and are thus constantly eroding. Something of the cliff erosion rates at East Cliff may be charted from the nineteenth century using large scale maps, aerial photographs and the various archaeological surveys of more recent years. Study of these confirms that part of the original course of Wear Bay Road has been lost since it was first laid out in the late nineteenth century.

The Folkestone Warren landslides and the railway, including dating the slide masses and what causes movements

The railway joining Folkestone and Dover was constructed in the mid-1840s, as cross channel ferries sometimes had to put in at the 'wrong' port due to weather conditions, and then passengers might have the 'wrong' ticket for the onward journey to London, since the main lines had been built, and were operated, by different companies. The section across the Warren was built largely in open cut, with tunnels at both the western (Martello Tunnel) and eastern (Abbotscliff Tunnel) ends. The railway passes along the foot of Chalk Cliffs and through a further tunnel before reaching Dover.

At the time of construction, Folkestone Warren – or in brief, 'the Warren' – was not recognised as an ancient landslide system, but rather as a natural wilderness. A small station (Warren Halt) was constructed to give access to the Warren for recreational purposes. Geotechnical investigations of the Folkestone Warren landslide complex have a long history (Toms, 1948; Hutchinson, 1969; Hutchinson *et al.,* 1980), often in connection with, or derived from, the need to protect the Folkestone to Dover railway from movements of the Warren. This railway, built in the 1840s, passes through three tunnels and three open air stretches, one of the latter crossing the entire coastwise Warren landslide system significantly in open cut, especially at each end, where it is adjacent to tunnel entrances. The railway was built to connect the towns of Folkestone and Dover, originally served by lines to London built and owned by different companies. When cross-Channel ferries found it difficult to enter one port because of wind or currents but could enter the other, passengers might find their onward tickets unusable, and the initial purpose was in part to get those passengers on to their correct line for onward travel. Today, however, the line permits trains to travel in a loop instead of terminating at the respective sea port.

Movements in the landslide system became evident early in the railway's operation. Small movements of the track were – and still are – accommodated by re-tamping the ballast that supports the track. However, more major movements were experienced in 1877, 1896 and most disastrously in 1915, with minor movements continuing intermittently up to the present day, notwithstanding the construction of substantial remedial works and coastal defences. Systematic investigations into the landslide system began in the 20th century, particularly immediately before and after WW2, with more localised investigations undertaken since, particularly with the coastal margin movements. The prewar investigations were visited by '*the Father of Soil Mechanics*' Karl Terzaghi in 1939, although his report partly misdiagnosed the issue as one of Chalk dissolution rather than landsliding.

Studies of the mechanics of the landslide system were carried out and published at various times, notably by Toms, and then in terms of effective stresses with an understanding of residual strength by Hutchinson (1969). Hutchinson identified three principal modes of failure in the system: (1) falls from the rear scarp or high cliff of Lower Chalk (type F), movements of the entire slide mass (type M) taking the form of compound landslides, and slides of a more localised and rotational nature at the coastal margin (type R) but still extending down and along the same basal shear surface as the M-type slides (Figure 2). Using sections based on surveys prior to the December 1915 movements with superimposed slip surface positions, Hutchinson performed back analyses to determine the field mobilised residual shear strength of the Gault.

It subsequently became evident that the residual strength back-calculated through stability analyses could be bounded if both the pre- and post- failure sections were analysed, and this was done by Hutchinson *et al*. (1980). Associated with the latter work, residual strength measurements were made of the critical strata in the Gault by two different designs of ring shear machine, giving comparable results. Additionally, a further study of records showed that the type F movements sometimes did not reach the railways, sometimes they buried it, and in extreme cases overtopped the whole Warren and ran out to sea. Moreover, the type M movements could be magnified greatly if the collapse of the Chalk cliff also included a failure of the underlying Gault, as happened in the 1915 movements.

The 1896 type M movements were also associated with line-blocking type F falls, necessitating clearance of the line. Works were also undertaken subsequently to move the Warren end Martello Tunnel portal westward, as the movements had cracked the tunnel lining, and gave rise to fears that a train might be trapped in the tunnel. The works undertaken in about 1907 included digging a cutting *over* the line of the tunnel such that a rescue mission digging down to the tunnel could be mounted quickly. Spoil from this operation was dumped seawards of the line, contributing in part to movements in 1937. Trials of a Whitaker tunnelling machine were conducted in this cutting in the 1930s, with the machine abandoned and lost during WW2. It was subsequently recovered and restored as a historical artifact.

