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This issue of Wight Studies is dedicated to
Mike Cahill
(1st August 1934 – 1st May 2014),
editor of Wight Studies 2006 – 2014.

ISLE OF WIGHT NATURAL HISTORY AND ARCHAEOLOGICAL SOCIETY

Address: Unit 16, Prospect Business Centre, Cowes, Isle of Wight. PO31 7AD
Tel: 01983 282596 Email : iwnhas@btconnect.com Web : www.iwnhas.org

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NEW CHURCHES FOR OLD: ST GEORGE, ARRETON AND THE REBUILDING OF ISLAND CHURCHES

John Margham

Introduction[1]

St George's church Arreton is one of the earliest documented churches on the Isle of Wight, having been given to Lyre Abbey in Normandy by 1071. It also has a doorway of Anglo-Saxon workmanship. The relationship between these two observations will be explored here. The church has the only dedication to St George on the Isle of Wight. The cult of St George developed in England during the later Anglo-Saxon and earlier Norman period. This dedication to England's patron saint would appear to be significant in the dating of the church. The church would have been dedicated by the bishop of Winchester in an elaborate ritual. There is documentary evidence for the existence of other churches on the Island by the later eleventh century which have architectural features broadly contemporary with the earliest fabric at Arreton. A further three churches were not documented before 1100 but evidence for their existence at about this date can be found. St George's Arreton was one of several early Island churches which appear to have been rebuilt before *c.*1125.

Arreton, Domesday Book and Lyre Abbey

The first extant written reference to Arreton is to be found in the will of King Alfred. This dates from between 872 and 888, probably from the 880s. Various estates were bequeathed to family members, including his son Æthelweard, whose inheritance was to include *Eaderingtune* (Keynes & Lapidge 1983, 175). These bequests would have been of Alfred's personal property, rather than estates directly associated with the kingship (Wormald 2001). Alfred's will gives no further information about the estates as it merely lists place-names. It is however reasonable to assume that there was probably a church at Arreton in the later ninth century as Arreton would appear, from the configuration of parish boundaries, to have been a mother church to Whippingham and Godshill, both of which had churches by 1071. (Map 1).

Domesday Book tells us that there was definitely a church at Arreton by 1086, as "The Abbey of Lyre holds the church of this manor, with 1 virgate of land and 1 acre of meadow, and all the tithe of the manor, and is valued at 20s". The reference to Lyre abbey enables us to take the documented presence of the church back a few more years. William fitzOsbern was appointed lord of the Island with palatinate[2] powers very soon after the Norman Conquest. He died in 1071. FitzOsbern granted various churches, probably in 1070, to the abbey of Lyre, which he had founded in Normandy prior to 1066. These churches were Arreton, Freshwater, Carisbrooke, Godshill, Whippingham, Newchurch and Niton. The list of churches and other interests of Lyre are to be found in a charter granted by William de Vernon, Lord of the Isle of Wight between 1193 and 1217, who confirmed all the possessions of the abbey on the Island (Hockey 1981a, no.4). The grant of these churches meant that Lyre Abbey had gained an income from them and had the right to appoint the incumbent.

Arreton Church- the early fabric

Arreton therefore had a church at about the time of the Norman Conquest. Does any of the fabric of this church survive? A superficial examination of the church would suggest that it does. The west doorway to the nave would not be out of place in an Anglo-Saxon church. It has jambs of a 'long and short' configuration (Fig.1). This type of feature is sometimes called 'Escomb fashion' in the literature about Anglo-Saxon architecture, named after the chancel arch of similar construction in the late seventh century church of that name in County Durham[3]. This could suggest that the earliest stonework in Arreton church is of a date within the Anglo-Saxon period. However a more detailed

examination of the church's nave would however suggest otherwise. Above the nave west doorway is a single-splayed window, which appears to be contemporary with the doorway (Fig.2). The deep splay of this round-headed window into the nave is very suggestive of an architectural feature from the Norman period. A window of similar form lights the church chancel from the north. It would appear that the walls of 27 inch thickness of the west, south and north walls of the nave are contemporary with the doorway and window, and also with some of the fabric of the chancel, particularly the north wall[4]. The construction of the west window indicates a post-conquest date for all of this fabric. The later twelfth century north arcade and early thirteenth century south arcade were inserted into the nave of this church. The original height of the side walls of the nave is indicated by the change of wall thickness above the apex of the nave arcades and below the quatrefoil clerestory windows (Taylor and Taylor 1965, I, 30-31). The earliest fabric of Arreton church thus contains some fabric of Anglo-Saxon workmanship, but dates to after the Norman Conquest.

The architecture of Arreton church and the 'Overlap'

The fact that not all Anglo-Saxon stonemasons were killed off at the Battle of Hastings on 14th October 1066 can be illustrated by the fabric of Arreton church and other buildings of the early Norman period. One of the earliest datable buildings from immediately after the conquest is Rougemont Castle gatehouse in Exeter. This was probably constructed soon after the repossession of the city by William I in 1068. The gatehouse includes features associated with Anglo-Saxon workmanship, namely long and short quoins[5] and triangular headed openings (Fig.3). It is also constructed using cushion capitals, a feature which is neither Anglo-Saxon nor pre-Conquest Norman, but which was introduced into England after the Conquest from the Holy Roman Empire (Fernie 2000, 20). This mixture of pre-Conquest Anglo-Saxon and post-Conquest Norman features is referred to as the 'Saxo-Norman Overlap' in architectural literature. Other examples that can be cited are to be found in Norfolk, the west doorway of Dunham Magna, which has a triangular headed doorway of Anglo-Saxon form surrounded by Norman billet moulding, and the triangular headed belfry openings in the round tower at Haddiscoe, also embellished with billet moulding[6]. Such combinations of Anglo-Saxon and Norman features continue into the early twelfth century in the distinctive early Romanesque church towers of Lincolnshire (Stocker & Everson 2006). An example nearer to the Isle of Wight is the tower arch at Netheravon in Wiltshire, probably rebuilt in the 1090s (see below).

It can be shown that the earliest datable fabric in Arreton church post-dated the Norman Conquest, despite containing a good example of a feature of Anglo-Saxon workmanship. Parallels from other parts of England suggest building (or rebuilding) at some time in the period from the conquest through to the early twelfth century.

The cult of St George

The dedication of the church at Arreton is to St George. This is the only instance of such a dedication on the Isle of Wight. Church dedications can change over time, for example St Blasius at Shanklin was formerly St John, and Shalfleet lost its medieval dedication and has recently been dedicated to St Michael (Margham 1997, 94-5). It is however a reasonable assumption to make that a record of any church's dedication from before the Reformation will indicate its dedication in earlier centuries. In the case of Arreton we do have such a record. In 1484 there was an "Indenture between John, abbot, and Geoffrey Chesyll and George Granger, the church wardens of St George, Arreton, leasing from them, for the honour and praise of God and St George, the land ….." (Hockey 1991, no.172).

The introduction of church dedications to St George is often associated with the Crusades in the popular imagination. The first Crusade was called by pope Urban II in 1095 and Jerusalem fell to the Crusaders in 1099. The origin of the dedication of Arreton church, in view of the above architectural evidence, would be compatible with this notion, but the reality is somewhat different.

The early story of St George with the widest currency was set in Nicomedia, a town on the east shore of the Bosporus and was related to the edict of the emperor Diocletian that all soldiers had to make sacrifices to the gods of Rome. The earliest church dedications to St George may be as early as the mid fourth century with two such churches in Syria. The oldest extant image of St George is a sixth century Byzantine icon, which depicts the Virgin Mary accompanied by angels and saints, including St George (Riches 2005, 7-12). Nearer Britain, Gregory of Tours, who died *c.*595, wrote of relics and miracles associated with St George in his *The History of the Franks* (Thorpe 1974). Gregory also told of the conversion and baptism of the Merovingian king Clovis, who later dedicated a monastery to St George near Cambrai in the early sixth century (Riches 2005, 15). He also relates that Clovis' wife, Queen Clothild (511-545) had a chapel built and then dedicated to St George at Chelles, 12 miles east of Paris (Gittos 2013, 71).

The cult had reached the British Isles by the time of Adomnán of Iona, who related the story of a miracle of St George in 679. This was later related by Bede in his *Ecclesiastical History* which was completed in 731, and St George was included in Bede's martyrology. St George also had a place in the 'Ritual of the church of Durham' martyrology which originated in the early ninth century (Riches 2005, 19). It is recorded in the Anglo-Saxon Chronicle that king Æthelred II died on St George's day in 1016 (Swanton 1996, 148).

A version of the life of St George has survived from late Anglo-Saxon England. The passion of St George was composed by Ælfric Puttoc, who was Archbishop of York from 1023 to 1051. It can be paraphrased thus:

> The story is set in Cappodocia, in Asia Minor, where the Caesar Ditanus forced people to make offerings to false gods. George remonstrated with him, but Ditanus ordered George to make an offering to the god Apollo. George refused and he was put in irons and tortured. Dinatus obtained the services of a magician named Athanasius who gave George a bowl of poison to drink. He drank this but was unharmed. As a consequence, Athanasius saw the error of his ways and was baptised by George. Ditanus was far from pleased about this and had George fastened to a wheel which then burst asunder. George was then put inside a large ewer containing boiling lead, but was unharmed. George continued to encourage Dinatus to abandon his faith and a holy fire burned down the temple and destroyed the images of gods. Dinatus then had George put to death by the sword but Dinatus was enveloped by fire and George went to dwell in perpetual glory (Hardwick 1850).

The cult of St George was documented at Winchester, the cathedral of the diocese for central southern England which included the Isle of Wight. The rite for the burial of a monk at Winchester was detailed "in a sacramentary written there perhaps in the first quarter of the eleventh century" which included invoking St George as an intercessor during a procession between the Old and New Minsters (Gittos 2013, 140-141). On the eve of the Norman Conquest it was recorded that the Winchester New Minster was burned down on St George's day 1065, despite there being a relic of St George amongst the minster's possessions! (Sawyer 1985, 29). His cult was thus firmly established in the English church in later Anglo-Saxon England.

St George and church dedications and iconography

The account above has been largely concerned with the cult of St George expressed through hagiography (the telling of saints' lives), rather than church dedications *per se*. In contemporary Britain there are 117 pre-Reformation church and chapel dedications to St George in England, one in Wales and five in Scotland (Jones 2007, 36). This pattern of dedications in England is something which would appear to have developed slowly through the later Anglo-Saxon period and into the

post-conquest era. In a study of English church dedications recorded in sources dating from between 600 and 800 there were no instances of St George (Levison 1946, 259-265). An investigation into the development of settlement patterns in early medieval Kent, which included church dedications, identified seven medieval dedications to St George, but most of these were post-conquest foundations (Everitt 1986, 256). In a study of church dedications in Devon and Cornwall, St George's in Exeter almost certainly originated before the conquest (Orme 1996, 31). King Cnut (1016-1035) founded a house of canons at Thetford in Norfolk with a St George dedication and a church was dedicated to him in Doncaster in 1061 (Riches 2005, 19). The corpus of *Anglo-Saxon Architecture* compiled by Harold and Joan Taylor has been referred to above. An analysis of these churches of Anglo-Saxon workmanship, including 'Overlap' buildings, found that 2.3 *per cent* of these were dedicated to St George (Butler 1986, 44). The relatively small number of St George dedications was added to soon after the Norman Conquest. In 1071 Robert d'Oiley had Oxford castle built. This included a chapel dedicated to St George in the tower, which is still referred to as St George's tower in the present day (Riches 2005, 19).

The popularity of St George in church dedications would appear to have been given impetus by the First Crusade. The Crusaders had travelled overland through Constantinople and after crossing the Bosporus through Asia Minor, where the cult of St George originated, Antioch was besieged and then captured by the crusaders in 1097-8 and Jerusalem likewise in 1099. On both of these occasions it was reported that St George appeared to the crusading armies. The rather splendid tympanum dating to c.1100 over the nave doorway at St George's church, Fordington, in Dorset can be seen as a representation of St George overcoming and running down Saracens during one of these sieges (Fig.4). A similar but much simpler depiction is to be found on the reset tympanum over the doorway into the nave at Damerham church in Hampshire, dating from the early twelfth century. Roughly contemporary with these two sculptural representations are the wall paintings at Hardham in Sussex which includes a depiction of St George in battle, probably representing his appearance at Antioch. The paintings in Hardham church are one example of the Lewes group of wall paintings, which can be dated to between *c.*1080 and 1120 (Riches 2005, 19). Depictions of St George and the dragon would appear to have originated in England at a slightly later period. The 'tomb chest' slab at Conisborough in Yorkshire West Riding, dating from the twelfth century, has been claimed as the earliest representation of St George and the dragon in England (Riches 2005, 25). However a study of the slab suggests that the scene depicted can be more plausibly seen as "a reference to the Crucifixion, the archetypal spiritual battle" (Wood 2001, 49-50). St George is the subject on the mid-twelfth century tympanum at St George's church, Brinsop, in Herefordshire, which depicts a mounted warrior killing a large snake (Thurlby 1999, fig.171). There is a very similar depiction at Ruardean in Gloucestershire (Fig.5). In the later medieval period St George and the dragon was a motif to be found in church wall paintings, for example at Pickering in Yorkshire North Riding and at Nether Wallop in Hampshire.

St George and Arreton Church

As we have seen the cult of St George was far from unknown in England before the First Crusade. His cult within this country would appear to have gained momentum after the reputed events in the Holy Land in the later 1090s. This is also implied by a study of the dedications of male monastic houses in the period 1066 to 1216, which showed that "international saints of the post-apostolic period have grown in prominence, especially George, Leonard and Nicholas" (Orme 1996, 27, citing Binns 1989). How does this development of the cult of St George relate to the architecture of Arreton church?

The earliest fabric of Arreton church can be shown to have originated at a time after the Norman Conquest. The 'Saxo-Norman Overlap' of architectural styles can be shown to have extended into the

early twelfth century, for example with the distinctive church towers of Lincolnshire. Arreton may have had a church which served the estate belonging to King Alfred. There was certainly a church there *c*.1070 when it was granted to Lyre Abbey, and this was confirmed in 1086 when Domesday Book records Lyre holding "the church of this manor". It is possible that the Domesday reference alludes to the early fabric of the present church. However, a far more plausible explanation is that the church was rebuilt in the early twelfth century and was rededicated to St George, whose cult had been given impetus by the First Crusade.

Dedicating a church in the twelfth century

Reference has been made to dedicating churches to particular saints, but what do we mean by this? Details of rituals survive from the late Anglo-Saxon period in the form of pontificals, bishops' service books (Rollason 1988; Gittos 2013). The form of a church dedication ritual in the twelfth century has been paraphrased by Bartlett (2000, 442):

> "When a bishop dedicated a church, he marked out the circuit of the sacred place by leading a procession around the building six times before entering it. Inside, he traced with his staff on the floor of the church a great 'X' made up of the letters of the Greek and Latin alphabets, and then mixed a holy concoction of salt, ashes, water, wine, and chrism (holy oil), with which he sprayed the interior and exterior walls three times. This was to drive away phantasms and demons. He then drew the sign of the cross on the inner and outer walls in chrism in twelve places before proceeding to enclose relics in the altar, bless the altarcloth, and then, in fresh vestments, celebrate mass and preach a sermon".

The cult of saints' relics was of fundamental importance to the mind-set of the inhabitants of medieval Europe (Freeman 2011). One can only assume that the demand for relics of St George increased after the purported events of the First Crusade, to provide items to be cemented inside altar slabs during church dedication rituals.

The rebuilding of Island churches

There are parallels for the rebuilding of Arreton church in the early Norman period elsewhere on the Island. Evidence from a further twelve will be examined below. Six of the churches, like Arreton, were given to Lyre Abbey by William fitzOsbern and therefore existed by 1071, these being Freshwater, Carisbrooke (*alias* Bowcombe), Godshill, Whippingham, Newchurch and Niton. Two further churches, at Calbourne and Shalfleet, are specifically mentioned in Domesday Book and the Domesday place-name of Bonchurch provides evidence for the existence of a church at this location by 1086. A potentially early date for Brading is provided by a significant piece of sculpture and two churches on new sites at Binstead and Chale appear to have originated in the early Norman period. William of Malmesbury (below) completed his *Gesta regum Anglorum* ("Deeds of the kings of the English") in 1125 (Giles 1847, vii). This date will be taken here to define the end of the early Norman period.

Freshwater and its quoins

The dimensions of the earliest fabric of the nave at Freshwater parish church are defined by three 'long and short' quoins (Taylor & Taylor 1965, I, 246). This building technique demonstrates later Anglo-Saxon workmanship. It is possible that this nave was constructed after the Norman Conquest, as long and short quoins are known from 'Overlap' buildings, including those in the chapel of Winchester castle, completed by 1073 (Fernie 1983, 162). Whilst there is no contemporary documentary evidence for the existence of a church at Freshwater before the Conquest, it is very likely that a church existed here for centuries before the eleventh century. Post-Conquest evidence indicates that Freshwater was the mother church of both Thorley and Brook, and Freshwater, with its topographical place-name, can be seen as an estate centre for the West Wight by the mid-Saxon period (Margham 2012, 14).

Carisbrooke and double-splayed windows

Like Freshwater, Carisbrooke can be identified as an estate centre by the mid-Saxon period. The significant topographical place-name here is Bowcombe, rather than Carisbrooke. The church of the manor of Bowcombe in 1086 can be identified with the *ecclesiam sancte Marie de Caresbroc*, when it first entered the written record in 1114 (Hockey 1981a, no.15). Carisbrooke church can also be shown to have been the centre of a very extensive *parochia.* Northwood, Shalfleet detached (*i.e.* Watchingwell), Gatcombe, Shorwell, Kingston and Chale are all medieval parishes which were part of this 'minster parish' (Map 1; Hase 1994, 65). The earliest fabric at Carisbrooke church is that of the south wall of the nave. An arcade was inserted into this wall in the late twelfth century, leaving two truncated single-splayed windows (Fig.6). The wall and windows therefore pre-date this Transitional Norman arcade. The thickness of the wall (42 inches) is characteristic of Norman rather than Anglo-Saxon and the form of the windows also suggest a date within the Norman period. In proportion the windows are very similar to that in the west wall at Arreton. The rebuilding of the church may have occurred when a priory was founded at Carisbrooke in 1147 to administer the abbey of Lyre's interests on the Island. However, the rebuilding of the church may have taken place earlier in the Norman period perhaps in association with the postulated creation of a planned settlement here soon after the Conquest (Margham 1993).

A cushion capital at Godshill

Godshill church would appear to have been rebuilt in the later Middle Ages (Lloyd & Pevsner 2006, 153-4). The only physical evidence for the existence of an earlier church here is a "simple engaged cushion capital of eleventh-century type" (Renn 1969, 267). This loose capital (Fig. 7) is similar in form to those in the south transept of Winchester Cathedral, which was constructed from 1079 onwards (Fernie 2000, fig.26). The building of the cathedral through the 1080s is quite likely to have had an influence on the architecture of the Isle of Wight although it may have been a while before this influence was seen in parish churches. It is possible that the abbey of Lyre also had an influence on the Island's church architecture in the early Norman period. Unfortunately "at the Revolution its interesting set of buildings were demolished and the stone sold" and nothing remains (Hockey 1981b, 103). The configuration of medieval parish boundaries and the documented link between Godshill and Whitwell church (until 1457 Whitwell's inhabitants were buried at Godshill: Hockey 1982, 6-7; Map 1) suggest that Godshill was the mother church not only to Whitwell, but also to Niton and St Lawrence. The church at Godshill on its locally prominent hill was probably of some antiquity when the cushion capital was carved.

Knights at Whippingham

Whippingham church was completely rebuilt between 1854 and 1862, replacing a structure which had been modified by John Nash in 1804-6, but which was essentially a medieval structure (Lloyd & Pevsner 2006, 293). This building was illustrated by Tomkins in 1794 (reproduced in Cox 1911, 157). Cox described this view of the church from the south: "It consisted of an old Norman nave, with the built-up north [*sic.* south] arcade of a former aisle, a long Early English or 13th century chancel, and a western tower of like date. The saddle-back roof to the tower was probably of 14th century date. The south porch and picturesque gabling at the western end of the south side of the nave appear to be late 16th century" (Cox 1911, 157-8). Three architectural features from this church are preserved in the outer walls of the Victorian south porch. The most significant is the lintel or tympanum depicting ".. a knight on horseback, either side of a tree" (Keyser 1927, xii) (Fig. 8). This sculpture can be tentatively dated to the late eleventh or first half of the twelfth century[7]. The other two pieces are smaller fragments. Billet moulding is one of the "chief features which do not occur on any dated structures in England before the Conquest but do on buildings in Normandy and in Norman England .." (Fernie 2000, 211). We can

therefore be assured of the post-Conquest provenance of the short length of billet at Whippingham but this form stayed in use through much of the twelfth century in England. The other fragment remaining is a length of chevron ornament. It is difficult to be precise about the dating of this, except to suggest a twelfth century date. Whippingham church, when given to Lyre Abbey *c*.1070, may have been a church of long-standing, serving a substantial estate. *Wippingeham* was purported to have been an estate of twenty-two hides when apparently granted by King Cuthred of Wessex to the church of Winchester at some time between 740 and 756, but unfortunately this charter is now lost (Finberg 1964, no.4).

The new church at Newchurch

The church at Newchurch had an extensive parish consisting of a strip of land extending from north to south across the Isle of Wight in the medieval period. This in itself implies a church of some antiquity, dating from before its grant to Lyre. Unlike Carisbrooke and Freshwater however there are no documented links with other churches which may have been part of its former *parochia*. The only observation that can be made is that the configuration of its parish boundary does suggest that Bonchurch may have been dependent upon Newchurch at some time, although the reverse is also a possibility (Map 1). The place-name Newchurch was not recorded until *c*.1150 (the documentation linking it and other Island churches to Lyre Abbey at the time of William fitzOsbern is not contemporary with the grant). The name Newchurch may refer to a rebuilding of the church rather than a new foundation (Gelling 1981, 8), although a shift of the church site is a possibility raised by the place-name (Morris 1985, 58). A relocation of the church site from Wroxall is possible. If the church was rebuilt on its present site, is there any indication of when this may have occurred? "Inside the church one finds that to the time of the chancel [*i.e.* early thirteenth century] belonged a proper crossing with a crossing tower- *cf.* the one surviving E window. The arches to N, S and E are of three slight chamfers, *i.e.* early c13th" (Pevsner & Lloyd 1967, 749). This one surviving window, high up over the chancel arch, is single-splayed with a round head, and may belong to an earlier phase rather than being an archaic form constructed a little time after *c.*1200. The nave walls above the transept arches are appreciably thicker than the walls further west above the nave arcades. These two features could indicate the presence of the only parish church on the Isle of Wight with a Norman central tower. A ground plan of nave, central tower and chancel in Norfolk, for example, is to be found in churches of the later eleventh or early twelfth century, for example Attleborough and South Lopham (Fernie 1983, 169; Pevsner 1962, 322). The church at Netheravon in Wiltshire was rebuilt with a central tower in the late eleventh century (see below), as was Studland church in Dorset (Newman & Pevsner 1972, 404)[8] There is thus some circumstantial evidence that the church referred to in the eponymous place-name was constructed in the early Norman period.

Niton and cable moulding

Niton is unusual amongst the churches given to Lyre as it has a relatively small parish. It would appear from the configuration of parish boundaries to have been a daughter church of Godshill. The place-name was first recorded as *Neeton* in 1086, 'the new *tūn*' (Mills 1996, 76). The place-name implies that Niton may have been a settlement of no great antiquity at the time of Domesday, and likewise the church, with the parish being coterminous with the manor. The earliest datable fabric in the church is the nave arcades of the late twelfth century. However, "In the 1864 restoration, the impost of the old chancel arch was discovered about 18 inches lower, and further south than the present one, but was plastered over again" (Stone 1891,I, 30). There is a possibility that this impost was from a building pre-dating the later twelfth century, but unfortunately no further details were recorded. The font has a cable moulding around its top and could have belonged to an earlier church (Renn 1969, 268).

Calbourne and hood-mouldings

There was a church in the manor of *Cavborne* in 1086 which was part of the estate of the Bishop of Winchester (Munby 1982, 52c).The earliest extant fabric which can be firmly dated is of the thirteenth

century (Pevsner and Lloyd 1967, 736).The church suffered from a drastic 'restoration' in 1840-42 (Cox 1911, 50), when the Norman arcade between the nave and south aisle was replaced. Two drawings of the church of *c*.1800 "show tall, narrow round-headed doorways with plain hood- moulds on the north and south sides of the church" (Renn 1969, 268; Tomkins 1796,II,55; Englefield 1802- reproduced in Stone 1891, II,18).The proportions of these doorways (Renn *ibid.*, fig.2) suggest Anglo-Saxon workmanship (Taylor 1978, 817), as do the hood-mouldings which appear to be of an Anglo-Saxon, rather than a later form[9] These were introduced in about the ninth century and continued in use to the end of the Anglo-Saxon period. Almost all examples of hood-mouldings of this type are found in contexts which would commonly be accepted as being late Saxon (Taylor 1978, 938, plate 4). The doorway on the north side of the church was set in the north wall of the transept and appears to have been repositioned here when the transept was built. The southern doorway gave access to what is now the south aisle- it is possible that this aisle was originally the nave. The wall between the south aisle and the nave (where it has not been rebuilt) is relatively thin, 24 to 27 inches. This nave would have been aisle-less in the eleventh century and retains one possibly later eleventh or twelfth century single-splayed window set in its north western angle. The presence of this window in such a position implies that the church had a western tower by or in the twelfth century. It would appear that much of the pre-1840 fabric of Calbourne church was probably of Anglo-Saxon workmanship and that it was this church that was recorded in 1086. The extensive estate of Calbourne consisting of 30 hides was purported to have been granted by King Ecbert of Wessex to the bishopric of Winchester in 826 (Sawyer 1968, S 274). The authenticity of this charter is questionable (Edwards 1988, 155-6). However, the location of Calbourne on the northern margins of the Island's lateral chalk ridge and its topographical place-name suggests that it was probably an estate centre by the mid-Saxon period which was served by a church.