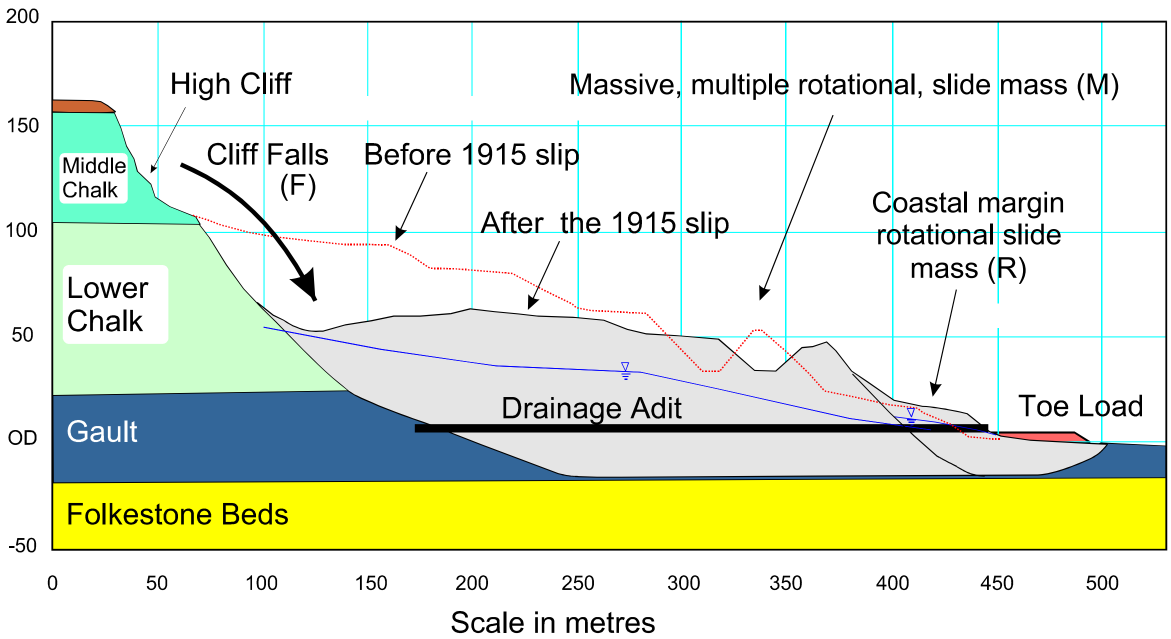

Figure 2. *Typical cross section of Folkestone Warren landslide complex, after Hutchinson (1969).*

The most severe landsliding took place in December 1915, best described by Hutchinson *et al.* (1980). Essentially, small movements of the type M landslide triggered type F falls, and at a location landward of the Warren Halt station, a collapse of the cliffs represented a landward extension of the whole Warren complex, giving rise to a *c.* 70m seaward displacement of the railway line. It took a number of years to reinstate the line. Some work on constructing drainage adits had been commenced prior to the 1915 slide. After WW1, more adits were excavated, with the system enhanced after WW2 including at least one that passes through the landward extent of the slip surface, as described by Wood (1955).

It has been well-established that the basal shear surface of the Type M and Type R landslides follows a 'slide-prone horizon' (SPH) about 1m above the contact with the underlying Folkestone Beds. This horizon has a higher than typical liquid limit and lower than typical residual shear strength relative to the norm for the whole Gault Clay deposit. This SPH is at or below sea level in the Warren landslide complex, but rises above sea level in the East Cliffs, and forms the basal slip surface of the small landslides that affect the East Cliff's coastal margin. There are other SPHs at higher elevations in the Gault, of no significance to the Warren or the East Cliff, but relevant to the landslides that had to be stabilised in the vicinity of the UK side Channel Tunnel terminus.

Further works including the construction of an extensive armoured apron or stabilising toe weight was constructed to complement sea walls of various ages. The apron, built of Chalk fill and capped with a reinforced concrete slab was constructed along the coast where the largest deformations had occurred in the 1915 events. The drainage adits discharge on top of this apron, which controls in part their effectiveness, as it limits the maximum drawdown of groundwater levels. The sea wall has in some places been strengthened with wave-energy reduction measures including rock armour. Sadly, the coast protection works do not extend for the whole length of shoreline in East Wear Bay, leaving the villa site unprotected.