Shalfleet and its billet

There was 'a church' at *Seldeflet* in 1086 (Munby 1982 ,53c).The earliest fabric is the massively-built west tower with walls nearly 5 feet (1.5 metres) thick, of early Norman date. It is devoid of ornamentation except for one string course with billet moulding (Fig. 9). It is uncertain how Shalfleet fits into the pattern of *parochiae* (mother parishes) for the Island. The parish is extensive, and like the *parochiae* of Freshwater, Calbourne and Brading, and the medieval parish of Newchurch, it encompasses land reaching from the northern to the southern coast of the Island. Unlike the estate centres with topographical place-names Shalfleet is not located on or near the margins of the Island's lateral chalk ridge near the centre of the estate. Shalfleet is located on the margins of its parish and at a significant distance from the lateral ridge. The significance of the purported grant by King Ecbert of 40 hides at *Scealdanfleote* to the bishopric of Winchester in 838 (Sawyer 1968, S281) in this context is uncertain. The discovery of mid-Saxon inhumations adjoining the churchyard (Waller *n.d.*) would however suggest that the church site was long established by the later eleventh century.

St Boniface and Bonchurch

The church of St Boniface is alleged to have obtained its dedication from a visit of the eighth century missionary who proselytised in Germania (Cox 1911, 39), and there is a tradition that the church was built by monks in the eighth century (Renn 1969, 266). However, the dedication may be due to the mistaken belief of an association with Boniface because of the place-name (Gelling 1981, 7) or the acquisition of the saint's relics at a later date. The Domesday place-name *Bonecerce* indicates the presence of a church by 1086 and has been interpreted as "Bana's church", a church built by a murderer (Old English b*ana*) as an act of atonement (Ekwall 1960), or "Buna's church" (Gelling 1981, 7). A re-evaluation of the place-name reverts to the traditional interpretation, with Bonchurch probably meaning 'the church of *Bona', from Old English *cirice* and an Old English personal name which may be a short form of the Latin name Bonifatius, *i.e.* Boniface (Mills 1996,31).The

roundheaded south doorway of the church has some chevron ornament (indicative of a date after *c*.1100; Gem 1998, 26) but has been altered (Cox 1911, 40; Renn 1969, 266). The north wall of the nave has been lengthened westwards beyond the straight joint in the fabric. The south wall of the nave is only 62cm (24 ins) thick, suggestive of a building of Anglo-Saxon workmanship, ".... it is worth looking more closely at a church with walls appreciably thinner than 3ft to see if there is confirmatory evidence for claiming it as Anglo-Saxon" (Taylor 1978, 760). However, in the case of Bonchurch there is no confirmatory evidence. According to Sir John Oglander it "*was erected in ye reynge of William ye Conquerer by one Johannes de Argentine...[who] got itt to be made a p'risch ,by means of his brother's sonn Walkelyn, then Bishop of Winchester*" (quoted by Stone 1891,II, 11). The evidence of the church fabric suggests a date for construction by the late eleventh century (a date not inconsistent with the episcopate of Walkelin, 1070-1098), with modification of the south doorway and the extension of the nave westwards in the twelfth century. The configuration of the parish boundary suggests that it was formerly part of the extensive parish of Newchurch and that it may have been a daughter church of Newchurch (Map 1).

Brading and volutes

The earliest datable fabric in the church is the nave arcades in the Transitional Norman style of the late twelfth century. There is physical evidence for the existence of a church at Brading in the early Norman period. The piscina now attached to the southern wall of the chancel is decorated with volute spirals (Fig.10). Baldwin Brown (1925, xiv-xvi) suggested an early Norman date for this design on the belfry opening capitals in church towers of Lincolnshire such as Glentworth and this has been confirmed by recent research (Stocker & Everson 2006, 92). It is however not necessary to look so far afield for comparisons with the Brading volute spirals, as a close parallel exists at Netheravon in Wiltshire. The small volutes on the two southern capitals of the western tower arch at Netheravon are almost identical to the volute on the east face of the Brading capital. The tower arch at Netheravon can be dated to *c*.1090, the church having been rebuilt shortly after the Domesday survey recorded its predecessor as "waste and roofless so that it is almost collapsing" (Blair 1987, 273). Volute capitals were introduced into England soon after the conquest, for example at Scolland's Hall within Richmond Castle between 1071 and 1089, and were used in many other buildings in the late eleventh century (Fernie 2000, 68; Zarnecki 1958, 11). The Brading piscina can be seen as a two-dimensional representation of this new type of capital design. In addition to this evidence for a church at Brading in the early Norman period, the local tradition that Brading was one of the earliest churches on the Isle of Wight is supported by clear evidence for the existence of an extensive *parochia* encompassing the medieval parishes of Shankin, Yaverland and St Helens, as well as Brading itself (Margham 2000).

New foundations

There is evidence for the existence of two more medieval churches by the early Norman period, both of which were new churches rather than rebuilds. One of these contains fabric of this time, and the other has excellent documentation for its origin in the early twelfth century.

Herringbone at Binstead

Binstead church suffered the destruction of its nave in 1843-4 in order to make way for its rebuilding (Cox 1911,37).The chancel has dressed face-alternate quoins, the lower four courses of walling are ashlar, with partially dressed herringbone and random rubble fabric above. The present nave retains some of the herringbone fabric of its predecessor which was constructed with substantial amounts of herringbone (Tomkins 1796, 98). Herringbone fabric without any other datable features provides no evidence for or against Anglo-Saxon workmanship (Taylor & Taylor 1964, 13) but is suggestive of a construction date a few years either side of the Norman Conquest (Service 1982, 35). Churches in West Yorkshire which are characterised by their herringbone work are probably mostly of the late eleventh and early twelfth century (Ryder 1993, 26). This may very well have been the case with

Binstead as the foundation of the church would appear to have been associated with a grant made by William II (1087-1100) to Bishop Walkelin of Winchester of "half a hide of land in the Isle of Wight for the building of his church [Winchester Cathedral]" (Tatton-Brown 1990, 72). This grant of land for building stone here would explain why Binstead church paid a pension of 2*s*. a year to the sacrist of St Swithun's, Winchester (Hockey 1982, 8). The earliest fabric at Binstead would appear to be broadly contemporary with Scolland's Hall at Richmond Castle, which has some herringbone fabric as well as volute capitals. Nearer to the Isle of Wight, a date of *c.*1080 has been given to herringbone fabric at Corfe Castle (Newman & Pevsner 1972, 164).

Chale and Hugh de Gernon

St Andrews church was dedicated on 1st December 1114 by the Bishop of Winchester, in the presence of Hugh de Gernon, the founder. An agreement was made concerning its relationship with Carisbrooke, its mother church, and soon after this it had its own burial ground (Hase 1988, 61; Hockey 1982, 6). The earliest part of the fabric that can be firmly dated is the two easternmost bays of the south arcade, which are Transitional Norman, *i.e*. late twelfth century. However, the plain round-headed arch on the south side of the altar may pre-date this (Renn 1969, 269).

A Great Rebuilding?

"…William of Malmesbury, looking back over the sixty years between himself and the Conquest, observed how all around 'you may now see, in every village, town and city, churches and monasteries rising in a new style of architecture'" (Gem 1988, 21-22). We have seen that Arreton church was very probably rebuilt and rededicated within this period, and it is certainly true that major church structures such as Winchester and Durham cathedrals were rebuilt during this time-scale. Do we have enough evidence from the Isle of Wight to claim that there was a 'great rebuilding' of lesser churches during the early Norman period?

The documentary and architectural evidence from the thirteen churches discussed above is summarised in Table 1. Two of these were newly-established churches. Six were probably rebuilt on the sites of their predecessors. Of these six sites, four can be shown to have been rebuilt in or by the early Norman period. This does however include Freshwater and Calbourne, both of which may have been rebuilt in the tenth or earlier eleventh century rather than during the 'Overlap', although the architectural evidence far from excludes the latter. This leaves us with a further five churches for which there is some evidence for rebuilding during the early Norman period. Three of these (Brading, Godshill and Newchurch) may retain datable evidence of earlier fabric behind their wall plaster, contemporary with the volutes at Brading and capital at Godshill. The remaining two are Bonchurch and Niton. Bonchurch may have pre-Norman fabric and was then enlarged during or after the 'Overlap' period. Niton would appear to have been a relatively new foundation in the later eleventh century, but it is not possible to be any more precise than this.

Richard Gem (1998) has discussed the difficulty in assessing the proposition of a 'Great Rebuilding' of local churches in the later eleventh and early twelfth century in a national context due to uncertainties over the dating of church fabric. Whilst this is acknowledged, there seems to be sufficient evidence to support a rebuilding of several churches on the Isle of Wight between 1066 and 1125. The rebuilding of Arreton, and its dedication to St George, was part of this process.

End Notes

1. This paper is based upon a presentation given in St George's church, Arreton, on Saturday 27th July 2013 to members of the Isle of Wight Natural History and Archaeological Society. This investigated the evidence for the early history of the church, the development of the cult of St George and its relationship to church dedications, an outline of a church dedication ritual, the study and dating of Anglo-Saxon architecture, the rebuilding and building of Island churches in the early Norman

period, and the identification of Anglo-Saxon sundials. The present contribution is concerned with much of the above, with the exceptions of the variety of features indicating or suggesting Anglo-Saxon workmanship in buildings, and Anglo-Saxon sundials. Also, it does not include examples of later Anglo-Saxon and early Norman period church music!

2. William fitzOsbern exercised quasi-royal powers in two of the 'marcher' areas on the margins of William I's kingdom which were vulnerable to attack up until his death in 1071. In addition to the Isle of Wight he also held the earldom of Hereford. Other trusted followers of William I had similar powers in the earldoms of Sussex, Shrewsbury, Chester and Gloucester. Palatine powers were also given to the bishop of Durham (Margham 1993, 9).
3. 'Escomb fashion' jambs of doorways and arches are constructed of slabs of ashlar (dressed stone) which are set in an alternating pattern of vertical and horizontal stones.
4. Churches of Anglo-Saxon workmanship tend to have thinner walls than 'Norman' churches. This in itself however cannot be taken as proof of Anglo-Saxon workmanship (Taylor 1978, 760).
5. Long and short quoins can be seen as indicative of Anglo-Saxon workmanship. As the name suggests, this is a similar mode of construction to 'Escomb fashion' doorways and arch jambs (see 3 above), but used in the construction of the external corners of buildings.
6. For billet moulding see Fig. 9, Shalfleet church tower.
7. Keyser (1927) lists only one instance of knights in his corpus of Norman tympana and lintels, and that is the Whippingham sculpture. The sculpture is quite worn, but appears to depict two horsemen facing each other separated by a central tree. There are many instances of central trees illustrated by Keyser. Several are trees depicted on their own, for example Dymock in Gloucestershire (Keyser fig. 29d), and central trees flanked by beasts, for example Moccas in Herefordshire (Keyser fig. 42). None of the numerous photographs in Keyser show human figures flanking a tree (the Whippingham sculpture is not illustrated by him). The Whippingham sculpture may possibly be a hunting scene. Keyser does show various tympana depicting such scenes but none with horsemen. The figure on the left at Whippingham is wearing a conical helmet. The figure on the right may also be doing so, but the carving is too worn to ascertain this. Single figures on horses are depicted in five of Keyser's photographs, all of which can be interpreted as depictions of St George. These include Fordington and Ruardean (Figs. 4 & 5, in this paper). The figure at Fordington is nimbed, whereas the horseman at Ruarden wears one of only two depictions of conical helmets illustrated by Keyser. The Ruardean tympanum dates from the mid-twelfth century. The other example of a figure wearing a conical helmet illustrated by Keyser is not human. The tympanum at Stoke-sub-Hamdon in Somerset has in its centre ".. a tree with three birds plucking the fruit. On the right is the Agnus Dei supporting the cross. Below, on either side of the stem of the tree, is Sagittarius shooting an arrow at a lion" (Keyser 1927, 53). Sagittarius is depicted wearing a conical helmet. The tympanum at Stoke-sub-Hamdon is set in the north doorway of the church which has volute capitals. It would appear to date from the earlier twelfth century. A date from the late eleventh through to the mid twelfth century can be suggested for the sculpture at Whippingham.
8. Churches with central towers were built within the Anglo-Saxon period, for example Breamore in Hampshire, dating from the first half of the eleventh century (Fernie 1983, Appendix).
9. Although the use of hood-mouldings over round-headed openings continued through the twelfth century, hood-mouldings of Anglo-Saxon form were of a simple square or semi-circular cross- section.

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Maurice Turner, Alan Phillips, Vicky Basford and Rita Wood have read through and commented on drafts of this paper. Rita also provided me with an offprint of her paper about the Conisborough slab and sent me photographs of the piscina in a church in the East Riding of Yorkshire. Vicky provided the map of medieval parish boundaries.

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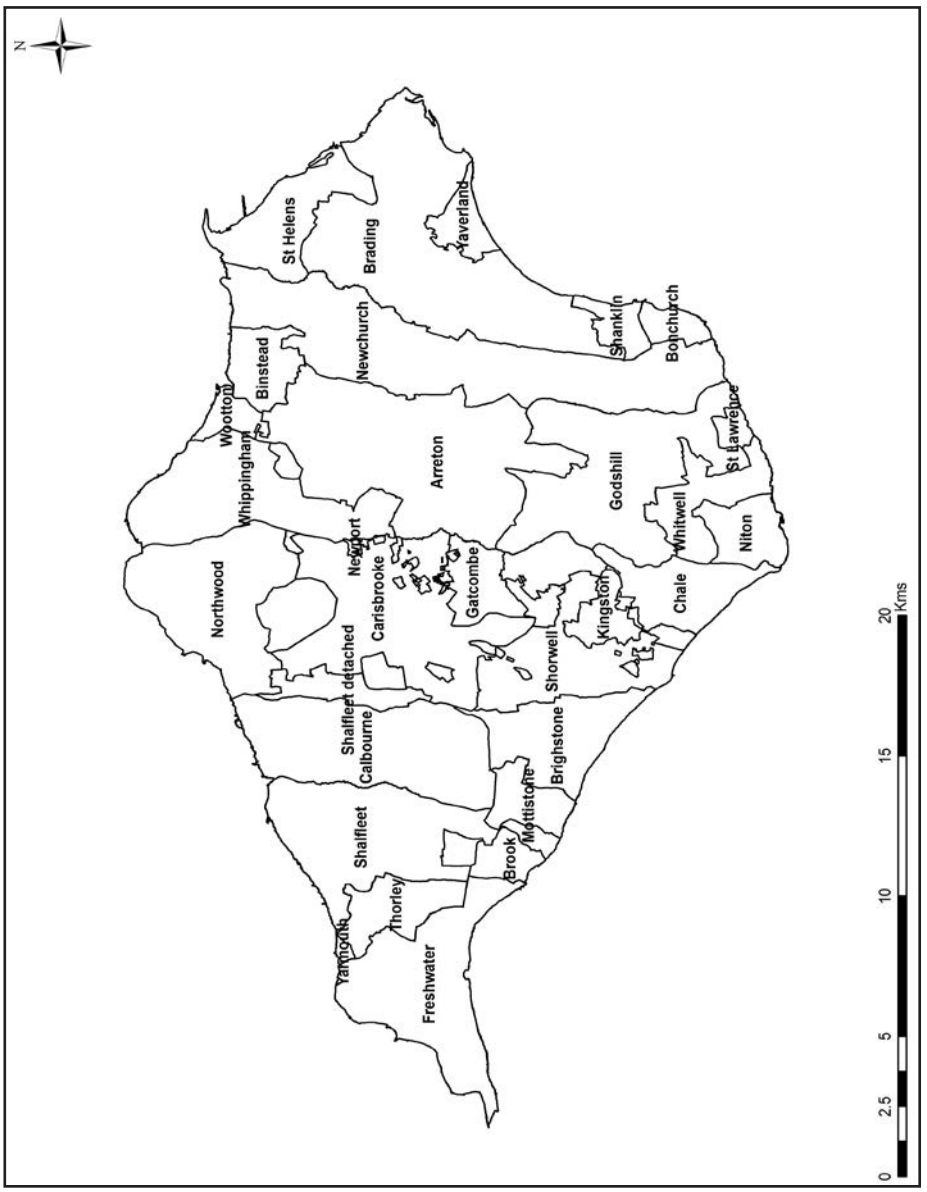
Author: John Margham, 24 Woodpark Drive, Knaresborough, North Yorkshire, HG5 9DL
johnmargham@yahoo.co.uk



Map 1: The medieval parishes of the Isle of Wight, as depicted on Ordnance Survey maps from the 1860s onwards. With the exception of Shalfleet (detached), detached areas of parishes and extraparochial areas are not named. The low water mark provides the outline of the Isle of Wight.

Church*	**Medieval dedication**	**Lyre?**	**DB?**	**Place-name / other info.**	**Earliest fabric**	**Sculpture pre-1125**	**Interpretation (pre-1125)**
Arreton	St George	yes	yes		*c.*1100		rebuild
Binstead	Holy Cross				*c.*1100		new build
Bonchurch	S Boniface			*Bonecerce* DB	early Norman		?rebuild
Brading	St Mary				*c.*1200	volutes	?rebuild
Carisbrooke	St Mary	yes	yes	*Caresbroc* 1114	early Norman.		rebuild
Calbourne	All Saints		yes	[hood mouldings]	10th/11th c		rebuild
Chale	St Andrew			founded 1114	*c.*1200		new build
Freshwater	All Saints	yes		l&s quoins	10th/11th c		rebuild
Godshill	All Saints	yes			later medieval	cushion capital	?rebuild
Newchurch	All Saints	yes		*Niechirche c.*1150	early 13th c.		?rebuild
Niton	St Michael	yes			*c.*1200?	cable moulding	?new build
Shalfleet	unknown		yes		early Norman	billet	rebuild
Whippingham	St Mildred	yes			[early Norman]	lintel	rebuild

Table 1: Summary of physical evidence for Isle of Wight churches predating 1125

*Analysis does not include St Nicholas` chapel at Carisbrooke Castle, founded between 1066 and 1068;
[information in square brackets] refers to demolished fabric recorded in 18th and 19thC illustrations.

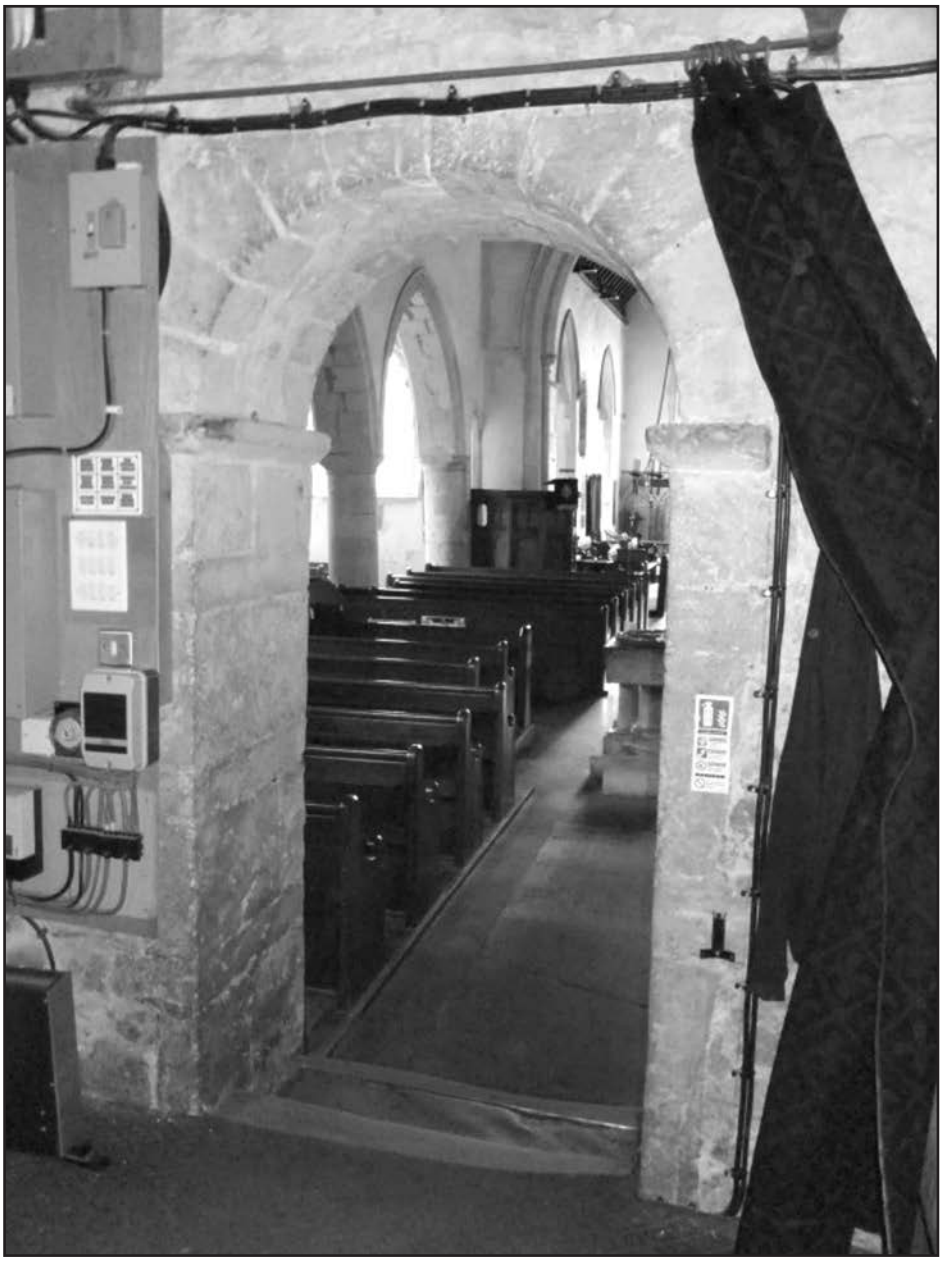


Figure1: External view of the western doorway to the nave of Arreton church, constructed of Quarr stone. The jambs are a fine example of 'Escomb style' ('long and short') Anglo-Saxon workmanship. Although the tower was built on to the nave in the thirteenth century, the configuration of the doorway implies that this tower replaced an earlier narthex or western porch here.

Figure 2: The western wall of the nave of Arreton church, showing the doorway and the single-splayed window above, also constructed of Quarr stone. The flanking lancet windows were inserted into the west wall of the nave in the earlier part of the thirteenth century.

Figure 3: Two triangular headed openings in the gatehouse of Rougemont Castle, Exeter. The gatehouse was probably constructed in 1068-9 and incorporates a combination of Anglo-Saxon workmanship and post-conquest Norman architectural features.

Figure 4: Detail of the tympanum at St George's parish church at Fordington, Dorset. The figure on horseback is the patron saint of the church. He is depicted in battle riding down soldiers who can be identified, despite their 'Norman' helmets, as Saracens as they are equipped with circular, pointed shields. This scene was almost certainly inspired by the apparant appearance of St George at the sieges of Antioch and Jerusalem in 1097-8 and 1099 respectively and can be dated to shortly after *c.*1100.

Figure 5: One of the earliest depictions of St George and the dragon in English stone sculpture is on the tympanum at Ruardean church, Gloucestershire. There is a similar tympanum at St George's church, Brinsop, in Herefordshire. Both have been dated to the middle of the twelfth century and are part of the corpus of the Herefordshire school of Romanesque stone sculpture.

Figure 6: The arcade on the south side of the nave in St Mary's church, Carisbrooke was constructed in the Transitional Norman style of the late twelfth century. The photograph shows one of two examples here of single-splayed round-headed windows which were partially cut away with the insertion of the arcade into this wall. These two windows would appear to be broadly contemporary with the single-splayed windows in Arreton church. St Mary's was one of the Island churches given to the Norman abbey of Lyre by William fitzOsbern *c*.1070.

Figure 7: The parish church at Godshill was one of the Island churches given to Lyre Abbey by William fitzOsbern but contains no datable fabric before the fourteenth century. This loose Romanesque capital would appear to be all that remains of an earlier church on the site. It is similar in form to capitals in the south transept of Winchester Cathedral, which was built from 1079 onwards.

Figure 8: Whippingham church was also given to Lyre Abbey by William fitzOsbern. The present church is a complete rebuild of the mid-nineteenth century but this and two other fragments of the earlier structure have been reused in the external wall of the porch. The stone illustrated would appear to have been a lintel. It depicts two mounted figures wearing pointed headgear facing a tree. Whilst it is difficult to be precise about the dating of this sculpture, an early Norman date is quite possible. The other two pieces of sculpture are also architectural: billet moulding and chevron moulding, both dating from the Norman period.

Figure 9: Shalfleet church from the south-west. Domesday Book records "a church" here. The massive western tower with its billet-moulded string course would appear to have been constructed in the early Norman period. The north doorway of the nave with its fine tympanum can be dated to *c*.1150.

Figure 10: Volute spirals on the piscina in the chancel of Brading church. Although not in situ, this piece of sculpture is the earliest physical evidence for a church at Brading. Volute capitals were introduced into England soon after the Norman Conquest. The closest parallel found for this sculpture at Brading is a free-standing piscina in a church in the East Riding of Yorkshire, which consists of a volute capital, column and base. Examples of volute capitals which are in situ include the capitals of belfry mid-wall shafts in Lincolnshire towers such as at Glentworth from the early twelfth century, capitals on the nave arcades at Melbourne in Derbyshire also from the early twelfth century, and capitals on the tower arch at Netheravon, Wiltshire, which would appear to have been rebuilt in the 1090s.

DISTINCTIVENESS AND DIVERSITY: HISTORIC LAND USE AND SETTLEMENT ON THE ISLE OF WIGHT

Dr. Vicky Basford

Introduction

In *Britannia*, William Camden wrote of the Isle of Wight:

> *Through the mids thereof runs a long tract or chaine of hils, yeelding plentie of pasture and forage for sheepe. The wooll of which, next unto that of Lemster and Cotteswold, is esteemed best and in speciall request with clothiers, whereby there groweth unto the inhabitants much gaine and profit. The North part is all over greene with meddows, pastures and woods; the South side lieth wholly in maner, bedecked with corne fields enclosed, where at each end the sea on the North side doth so inbosome, encroatch within it self, that it make the almost two Ilands, and verily so the Ilanders call them, namely Fresh-water Isle, which looketh West, and Binbridge Isle, Eastward.*

Camden's description, first published in 1586, epitomises the landscape diversity of the Island which is also partially revealed on John Speed's map of 1611 (Figure 1). In my PhD thesis for Bournemouth University (Basford 2013) I aimed to understand the historic roots of the Island's landscape diversity and distinctiveness and to place it in a national context with reference to the works of Rackham (1986), Roberts & Wrathmell (2000; 2002) and other scholars. This article summarises the results of my thesis which is the first detailed academic study of Isle of Wight land use and settlement from the early medieval period to the 19th century but builds on the work of other researchers, particularly that of John Margham and Johanna Jones. In my analysis of the Island's landscape I have drawn on the Isle of Wight Historic Landscape Characterisation (Basford 2008). The technique of Historic Landscape Characterisation, henceforward HLC, has been developed by English Heritage since 1994 for use in planning and landscape management (Rippon 2012; 53-55, 69). It deals with 'the visible evidence in the present-day landscape for change and continuity over long periods of time' (Aldred and Fairclough 2003, 44) by identifying generic landscape types such as field patterns, open land, woodland and settlement. These types are mapped as discrete polygons using GIS and are then subject to analysis and interpretation. HLC has attracted some academic criticism and my thesis highlights certain inadequacies of the technique for past-oriented research, both generally and with specific reference to the Isle of Wight HLC. The results of HLC have nevertheless been employed in the thesis and have helped to illuminate the Island's past landscape character. This has been achieved by the use of maps from the Isle of Wight HLC Final Report (Basford 2008), by the assessment of *HLC Areas* identified in that report and by the construction of new *1790s HLC Areas* identified from the six-inch Ordnance Survey unpublished drawings of the Isle of Wight, surveyed in 1793-4 and now available online (British Library 2014). Other important sources are royal surveys of the Island prepared in 1559-1560 and 1608, available in transcription at the Isle of Wight Record Office (Webster 1975-95) and manorial surveys dating from the medieval period to the 19th century. Archaeological data from the Isle of Wight Historic Environment Record (HER) and the Portable Antiquities Scheme (PAS) have also been employed in examining the origins and evolution of Isle of Wight settlement and in identifying cultural zones within the Isle of Wight. A key feature of the thesis has been the presentation and analysis of synoptic maps. Generalising models have been constructed from these maps, allowing the identification and exploration of local regions on the Island and the comparison of these local regions with others on the mainland.