COASTAL CHANGES IN EAST WEAR BAY:

Post glacial sea level change

During the last glaciation, sea levels dropped dramatically, as much as 125m, leading to the Atlantic Ocean retreating as far as the Scilly Isles, and leaving the English Channel dry except for a river system fed by the Thames, Rhine *etc*. Marine attack of the coastline therefore stopped early in the glacial period and restarted only when sea levels recovered to near present levels, with perhaps 100ka during which coastal erosion was absent, and restarting perhaps as recently as 6 to 7 ka BP. In the period during which the English Channel was a river system, extensive deposits of alluvial gravels, much sourced from the flints of the Upper and Middle Chalk were created, and these were washed ashore as beach deposits as sea levels rose.

In the millennia when the previous Warren landslide system was unaffected by coastal erosion, frost shattering and weathering of the rear scarp, and indeed, the Chalk cliffs to the east, would have led to extensive scree formation, and most probably to a rounded profile of the upper parts of the outcrop, similar to the profiles seen in the slopes of the inland Chalk escarpment today, notably in the vicinity of the Channel Tunnel terminus. Despite the drilling of many boreholes and the excavation of a number of drainage adits into the landslide system, almost no dateable materials have been recovered. There are buried soil deposits exposed at Horse Head Point that date to before the recovery of sea level to its present level, and they are buried in Chalk scree deposits (Hutchinson, 1980 pers. comm.) Investigation of those deposits suggested a sub-Boreal date (5500 – 2500 BC). Horsehead Point is in the now protected sea cliff of the Warren, and Hutchinson's dating suggests a phase of activity in the landslide system after the postglacial recovery of sea level, probably followed by relative quiescence after a beach became established.

A question must arise as to how much of this had occurred by the late Iron Age and indeed before the Roman occupation. Some must have, and the view from the Roman villa at the time of its construction was no doubt similarly spectacular, although probably somewhat different, to that obtained today.

Moreover, the question must also be asked as to where access to the coast in the East Wear Bay might have been in the past.

Coastal sediment movement: erosion & accumulation: Palmer's Folkestone Harbour

One of the conclusions from Hutchinson *et al.* (1980) was that the construction of the harbour arms for the early harbour at Folkestone, designed and constructed by Palmer in *c.* 1806, had interrupted the eastward coastal drift of gravel, thus denuding the beaches in East Wear Bay. Indeed, progressive extensions to harbour arms led to an extensive growth of flat land west of the harbour in an area that was developed for housing. Archaeological investigations conducted by Canterbury Archaeological Trust, have uncovered traces of the original western harbour arm (CAT 2001; 2011).

The Martello Towers and the military

Martello towers are tower constructions that act as gun platforms to defend low-lying coastal areas from possible French invasion in the 1800s during the Napoleonic war. There are east and south coast chains. Many of the towers have been demolished, lost to coastal erosion, or even destroyed by gunfire during testing of high powered ordnance a half century or so after construction. They were not shown (along with other military infrastructure) on old maps until they had been rendered obsolete at the end of the 19th century.

Of the south coast chain, Towers numbered 1, 2 and 3 overlook the western end of East Wear Bay. They would therefore command any approach of a landing party from the shore, and this must have been up the Gault slopes as access into the Warren itself and down to the beach was only provided by the construction of the railway some 40 years after the towers, and from the railway down to the beach only when movements began to affect the line requiring the construction of coast defences. Moreover. Command of East Wear Bay as a whole would have been better with a battery on top of the Warren rear scarp, the elevation providing greater range and plunging fire. Hence it is possible to date the loss of easy access to the bay from the villa site as no later than the early 19th century.

As the Martello Towers were constructed at more or less the same time as Palmer was changing the small fishing harbour in the mouth of a stream to the beginnings of the present day Folkestone Harbour, it suggests that access to the shore in East Wear Bay was at the very least inconvenient, probably more to do with the growth of occupation in present day Folkestone town more than perhaps the loss of access into the Bay. Alternatively, a shingle beach in East Wear Bay prior to the loss of shingle intercepted by the harbour breakwater could have rendered the bay less suitable for bringing fish ashore.