Islandness and Insularity

The Isle of Wight is England's largest offshore island (Berry 2009, table 1) and in studying its landscape history the effects of insularity must be taken into account. My thesis considers various

aspects of the Island's physical and cultural character and assesses the possible impact of 'islandness' although this is a problematic concept (Rainbird 2007). Strong natural and historical influences have undoubtedly affected the development of the Isle of Wight's cultural landscape. Clear physiographic zones exist and a remarkable geological variety is compressed into a very small area including Cretaceous Greensand, Chalk Downland and Palaeogene clays, sands and limestones (Insole *et al* 1998, 1-30). The Island's geographical location in relation to the British and European mainland has also played an important role in shaping development (Figure 2). However, far from being inward-looking and impoverished, as insular areas are sometimes perceived to be, the Island was trading with the Continent from the late Iron Age and appears also to have been involved in long-distance networks of trade and exchange during the Roman period (Walton 2011). In the post-Roman period the Island enjoyed a distinct political identity as a 'Jutish' kingdom (Yorke 1995, 36-39). There has been recent debate about the term 'Jutish' but it is clear that the Isle of Wight and parts of mainland Hampshire were occupied by a people perceived as being distinct from the West Saxons. Archaeological material has provided evidence for the close links of the Isle of Wight with Kent (Richardson 2011) and with the Continent (Ulmschneider 1999, 25). By the 8th century AD the Island, now under West Saxon control, possessed 'productive sites' at Carisbrooke and Shalfleet, these sites being 'economic places represented by large quantities of coin and metalwork finds' and believed to be the remains of markets and fairs (Ulmschneider 2002, 334). Carisbrooke and Shalfleet are considered to be the two largest such productive sites identified in the southern region (Ulmschneider 2010, 98) The Isle of Wight is recorded under Hampshire in Domesday Book and formed part of the 'County of Southampton' until 1889. However, the Island's military significance ensured that immediately after the Norman Conquest it became a quasi-independent fiefdom of King William's trusted supporter, William Fitz Osbern, as did other places of high strategic value such as the rapes of Sussex (Cahill 1980, 1-8; Jones & Jones 1987, 33). Subsequently, it was entrusted to another lordly family, the de Redvers, before being ruled by Captains and Governors on behalf of the Crown. These positions emphasised the Island's military value as did the official residence of the Island's lords, captains and governors at Carisbrooke Castle. The Domesday Book suggests that in 1086 parts of the Island may have been more populous and prosperous than rural Hampshire, a situation that continued into the 14th century. Towns were founded from the 11th to the 13th century at Newport, Yarmouth, Brading and Newtown. However, from the 14th century the Island's fortunes declined, possibly as a result of the insecurity and threat of invasion caused by wars with France. In the late 15th and 16th centuries 'Wight Island' could be considered the poor relation of mainland Hampshire, although it was a place in which the Crown still took great interest because of its strategic importance. For most of its recorded history the Isle of Wight has not enjoyed the same degree of political independence as the Channel Islands or the Isle of Man. However, its patterns of land use and settlement, whilst not strikingly different from those of the mainland, nevertheless exhibit distinctive idiosyncratic characteristics.

English Landscape Regions

A key distinction in the English landscape, recognised from the 16th century, is between 'champion' and 'woodland' landscapes. In the 1980s these two distinctive landscapes were characterised by Rackham (1986) as *Planned Countryside* and *Ancient Countryside*. Rackham also defined a *Highland Zone of England* (Figure 3). More recently Roberts & Wrathmell (2000; 2002) have distinguished between a *Central Province*, a *South Eastern Province* and a *Northern & Western Province* on the basis of settlement characteristics (Figure 4). Their *Central Province* corresponds broadly with Rackham's *Planned Countryside* and their *South Eastern Province* with Rackham's *Ancient Countryside* whilst their *Northern & Western Province* corresponds partly with Rackham's *Ancient Countryside* and partly with his *Highland Zone*. The Isle of Wight has been placed by Rackham within his *Ancient Countryside* and by Roberts & Wrathmell within their *South Eastern Province*. My

thesis has undertaken local-scale analysis of the Island's historic landscape character and discusses how far the detailed local picture corresponds with the national-scale characterisations of Rackham and of Roberts & Wrathmell. According to Rackham (1986, table 1.2), one of the historic differences between *Ancient Countryside* and *Planned Countryside* was that in *Ancient Countryside* medieval open-field was 'either absent or of modest extent and abolished before *c.* 1700', whereas in *Planned Countryside* there was 'a strong tradition of open-field beginning early and lasting into the Enclosure Act period'. Roberts & Wrathmell (2002, 171-3) suggest that in their *South Eastern* and *Northern & Western* Provinces (corresponding to Rackham's *Ancient Countryside*) irregular enclosed fields were created in the medieval and post-medieval periods by the colonisation of woodland and open pasture. However, they also demonstrate that open fields existed in many parishes within their *South Eastern* and *Northern & Western* Provinces although these core shared lands occupied relatively small parts of individual parishes in contrast with the *Central Province* where communal townfields were dominant (Roberts & Wrathmell 2002, 144-7). The extent of that domination within a Midlands county has now been graphically depicted in the remarkable *Atlas of Northamptonshire* (Partida *et al* 2013).

The History of Enclosure on the Isle of Wight

In my thesis I have been able to demonstrate that on the Isle of Wight most medieval tithings (administrative sub-divisions of parishes) contained some open-field. However, this was generally enclosed at a relatively early date by methods that were different from those used for the enclosure of open-field within Roberts & Wrathmell's *Central Province*. The Isle of Wight experienced a very small amount of parliamentary enclosure (both of open-field and common pasture) in comparison with the southern counties of Dorset, Wiltshire and Hampshire (Basford 2013, Table 4.2; Chapman and Seeliger 2001, *passim*) and even less in comparison with Northamptonshire, a typical *Central Province* county. As well as comparing the Isle of Wight's enclosure history with that of other English counties the thesis has explored variations in enclosure patterns and land use *within* the Island. This has been achieved by constructing a new model of *1790s HLC Areas* based on the 1790s Ordnance Survey drawings and defined by differences in field patterns and other land use types between various parts of the Island (Figure 5). The model is based more firmly on historical data than the original Isle of Wight Historic Landscape Characterisation but confirms the diversity between HLC Areas identified in the original HLC Report (Basford 2008, 69-106) despite some discrepancies in boundaries.

The 1790s Ordnance Survey drawings have been used to undertake detailed morphological analysis of the field patterns that existed in the late 18th century. In the original Isle of Wight HLC it proved difficult to correlate field patterns identified on the Island with the field pattern typology published in the Hampshire HLC (Lambrick & Bramhill 1999). The Devon HLC (Turner 2007, 27-79) provided a more helpful morphological model for use in my thesis although the system of medieval land use in Devon, with its emphasis on convertible husbandry, may have differed considerably from that on the Island. By analogy with the enclosure types defined in the Devon HLC it has been possible to construct a new typology of Isle of Wight field patterns existing in the 1790s, particularly those relating to enclosed open-field where both strip-enclosures and block enclosures can be detected (Figures 6, 7 and 8). Enclosures thought to be derived from open-field accounted for about 31% of the Island's total land area in the 1790s and surviving open-field for 0.6%. Land thought to be enclosed from non-downland commons and wastes accounted for another 30% of the land area but enclosures thought to be from woodland and downland accounted for only 7.8% and 3.5% respectively. The morphology of field patterns derived from the enclosure of non-downland commons and wastes varied according to the process and date of enclosure, embracing small irregular fields in the Undercliff (Figure 9), medium and large irregular fields around Shanklin (Figure 10) and medium to large semi-regular fields of 'herringbone' pattern (representing late 18th century enclosure) between Whippingham and Newport (Figure 11). Most downland enclosure appears to have been of post-medieval date,

sometimes associated with farms named 'Newbarn', but ruler-straight boundaries within areas of enclosed downland occur almost exclusively within the *West Central Chalk Downland* Area (Figure 12). Medieval enclosures from woodland (assarts) can be detected on the 1790s Ordnance Survey drawings around Parkhurst Forest (Figure 13) and north-east Wight also contains examples of probable medieval assarts (Figure 14).

The Isle of Wight: Ancient Countryside or Planned Countryside?

The fields within Rackham's *Ancient Countryside* and the 'ancient enclosures' of Cornwall and Devon (mainly within Rackham's *Highland Zone*) are frequently assumed to have been enclosed directly from woodland or waste into individually-farmed fields during the medieval period. However, our understanding of these irregular fields has now been challenged by the work of Herring (1998; 2006) and Turner (2007, 32-56). They have demonstrated that for much of the medieval period the majority of the farmed land in medieval Cornwall and Devon was divided into strips which generally lay within common open fields, although these were organised and farmed in a different manner from open fields in *Planned Countryside.* Strip fields in the two counties were enclosed during the later Middle Ages (often in 'bundles' of several strips) to form the characteristic patterns of small irregular fields that can be observed today. The work in Cornwall and Devon may have implications for our understanding of *Ancient Countryside* elsewhere in England but the Isle of Wight appears to have pursued a somewhat different trajectory of medieval and early post-medieval landscape change from that of south-west England although there are parallels, particularly with Devon. At the time of Domesday Book the Island seems to have possessed fairly extensive areas of common grazing and waste (uncultivated and unenclosed rough pasture) away from the downs, perhaps accounting for nearly 35% of total land use. The Island also possessed a significant area of common downland grazing in the medieval and early post-medieval periods with individual manors possessing discrete blocks of downland available for use by their tenants. However, the amount of downland grazing land appears to have been considerably less than that available on unenclosed lowland commons and wastes. Substantial areas of waste, with some downland and woodland, appear to have been cleared and enclosed directly into individual fields, both in the medieval and post-medieval periods. Nevertheless, open-field existed in most parts of the Island in the Middle Ages and dominated the landscape in some areas. The enclosure of the open fields started relatively early although later than in Devon. It was underway by the 16th century and had been largely completed by the late 18th century although remnants of open-field survived into the 19th century. Crucially, however, much of this appears to have been piecemeal enclosure (the result of fairly small-scale agreements or amalgamations of land) rather than larger-scale planned enclosure or enclosure by parliamentary act. In this respect the pattern of enclosure differed from that of mainland Hampshire where, although parliamentary enclosure of open-field was limited, substantial landowners were often able to enclose large consolidated blocks of land, imposing in these areas a highly regular landscape of rectilinear fields derived from open-field, common and waste (Chapman and Seeliger 2001, 67-68). Much of the enclosure from waste that took place on the Island is undocumented but the morphology of fields depicted on the 1790s Ordnance Survey drawings suggests that considerable areas of waste were enclosed in the 18th century. By the 1790s rough land away from the downs seems to have accounted for only about 4% of total land use, excluding Parkhurst Forest. Blocks of open downland remained in the 1790s but accounted for less than 6% of total land use, suffering further attrition in the 19th century and 20th century. By the late 18th century enclosed fields accounted for nearly 72% of total land use whilst unenclosed land such as downland, lowland rough pasture, woodland, valley-floor land, coastal marshes and parkland accounted for only about 25% of land use, the remaining 3% of land being occupied mainly by settlements and surviving open-field. The late 18th century Isle of Wight landscape would therefore have looked very different from the Anglo-Saxon and medieval landscape. In the 19th and 20th centuries, *ad hoc* removal and straightening of

field boundaries altered the landscape still further. Nevertheless, the present landscape as a whole is the result of evolutionary change rather than large-scale planned changes imposed from above. Today, much of the Island's farmed landscape lacks the 'ancient' appearance of Devon and Cornwall but it still possesses several of the characteristics of *Ancient Countryside* defined by Rackham (1986, 4-5) such as many roads and footpaths (often sunken) and numerous small (and some larger) woods to the north of the Chalk. Historically, other characteristics of *Ancient Countryside* were present, such as much open-field enclosure predating 1700 and much heathland. Furthermore, the boundaries of historic landholdings on the Island have often survived and these are generally more ancient than individual field boundaries (Basford 2008; 44, 61).