During WW1, a small detachment of soldiers was present on the Warren during the December 1915 type M landslide, as noted by Hutchinson et al. (1980), assisting signalmen in preventing the Folkestone to Dover train ploughing into the debris from the Great Fall. Soldiers were also billeted in the area during WW2, but they were a nuisance, almost certainly demolishing the shelters put up over the villa remains and a similar structure protecting the Whitaker Tunnelling Machine – using the timbers for firewood!

PART 2: THE ROMAN VILLA ON EAST CLIFF

Location

The Roman villa complex on East Cliff at Folkestone is now located within the eastern suburbs of the modern town, some 1.4km to the north-east of the town centre. It lies across gently sloping ground at the foot of the North Downs escarpment, overlooking East Wear Bay. The land in this area stands at an elevation of between 45 and 55m OD and the British Geological Survey records the geology here as being mostly Gault clay, partially overlain by chalk of the West Melbury Marly Chalk Formation. Lower Greensand rock underlies the Gault in this region and it is exposed in the headland at Copt Point, a short distance to the south of the villa site. Due to the complexities of the local geology and coastal topography, as outlined above, the Roman site continues to be under threat from coastal erosion and land slippage.

Discovery and excavation history

Although occasional archaeological finds, including ancient coins and brooches, had been previously discovered on the East Wear Bay foreshore, it was not until 1919 that Roman material was actually found eroding out of the cliff top. This discovery suggested that undisturbed archaeological remains were to be found in the area. In 1923, Sussex schoolmaster and amateur archaeologist, Samual Winbolt, then on summer holiday in Folkestone, went to check out the area on behalf of Folkestone Museum. He poked around on the cliff edge and soon found a Roman wall. Reporting back to the Museum, he returned with the Museum's Assistant Curator the following day to cut some trial pits. Roman pottery, tiles and walls appeared pretty much everywhere they dug, and it became obvious that there was a very extensive, unknown Roman site buried here (Figure 3).

Figure 3. *The original excavations by Winbolt in the 1920s (from a postcard).*

The following year, 1924, Folkestone Town Council asked Winbolt if he would lead a full excavation on the East Cliff site. He agreed, and was provided with up to 24 unemployed workmen. At a stroke, the Council gave useful paid work to a group of the local unemployed and also created a major tourist attraction for the town's summer visitors. The results of Winbolt's investigations have gone on to make a significant contribution to Roman-British research.

The main object was to recover the complete villa plan, and over the course of eleven weeks Winbolt's team largely achieved this, laying bare the outlines of an important Roman villa complex. This consisted of a large domestic dwelling (Block A) provided with projecting wings and flanking corridors, facing south-east to the sea. Adjacent was a smaller house (Block B) set at a right-angle to the main block on its south-western side. A bath-suite (Block C) lay immediately beyond Block B to the south-east, but some of this had already been lost to cliff erosion. It was also discovered that the foundations of Block A overlay earlier wall footings that related to a preceding Roman villa building occupying the same site (Villa I). A quantity of pre-Roman material further hinted at occupation on the site before the villa complex was established but this more ephemeral evidence was not examined in any detail or fully understood.

As intended, the excavations became a major tourist attraction and after they were completed, the site was left open and continued to be available for public inspection throughout the 1920s and into the 1930s. For protection, a basic cover building was erected over a mosaic discovered within Block A. At the out-break of the Second World War, however, things changed dramatically. By 1940 German occupied France lay just 23 miles away. The Kent coast became Britain's heavily defended front-line. Long range guns were mounted around Folkestone and the beach and coastal slopes of East Wear Bay were mined. No-one could visit the villa and the remains were left largely unattended until after the War. The site became overgrown and the cover building protecting the Roman mosaic was destroyed, exposing the fragile Roman flooring to the elements.

Folkestone, like neighbouring Dover and Canterbury, was very extensively damaged during the War and in the immediate post-War period there were many pressing needs to get the town back on its feet; preserving the villa was not one of them. A certain amount of tidying-up was eventually undertaken but by 1957 the Council saw that the site had become little more than a drain on the rates. Somewhat reluctantly, it was decided to fill in the site and put it down to grass. For the next 50 years the villa site became part of a recreation area, popular with dog-walkers and kite fliers. The long-term survival of the

Roman remains, however, is not assured because the area continued to be subject to ongoing coastal erosion and land slippage.

Pre-Roman use of the site

Archaeological investigations now make it clear that there has been considerable human activity across the East Cliff area over many centuries. The earliest evidence for occupation is provided by light scatters of prehistoric flintwork and other finds dating to the Mesolithic (*c*. 8000–4000 BC) and the Neolithic periods (*c*. 4000–2500 BC). A complete late Bronze Age sword of *c.* 1000–700 BC, was dredged from the sea-bed about 40 metres offshore in East Wear Bay during 1951 (Cowen 1952). Whether this was cast/lost overboard from a prehistoric vessel using the bay or had fallen from some long-eroded cliff remains unknown. A quantity of pottery recovered from the Roman villa site and on the foreshore below is broadly dated between the late Bronze Age and early Iron Age periods, indicating some sort of habitation in the area at this time.

Excavations around the villa have revealed a scatter of ditches, pits and post-holes producing pottery and other finds dating to the middle Iron Age period, *c.* 300–100 BC, which are clearly indicative of settlement in the area at this time. From these beginnings, the East Cliff site started to further expand and develop around 100 BC (Parfitt 2013a, 25–27). Although clues to the existence of an important late Iron Age site here were already available before Winbolt's time, only with the most recent investigations has something of the extent, character and importance of this settlement become apparent.

Pre-Roman settlement and a probable trading port

Recent investigations have shown that during the late Iron Age a succession of timber buildings, sometimes provided with internal hearths on simple chalk floors, were erected across the site. These were located within ditched enclosures, set amidst ditched fields and paddocks. A number of burials (mostly cremations) have also been found, suggesting that interspersed amongst the fields and house enclosures were small family burial plots. A short length of metalled road heading seaward suggests that the sea and the resources of the foreshore were key factors in the settlement's existence. Other evidence, outlined below, further confirms this.

Large amounts pottery, coinage and other artefacts are associated with the late Iron Age settlement and taken together, the evidence indicates quite dense occupation across East Cliff well before the Roman invasion. Amongst the pottery recovered are significant quantities of Italian wine amphorae (Weston 2020) and high-status ceramic table-wares imported from the near-Continent. There are also a considerable number of Iron Age coins, some of continental origin (Holman 2005). Such discoveries imply significant contact and trade between east Kent, Gaul and the Mediterranean world occurring under the influence of the Roman Empire. From this, a convincing case can be advanced for the settlement above East Wear Bay being the site of a pre-Conquest trading port – perhaps the most easterly of several such sites postulated along the English Channel coast (Parfitt 2012; Parfitt 2013b, 36–7).

Quern production

One important activity taking place at the East Cliff settlement was the production of quern stones for grinding corn and other food stuffs, utilizing the locally outcropping deposits of Greensand rock. Evidence for the production of rotary querns here during the late Iron Age and continuing into the early Roman period is now well established (Keller 1989; Green 2013). Every excavation produces numerous examples of unfinished quern stones and more than 100 others have been recovered from the foreshore below the site. It is now clear that the quern production areas were widespread across the cliff-top. Several discrete working areas have been examined. The Greensand itself outcrops at the base of the cliff to the south of the archaeological site, where the raw material required can be readily extracted from cliff face exposures. The querns found on the beach have apparently arrived there as a result of erosion of stratified cliff-top deposits and, taken with other finds made there, provide clear evidence that a significant part of the Late Iron Age settlement has already been lost to coastal erosion.

Development of the Roman villa complex (AD 43– c. AD 425)

Following the Roman invasion of Britain in AD 43, during the late first century AD, the site at East Cliff underwent a fundamental change in character, which saw the construction of the first of two successive villas complexes in Roman style (Winbolt 1925; Parfitt 2013b). The quern production industry appears to have largely ceased by this time, at least at this particular location, although some elements of the preceding Iron Age settlement presumably continued.

Villa I

The earliest villa building (Villa I) seems to have been established in about AD 90/100, half a century after the initial Roman invasion. Winbolt envisioned Villa I as being a grand stone-built house, with a long central range of perhaps eight to ten rooms fronted by a porticus and bow-fronted wings projecting forward from either end – a detail of some considerable architectural sophistication. The most recent work on site, however, has suggested that Winbolt may have been over-enthusiastic in connecting the various fragmentary wall foundations to create one single large building. On present evidence, it would now seem that Villa I was actually composed of two, perhaps three, separate smaller buildings. A short distance to the south the detached bath-suite (Block C) was perhaps also built around the same time, forming another element to this early building complex. Whether the occupants of the new villa were descended from the indigenous local native population or were immigrants from some other part of the Empire remains unknown.