The Pattern of Isle of Wight Settlement within a National and Regional Context

Land use and settlement represent interlinked components of cultural landscapes and help to define the landscape regions identified both by Rackham (1986) and by Roberts & Wrathmell (2000, 2002). However, settlement characteristics feature far more prominently in Roberts & Wrathmell's model, particularly the relative densities of 'nucleated' and 'dispersed' settlements. The term 'nucleated settlement' covers a range of clustered settlements including towns, large villages, smaller villages and hamlets whilst the term 'dispersed settlement' is used where tiny clusters of dwellings and individual farmsteads are dispersed throughout a township or tithing. In the *Atlas of Rural Settlement in England* (Roberts & Wrathmell 2000; Lowerre *et al* 2011) the *Central Province* is characterised as having high densities of mid-19th century nucleated settlement and low densities of dispersed settlement whereas the *South Eastern Province* is characterised as having lower densities of nucleated settlements and medium densities of dispersed settlement. The Isle of Wight has been placed by Roberts & Wrathmell within their *South Eastern Province.* My thesis included a local-scale reassessment of the settlement data for the Isle of Wight based on a classification of all settlements shown on the 1790s Ordnance Survey drawings (Figure 15). Initially, this classification suggested a mismatch with the nucleation and dispersion densities identified by Roberts & Wrathmell (2000, figure 3) Closer scrutiny of my settlement categories'd' and 'e', originally defined as nucleations, suggested that they might more properly be classified as dispersed settlements since all possessed less than twenty dwellings in the 1790s and were generally loosely-clustered and irregular in form. Allowing for reclassification of these settlement categories, the Isle of Wight was found to have an overall settlement pattern comparable with that of the *South Eastern* Province. In fact, on these terms the Isle of Wight appears to have a low density of nucleation even in comparison with the rest of the *South Eastern Province* and particularly in comparison with Roberts & Wrathmell's Sub-Province of *East Wessex* (including mainland Hampshire, the Isle of Wight and the coastal area of Sussex). Conversely, dispersion levels are notably higher on the Island than in much of *East Wessex*.

In addition to considering the Island's settlement characteristics within a national context my thesis also discussed the Island's place within central southern England, a region that has been personified as Wessex (Aston & Lewis 1994) although not necessarily coeval with the early medieval 'Kingdom of the West Saxons'. Roberts & Wrathmell do not recognise 'Wessex' as a unified settlement entity, defining a *West Wessex Sub- Province* within their *Central Province* and an *East Wessex Sub-Province* within their *South Eastern Province* (Figure 4). The splitting of Wessex in this way has been criticized (Hinton 2012, 131-133), as has been the placing of Hampshire within the *South Eastern Province* (Dyer 2001; Dyer 2003; Hinton 2005, 71). Nevertheless, the *Atlas of Rural Settlement* (Roberts & Wrathmell 2000) clearly depicts a higher density of nucleation in *West Wessex* than in *East Wessex* which supports the placement of *East Wessex* in the *South Eastern Province*. Furthermore, the Isle of Wight certainly does not fit within the *Central Province* either in terms of settlement patterns or of enclosure history. However, certain aspects of the Island's medieval and post- medieval enclosure and settlement patterns suggest an affinity with Devon and Cornwall and aspects of its social and economic identity in the recent past suggest a closer affinity with Wessex than with south-east England.

The Origins and Evolution of Isle of Wight Settlements in a National Context

Study of English settlements has focussed mainly on the area forming Roberts & Wrathmell's *Central Province.* In the medieval period this was typically a landscape of nucleated villages, often planned, surrounded by extensive open fields. There has been much debate about the origins of villages and open fields (e.g Taylor (1988, 9; Lewis *et al* 2001, 191). Village formation may have occurred in two stages in some areas with a 'great replanning' of the 9th and 10th centuries in which existing Middle Saxon nucleated settlements were substantially reconfigured in association with the laying out of common fields (Brown & Foard 1998, 90-92). Despite the emphasis on villages in medieval landscape studies, Rippon (2007, 105) has followed Taylor (1983, 125) in suggesting that they are an aberration not just in their limited spatial distribution but in their relatively late appearance in the British countryside. Nevertheless, until recently the origins of the medieval dispersed settlement patterns which dominated the *Northern & Western Province* and (to some extent) the *South Eastern Province* have received less attention than the origins of medieval villages. This has been remedied in south-west England by recent studies (Herring 2006; Rippon *et al* 2006; Rippon 2008, Rippon 2010). In particular, Rippon (2007, 106) has posed the question:

> *If landscapes characterised by villages and open fields are an aberration, are the landscapes of dispersed settlement in areas such as the South West what the 'Central Province' would have looked like if villages had not been created?*

As a result of detailed work within northern Devon and Somerset he has convincingly demonstrated that the historic landscape of south-west England does not represent a continuum from the late prehistoric and Romano- British periods. On the contrary, the small enclosed settlements and limited field systems of these periods were replaced around the 7th to 8th centuries AD by unenclosed small hamlets and isolated farmsteads set within a near continuous fieldscape with a farming system based on convertible husbandry. This was a rotational cropping system where fields were subject to short periods of cultivation followed by a long grass ley. Rippon's model is not necessarily relevant to the Isle of Wight since convertible husbandry may be associated specifically with south-west England at this early date. However, his model does challenge the 'implicit assumption' that areas of England outside the *Central Province* failed to develop the 'classic form' of high-medieval landscape 'as they had low populations, were colonised late, or were simply peripheral to the centre of gravity of this late 1st millennium landscape-reorganisation' (Rippon *et al* 2006, 32). Indeed, it demonstrates that these areas could follow their own regionally distinctive trajectories of change within different antecedent landscapes. Rippon's work provides a context for exploring the Isle of Wight's complex and distinctive settlement pattern and for questioning whether it contains ancient elements 'wiped' from the *Central Province* or emerged out of the social and economic changes of the Middle Saxon period.

Isle of Wight settlement needs to be viewed within the context of territorial and administrative organisation. At least five putative mother parishes have been identified on the Island (Margham 2012, 14-15) and these ancient divisions, stretching across the Island from the Solent to English Channel, may be equated with Middle Saxon estates although they could have even earlier origins. Certain other estates predating the Norman Conquest can also be identified, some possessing churches in 1086. Daughter parishes were gradually established, many dating from the 11th and 12th centuries but some perhaps being earlier. They are characterised by irregularity of shape and size in contrast with the Island's possible Anglo-Saxon mother parishes which have regular 'bacon rasher' forms. All Island parishes contained more than one settlement in the medieval period and in the 1790s (Figure 15). In addition, many medieval parishes contained several manors. A multiplicity of settlements and manors is typical of parishes within Roberts & Wrathmell's *Outer Provinces.* This characteristic

is possibly connected with relatively *ad hoc* development of settlements and field systems, which differentiates the *Outer Provinces* from the *Central Province.* Civil administrative divisions known as tithings also existed on the Island in the medieval and post-medieval periods. Their dates of origin are not known although they generally respect parish boundaries. Isle of Wight tithings may not represent the basic units of settlement and community that *townships* do in northern England (Winchester 2008, 21) but there appears to be some relationship between tithings and medieval open fields.

Lewis (1995; 1996; 1997) has constructed a database of medieval settlement in Hampshire and the Isle of Wight and has discussed settlement patterns in both areas. My separate analysis of Isle of Wight settlement is founded on a database constructed from the 1790s Ordnance Survey drawings. The analysis classifies settlements by form, utilising a typology developed by Roberts (1987, 26-27) and following pioneering work on Island settlement forms by Margham (1982; 1983). Different functional categories of settlement have also been identified and examined, starting with parish *foci*. This analysis has demonstrated that the development of parish *foci* on the Island was 'evolutionary' and that the settlement 'revolution' which occurred in central England between the 9th and the 12th centuries (Taylor 1988, 9) appears not to have been taken place locally. Instead, small nucleations may have evolved gradually in the later Anglo-Saxon and medieval periods. Estate centres in the Middle Saxon period possibly consisted simply of magnate farmsteads controlling large estates. Churches serving the parochiae associated with these estates may have been located centrally, ministering initially to a scattered population but gradually attracting settlement. As large estates fragmented from the 9th to the 11th centuries more churches were built and these attracted settlement as did the earliest churches, becoming parish *foci.* After 1066 the new Norman lords of certain manors built chapels beside their manor houses which gradually obtained parochial status and acted as additional *foci* for settlement. Most parish *foci* exhibited some degree of nucleation in the 1790s but some were hamlet-sized rather than village-sized. Moreover, only a minority show signs of deliberate planning or re-planning and definite historical contexts can be suggested for these planning 'events' only at Carisbrooke, Brading, Yarmouth and St Helens. In addition to nucleated parish *foci* the Island also possesses a variety of settlements without parish churches which display some degree of nucleation. These often appear to be later in origin than the parish *foci*, are generally hamlets rather than villages and nearly all display irregular forms, including interrupted rows and 'streets', clusters and green-edge/common-edge hamlets. The nucleation of settlements appears to have happened gradually and only in a few cases is there specific evidence that individual settlements may have been nucleated by 1086. Villages and hamlets formed important components of the Island's medieval settlement pattern but only a small proportion of settlements appear to have been planned and most have a different character from nucleated settlements in the *Central Province*. Research to date suggests that the Island's medieval open fields were generally associated with villages and hamlets (rather than with the smallest dispersed settlements) but not necessarily with villages having a formal plan. Moreover, most Island parishes do not exhibit the typical form of parishes within the *Central Province* which generally contain one central village surrounded by a consolidated block of open-field. This may indicate that seigniorial or community impetus for the planning or re-planning of villages between the 9th and the 12th centuries was present in only a minority of the Island's settlements and that the Island generally had different trajectories of change within varied antecedent landscapes, as for instance in Freshwater Parish which has a polyfocal settlement pattern of green-edge hamlets (Margham 1992). The Island's settlement pattern in the 1790s can be characterised as comprising scattered nucleations surrounded by dispersed settlements.

Distinctive combinations of settlement types occur within different parts of the Island. Nucleations, generally small in scale, are located mainly on the better soils in the south of the Island. In contrast, dispersed settlement occurs across all physiographic zones and the pattern of dispersion is clearly not

dictated simply by terrain. This could suggest that dispersion forms the oldest 'layer' in the Island's settlement pattern, perhaps dating from the post-Roman period or even earlier, although the actual settlement sites may not be the same. In the northern part of the Island, on the heavy Hamstead clays, dispersion was the normal form of medieval settlement and villages were generally absent. Differences can be detected between north-west Wight and north-east Wight. In the latter area woodland clearance seems to have been taking place from the late Saxon period onwards whilst in north- west Wight the gradual enclosure of open 'waste' may have been more common. Dispersion seems to have been a feature of Domesday settlement throughout the Island since in comparison with mainland Hampshire there were proportionately more manors, most of which had a smaller number of recorded inhabitants. Furthermore, the *Atlas of Rural Settlement* (Roberts & Wrathmell 2000, figure 3; Lowere *et al* 2011) reveals a clear distinction between the generally very low density of dispersed settlement in Hampshire in the 19th century and a higher density on the Island (although Isle of Wight dispersion is only of medium density in national terms). However, the settlement history of the Island, as of any locality, is complex. The work of Beresford & Hurst (1989, 189-190) suggests an unexpectedly high level of medieval settlement desertion on the Isle of Wight, a phenomenon generally associated with the *Central Province*, but it is likely that their data generally represents declining population levels within entire tithings rather than the complete desertion of individual settlements. Nonetheless, depopulation was perceived to be a problem at least from the late 15th century and the very first act against depopulation in 1489 dealt specifically with the Isle of Wight (4 Henry, cap. 16). The royal surveys of 1559 and 1560 record many 'void tenements' within the Island. Further research may reveal whether these references relate to the permanent desertion of isolated farmsteads or to the decline of medieval hamlets into smaller dispersed settlements or isolated farmsteads, as occurred in Devon (Overton 2006, 113) and Cornwall (Herring 2006, 47-51). The latter scenario may have been more common since there was a net increase in the total number of settlements during the post-medieval period (both nucleated and dispersed) from the 513 known to have existed by 1540 (Lewis 1996) to at least 666 identifiable on the 1790s drawings. Approximately one hundred of the 561 dispersed settlements shown on the 1790s drawings were cottages and private houses rather than farmsteads, and these are likely to be of post-medieval origin.

Questions about the origins of dispersed settlements were not answered conclusively in my thesis. A lack of relevant archaeological data and research mean that it is usually impossible to show whether individual dispersed settlements demonstrate continuity from the late prehistoric, Romano-British or early Post-Roman periods. However, much more data is now becoming available through the Portable Antiquities Scheme and synthesis of this data with existing information in the Historic Environment Record will, in future, allow a better understanding of settlement patterns over time. It can be shown that some *areas* of the Island demonstrate continuity of settlement but only in a very few cases are specific *sites* known to have been occupied both in the Roman and medieval periods (e.g. at Bowcombe and Carisbrooke) although such occupation was not necessarily continuous. However, over fifty of the 126 Island manors recorded in Domesday Book bear the same names as dispersed settlements shown on the 1790s drawings and many more dispersed settlements whose names are not recorded in Domesday Book probably also date from the Anglo-Saxon period, as may be indicated by their place-names. Dispersed settlements are generally associated with the concept of *Ancient Countryside* but use of this term is potentially dangerous because it implies a static landscape in which little change took place over centuries whereas, in reality, settlement is a dynamic process. Moreover, there is evidence which suggests that many small and dispersed settlements were established following the more systematic exploitation of waste or clearance of woodland in the later Anglo-Saxon, medieval and post-medieval periods. Examples include green-edge and common-edge settlements throughout the Island as well as individual farmsteads in northern Wight and various farmsteads with names such as 'Heathfield Farm' and 'Newbarn Farm', the latter associated with downland clearance.