Villa II

Towards the end of the second century, *c.* AD 170–200, the existing villa complex was completely reconstructed. The new building (Villa II, Block A) followed more or less the same outlines as its predecessors to create a single large building with projection wing rooms, clearly designed to face south-eastward to take in commanding views across the English Channel. A new bath suite was included as a replacement to Block C. Several rooms contained evidence for red tessellated floors but only central Room 40 was provided with a decorated mosaic. This was clearly one of the principle rooms of the new house, most probably the summer dining room (*triclinium*). Here guests, reclining on their couches, could look out through opens doors across the courtyard to the sea beyond, in the finest Mediterranean Roman style.

Probably at the same time as the main residential block was rebuilt, a second, slightly smaller house was erected a short distance to the south-west, at a right-angle to the main block (Block B). This connected with the pre-existing bath-suite (C) and probably represents a separate, independent dwelling provided with its own baths. What would now seem to exist on the site were two separate, well-appointed dwellings.

The coin and pottery evidence suggests that occupation of the villa complex ceased at some point in the later third century AD, the almost total lack of coins for this period being most unusual for any British site. Occupation appears to have resumed again during the fourth century, by which time much of the villa appears to have been in a semi-derelict state. After this final phase of occupation, the site was completely abandoned sometime during the early fifth century. A few finds suggest some limited Anglo-Saxon activity subsequently occurred on the villa site but there is presently little evidence for any continued permanent settlement in the vicinity during this or later periods.

The ongoing threat to the East Cliff villa site from natural erosion

Even in Winbolt's day it was apparent that the Roman villa site on East Cliff, along with the significant pre-Roman remains that underlie it, would ultimately be lost to the sea. Work on the cliff-edge bathhouse, Block C, by the Kent Archaeological Rescue Unit in 1989 showed that about 30ft (*c.*10m) of the structure had been lost since it was first excavated in 1924. Similarly, when Winbolt first exposed the villa walls, there was around 30 metres of land between the north-east wing of the main house and the cliff edge. By 2009 this figure had been reduced to 2.25m.

Figure 4. *A view of the East Cliff with the modern excavations in the foreground, Copt Point, Martello Tower No 3 and the Folkestone Harbour breakwater arm in the distance.*

In April 2006 the UK Government Environment Agency published the official Shoreline Management Plan (SMP) for South Foreland to Beachy Head (SE Coastal Group 2006). This indicates that for the section of coast designated as ‘Copt Point, Unit reference 4c07’, the overall plan is to ‘continue letting the Greensand cliffs erode under a no active intervention scenario.’ Although recognising the Roman villa site as an important heritage feature, it has been determined that ‘it would be technically difficult to prevent erosion of the cliffs, and not environmentally acceptable. There is no economic justification for defending this section of the coastline, providing cliff top development remains restricted.’

Accordingly, efforts have been underway since 2010 to excavate those parts of the extensive archaeological site on East Cliff that seem most imminently threatened by coast erosion. This work is being led by Canterbury Archaeological Trust, using a range of different funding sources and working with a team of dedicated local volunteers. These new investigations have greatly amplified Winbolt’s pioneering work, providing a wealth of additional information and have served to significantly elevate the perceived importance of the site, especially the late Iron Age settlement evidence.

A question is raised as to how much of the late Iron Age and Roman site has already been lost and how much farther out did the Gault clay cliff extend in the past. Current best guess estimates suggest that the coast in Roman times was perhaps around 800 metres further out, with a more gentle slope down to the beach, but very possibly erosion was already taking place even at this date, so that things may never have been constant and the question remains open to debate. It can be said that over many years there have been significant quantities of Iron Age and Roman coins, pottery and other archaeological material, including occasional prehistoric flint implements, discovered at the foot of the collapsing cliffs and on the foreshore of East Wear Bay. Some of these finds are probably derived from the spoil tipped over the cliff during Winbolt's excavations of the villa in 1923–4 but more would seem to come from parts of the archaeological site already destroyed.

PART 3: HOW DID EAST WEAR BAY EVOLVE AFTER THE POST-GLACIAL SEAL LEVEL RISE?