Occasionally, hamlets and individual farmstead of late-medieval or post-medieval origin can be dated fairly accurately, such as Week Farm, established *c.*1580 and Newbarn Farm, Calbourne, established *c.*1630, but mostly it is only possible to suggest a broad date-range for the origins of such settlements, based on the evidence of place-names and nearby field patterns. Rural settlements were still being formed or greatly expanded in the 19th century, including inland villages and hamlets at Newbridge, Porchfield and Marks Corner and seaside villages at Bembridge, Seaview, Totland and Gurnard.

Identifying Cultural Zones within the Isle of Wight

Although settlement types can be discussed relative to the Island as a whole, discrete settlement landscapes can also be recognised *within* the Island. In many cases these differences in settlement patterns appear to be of medieval or earlier origin. However, they correspond at least to some extent with the *1790s HLC Areas* although these areas were defined on the basis of post-medieval variations in enclosure patterns. My thesis has demonstrated that the Island contains a great diversity of cultural landscapes within a very small space, closely linked to differences in terrain but also influenced by antecedent patterns and changing land uses, with internal variety possibly being intensified by insularity. These cultural zones have particular patterns of settlement and combinations of historic landscape components. Some 'preferred settlement areas' appear to have remained constant over a long period from later prehistory into the early medieval period, including the *Bowcombe, Carisbrooke & Medina Valley* zone, the fringes of the *Shalcombe, Wellow & Thorley* zone and the Brading area (see Figure 5). The existence of other cultural zones by the time of Domesday or earlier can be demonstrated, for instance the *Parkhurst & Northwood* zone, including the wood pasture and heathland of Parkhurst Forest, and the *Whippingham, Fairlee & Staplers* zone embracing several extensive, settlement-free and conjoined commons.

Conclusions

The research described above has demonstrated that Camden's assessment of the Island's diversity at the end of the 16th century was undoubtedly correct. Indeed many more discrete landscapes than those described by Camden have been identified. It is clear that the Isle of Wight possesses idiosyncratic features that may derive not so much from 'islandness' *per se* as from 'peripherality', an attribute shared by islands and peninsulas which generally appear to have more distinctive *pays* (cultural landscapes) than central and inland areas. Peripherality may be one reason why the 'great replanning' of settlements in the Late Anglo-Saxon period identified in the Midlands by Brown and Foard (1998) did not occur on the Isle of Wight. Some of the settlement characteristics which the Island shares with Devon and East Anglia may be indicators of 'peripherality'. These characteristics include 'linked farmsteads' which are common in Devon as well as 'streets' and green-edge settlements which can be found in East Anglia. However, although the lack of a 'great replanning' in areas outside the *Central Province* could be perceived as reflecting a social conservatism sometimes associated with insular and peripheral localities, these areas may have developed different but equally valid responses to the economic and social challenges of the Middle and Late Saxon periods as suggested by Rippon (2007, 120-121) for Devon and Cornwall. A specific factor affecting the evolution of the landscape on the Isle of Wight after the Norman Conquest and into the post-medieval period may have been different patterns of lordship and land ownership. During the medieval period the proportion of land devoted to arable agriculture on the Island appears to have been less than in the Midlands although open fields were well established. Moreover, there was much rough downland and heathland grazing. In this respect the Island was not dissimilar to Hampshire (Lewis 1995, 10) but enclosure processes affecting both open fields and common pasture were different from those in Hampshire with more early piecemeal enclosure and very little parliamentary enclosure. These different processes, as well as underlying differences in topography, have resulted in a landscape character which is distinct from that

of mainland Hampshire. The Island's distinctiveness bears out the observation by Mackinder (1915, 15) that 'insular' or 'peninsular' provinces are inherently different in character from other areas even though the tiny area of the Island cannot be considered a 'province' in the normal sense of this term. Insularity was no impediment to contact and trade with the outside world in the Island's early history. Nevertheless, the short stretch of the Solent separating the Island from the mainland may have had an influence greatly in excess of the actual distance, forming a cultural boundary equivalent to that of the Blackdown-Quantock Hills in the West Country and the Gipping-Lark valleys in East Anglia, these being two natural boundaries which had profound effects on local cultural landscapes (Rippon 2008, 267).The Isle of Wight clearly does not simply echo local regional contrasts on the adjacent mainland although its varied settlement patterns share certain characteristics with those of the nearby Isle of Purbeck (which is in fact a peninsula). Distinctive Isle of Wight features include the sheer variety of its cultural landscapes, enclosure patterns which bear more similarity to those of Devon than to those of neighbouring Hampshire and a settlement pattern composed of diverse elements. Physical factors have helped to shape the Island's diverse settlement landscapes but antecedent patterns and cultural influences have nearly always been of equal or greater importance. The large estates existing in the Middle Saxon period may have been established by the West Saxons following their conquest of the Isle of Wight in AD 686 but it is possible that the basic territorial organisation of the Island could have roots going back to late prehistory or the Roman period.

My thesis has demonstrated the Island's very distinctive place in the English landscape and has contributed to longstanding enquiries into the reasons for regional variation in historic landscape character throughout England. It adds to the limited number of studies dealing with local regions outside the *Central Province* and emphasises the variety that can result from the interplay of political, economic, antecedent and geographical factors. It also explores the relationship between local territorial and cultural landscapes and may provide a model for examining such relationships elsewhere. The thesis has shown that distinct cultural zones or *pays* can exist within a very small area and that study of a local region can pick up subtle differentiation in cultural responses which would not register at provincial or sub-provincial level but which nevertheless feed into the larger picture and enhance our understanding of the English landscape. In addition, comparison of the Island's historic landscape with other areas may contribute to a more nuanced understanding of Rackham's model of *Ancient Countryside.* My work has reinforced the view that 'historic landscape characterisation can be a valuable tool for past-oriented landscape analysis' Rippon (2012, 3-5). However, to be of academic value, characterisation must be based on historical sources rather than relying solely on morphological assessments made from modern maps. The importance of graphic analysis and the great utility of digital mapping in local landscape studies have both been demonstrated in my thesis, as has been the very great potential of the royal and manorial surveys transcribed by Webster (1975-95) for study of medieval and early post-medieval land use and settlement on the Isle of Wight. Much more work could be undertaken using these surveys than was possible in my thesis but the limited work that has been done has assisted in creating an improved knowledge of the Island's historic landscape. In summary, my thesis has created a much clearer understanding of the extent and distribution of medieval open-field on the Island and of the enclosure processes affecting fields and open grazing lands in the medieval and post-medieval periods. It has also led to an increased understanding of Isle of Wight settlement patterns, including their origins and evolution. Additional insights have been gained into the question of medieval depopulation although much more work remains to be done in this field and indeed there are still many gaps in knowledge relating to all aspects of past settlement and land use. As always with research, this study has raised more questions than it has answered. Perhaps my thesis will prove to be most useful in suggesting new lines of research, combining the relatively new techniques of historic landscape analysis and digital manipulation of data with archaeological fieldwork and study of historical sources.

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Scotland and Ireland. 7 (London, George Bishop and John Norton, 1610) Copyright 2004 by Dana F. Sutton. Text transcribed by Professor Sutton, of the University of California, Irvine, from Philemon Holland's 1610 translation (*Britannia* first published in Latin, 1586). Text for Wiltshire and Hampshire (including Isle of Wight) available from: http://www.visionofbritain.org.uk/travellers/Camden/10 [Accessed 31 March 2014]

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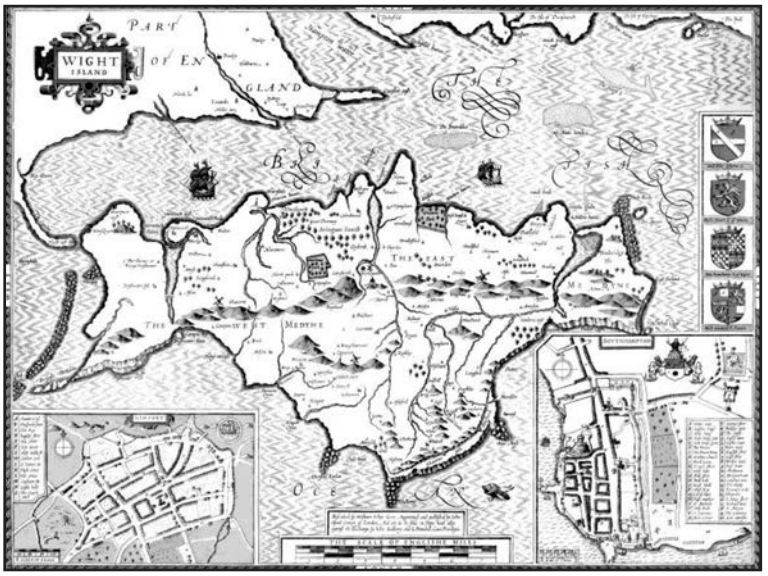

Figure 1. Map of Wight Island
from John Speed's *The Theatre of the Empire of Great Britaine* 1611
(reproduced by kind permission of the Isle of Wight Council)

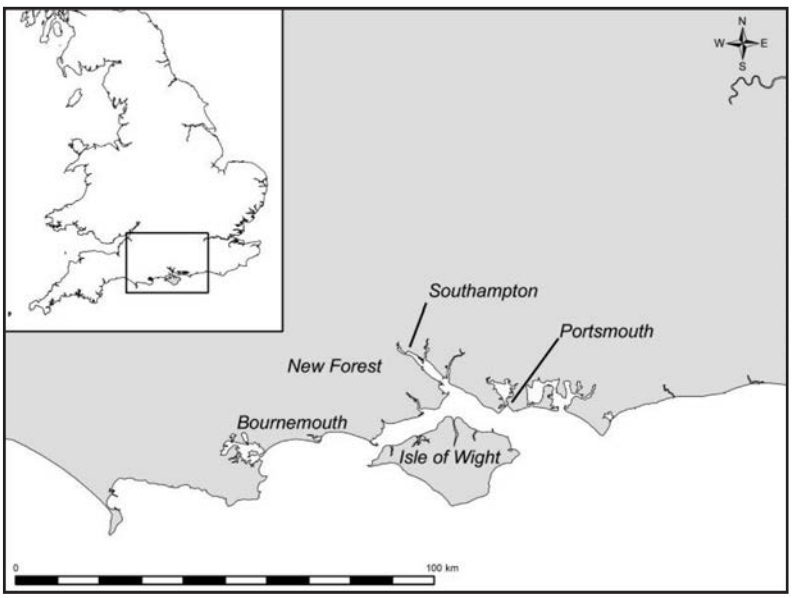

Figure 2. Isle of Wight location map

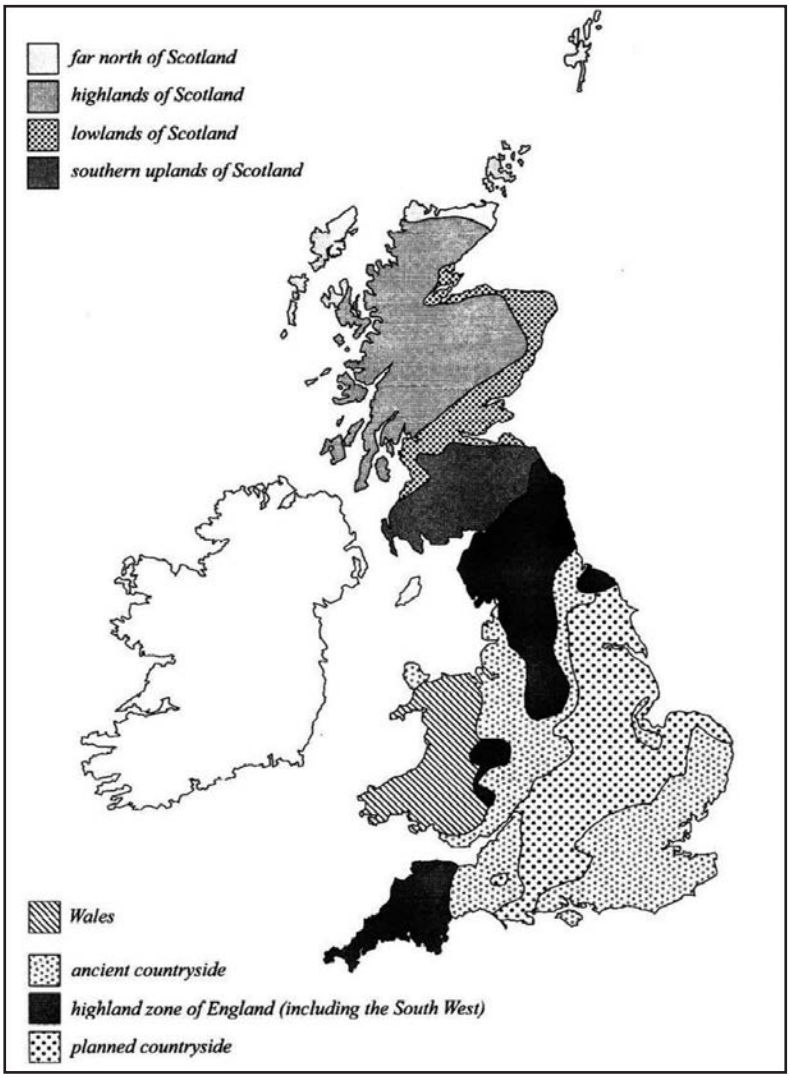

Figure 3. Ancient Countryside, Planned Countryside and Highland Zone of England redrawn by Mike Rouillard (Rippon 20012, figure 6) from Rackham 1986, fig 1.3