In the absence of near shore investigations, a great deal of the following is of necessity conjectural. What is known definitively is that the basal shear surface of the Warren landslide complex extends under the foreshore as parts of the foreshore were upthrust during the December 1915 movements and continue to be moved on a smaller scale even today. It is known also that the major movements of the landslide complex occur in response to runs of years with increased rainfall. Hence, this behaviour almost certainly occurred in the past by similar processes with the whole complex migrating landwards.

In a study of the landslide system at St Catherine's Point on the Isle of Wight, Hutchinson et al. (1991) found that the best way to imagine how the present state of the system had evolved was to imagine how it might evolve in the future, the coastline being unprotected. On geomorphological grounds there was some evidence that the St Catherine's Point slide was the youngest part of the Undercliff, and subsequent chronology for the slide was obtained using cosmogenic isotope dating (Barlow *et al.* 2016). Applying the Hutchinson approach to East Wear Bay, it would be necessary to imagine no harbour construction in Folkestone, and no works relating to the railway. In addition, it would probably be necessary to postulate a future glacial epoch with a lowered sea level, and an evolution that saw the collapse of the rear scarp cliffs of the Warren, and Gault solifluction destroying the villa site but producing a new access to East Wear Bay. Subsequent marine attack for this access ramp would only occur if the beach gravels were lost.

Figure 5. *Artists' impressions of the villa. (a) A grand establishment with coastal views and elaborate gardens (left). A more modest, and perhaps more industrial establishment (right: image ww.arccreativedesign.com and White Cliffs Countryside Partnership).*

The stone suitable for the manufacture of querns is the upper part of the Folkestone Beds, which outcrop in the foreshore just east of Copt Point, and thus at the foot of the postulated pre-Roman and Roman period exploitation of the deposit. This stone is only exposed at low tide, and thus it must be removed to a higher location for processing. That implies access from the villa site to the beach. The inference from the Martello Towers' tactical location, if not from the location of Palmer's harbour, is that this access was only lost at some time in the past 2 centuries.

SPECULATION: WHAT WAS THE VILLA BUILT FOR?

When confronted with only the foundations of a building complex of considerable age with no written record, it is tempting to speculate why it was constructed where it was, and in some cases for whom. Given its location in the midst of 3 Martello Towers, and on a stretch of coast noted for its Saxon Shore Forts, a military use has been suggested.

Alternatively, in keeping with a Victorian era meme of a grand house with sweeping sea views, then the reconstruction with elaborate gardens of Figure 5 (left) – which incidentally lacks access to the shore – might be a solution.

However, the evidence of quern production from Late Iron Age through the Roman period is suggestive that there is no military purpose to the villa, even though it probably controls access from the shore, simply that it represents an industrial site with a succession of owners resident there.

COULD THE VILLA BE SAVED?

The villa site is threatened by a landward encroachment of rotational landslides in Gault debris, sliding on a high liquid limit zone, identified as the basal slide prone horizon within the Warren landslide system, and in the affected part this slide-prone horizon (SPH) is above sea level. The properties of this SPH are well established from the Warren investigations. The base data for any stabilisation scheme are therefore readily available. Copt Point is already protected to a degree as it has concrete works associated with a waste outfall. The length from Copt Point to join up with the Warren's coast protection works is small (under 700m), and coast protection works are technically feasible. It is simply a matter of local government priorities.

SUMMARY

The archaeological site at East Cliff has a complex history. As presently understood, following some activity during earlier prehistoric times, this area grew to particular importance during the Late Iron Age, when it served as the focus of a quern stone production industry and probably functioned as a port of trade with the developing Roman Empire. After the Roman Conquest, a major villa complex was established on the site, surrounded by ditched fields and enclosures that replaced earlier ones belonging to the Late Iron Age settlement.

The Late Iron Age settlement site itself can be seen to occupy an important location, positioned at the eastern end of the prehistoric long-distance North Downs Trackway, very close to the shortest sea crossing of the English Channel to the Content. Such a location cannot be fortuitous and must imply that this site had been of particular significance in the pre-Roman period.

The cliffs in this region have considerable biological, geological and physiographical interest, but the gradual and unstoppable natural forces at work here will ultimately lead to an important archaeological site being lost to the sea, if the will and resources to protect it are not forthcoming.

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