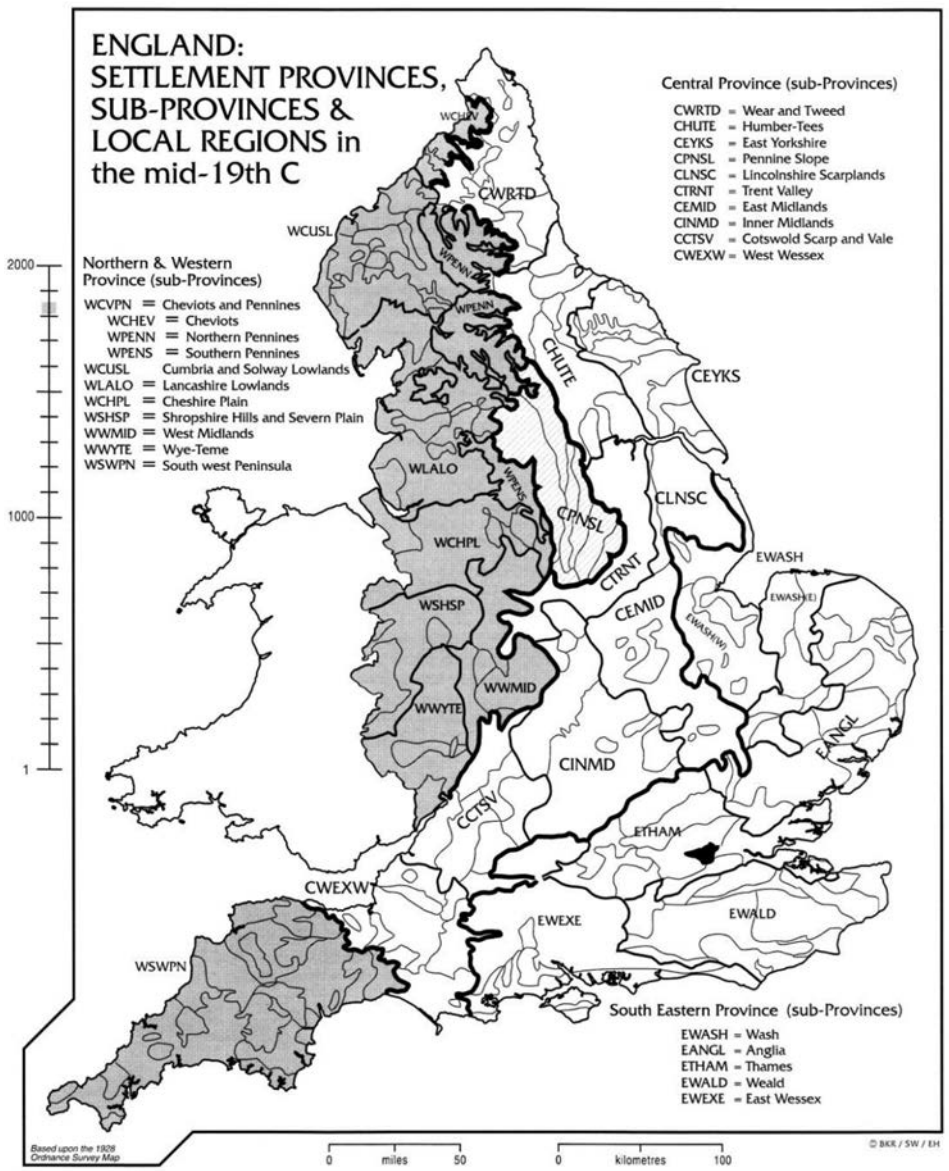

Figure 4. English Settlement Provinces, Sub-Provinces and Local Regions
reproduced from Roberts & Wrathmell 2002, figure 1.4

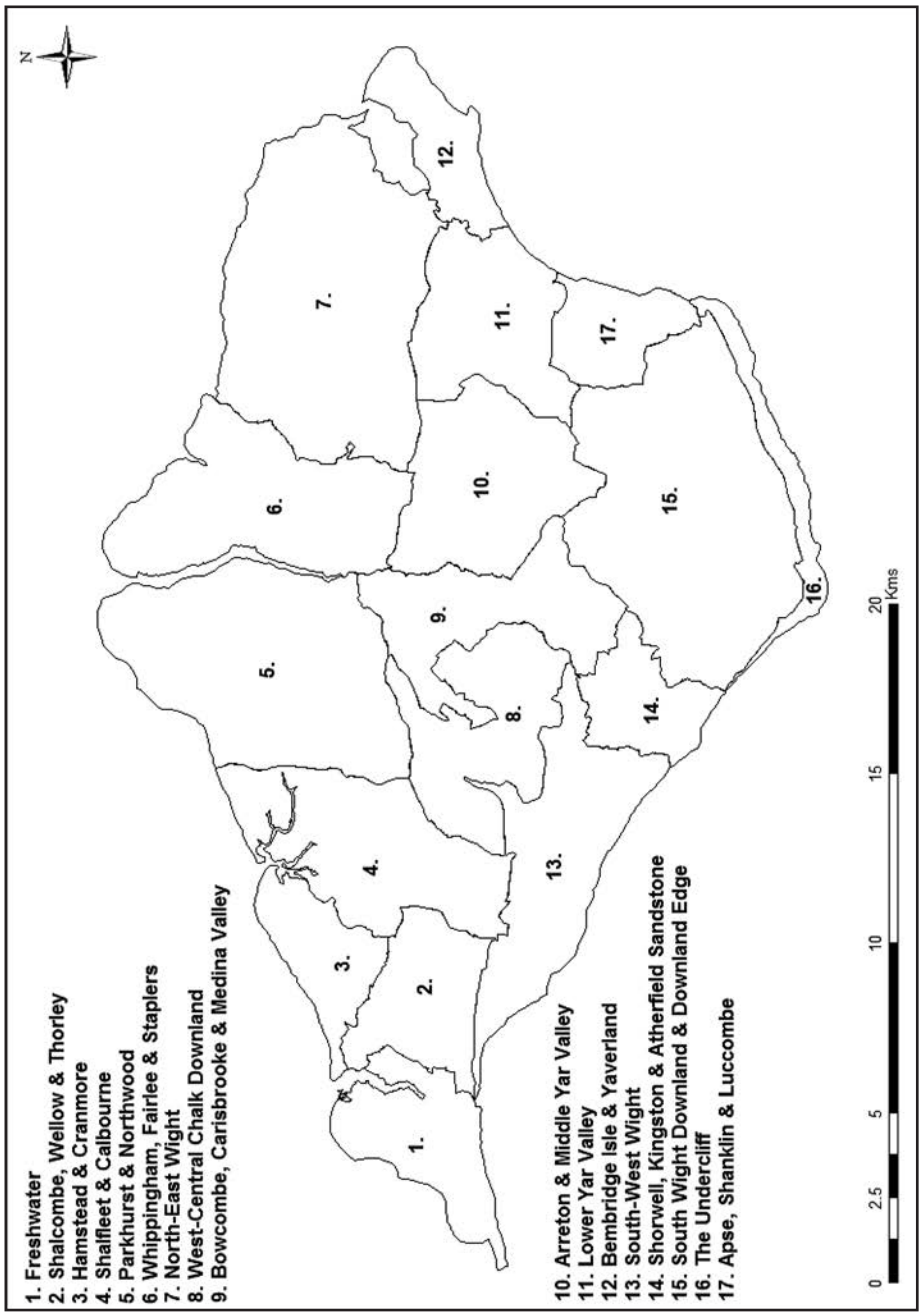

Figure 5. 1790s HLC Areas

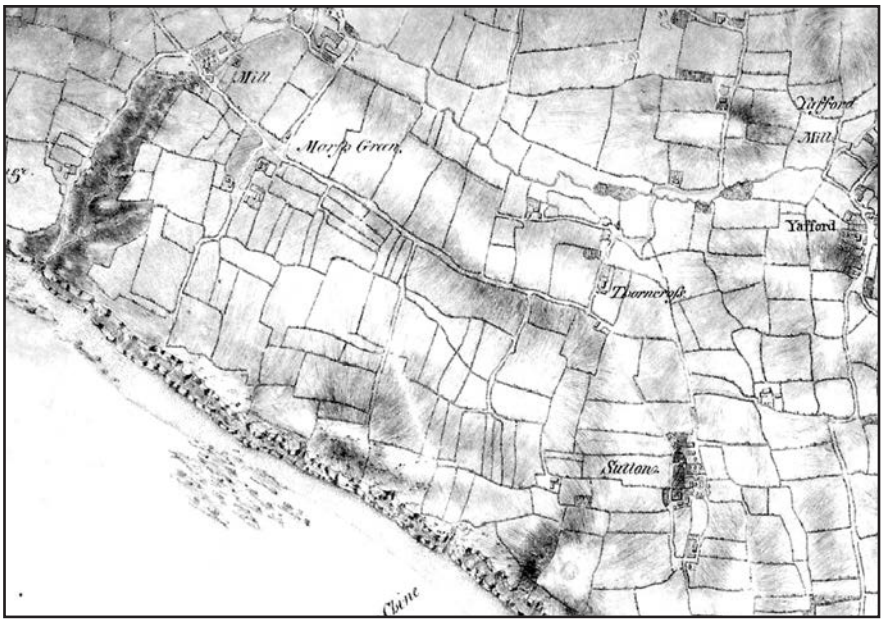

Figure 6. Strip and block enclosures from open-field: South-West Wight.
Extract from 1793-4 Ordnance Survey Drawing © The British Library Board (OSD 67)

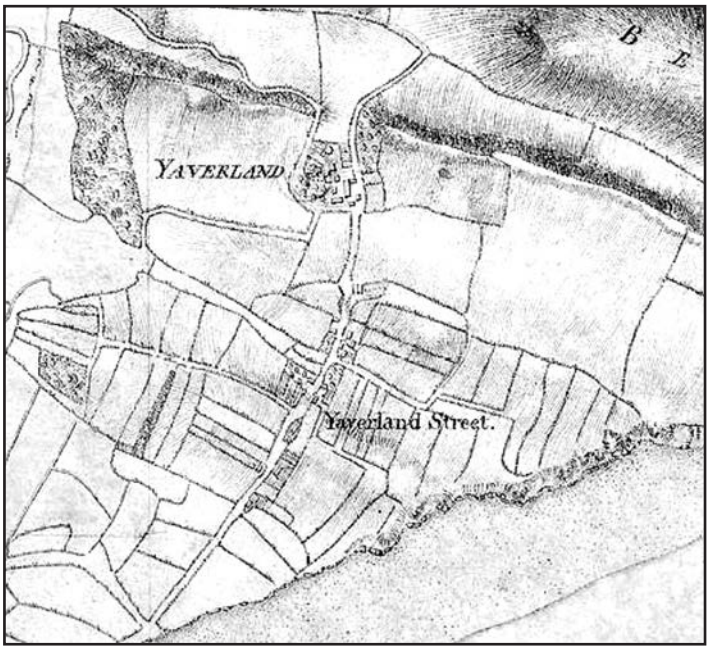

Figure 7. Strip enclosures from open-field: Yaverland.
Extract from 1793-4 Ordnance Survey Drawing © The British Library Board (OSD 69)

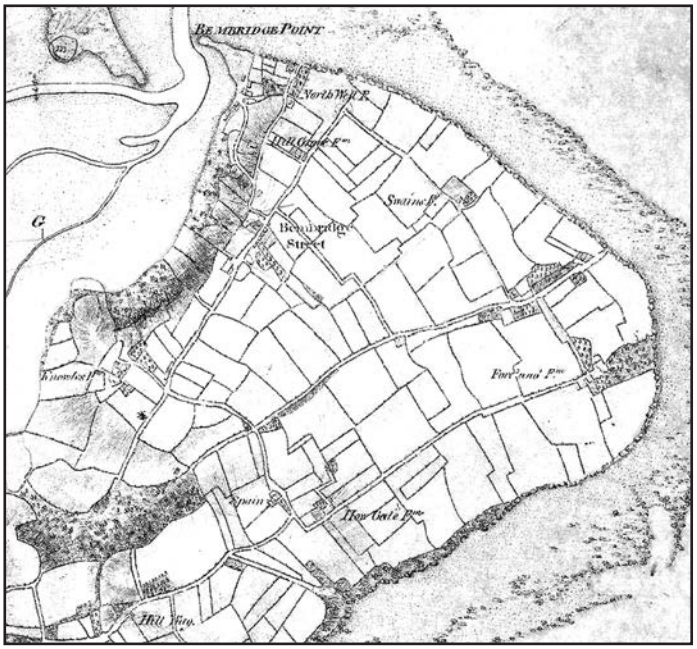

Figure 8. Strip and block enclosures from open-field: Bembridge Isle.
Extract from 1793-4 Ordnance Survey Drawing © The British Library Board (OSD 69)

Figure 9. Enclosure from waste: The Undercliff (Niton open fields to north).
Extract from 1793-4 Ordnance Survey Drawing © The British Library Board (OSD 67)

Figure 10. Enclosure from waste around Shanklin.
Extract from 1793-4 Ordnance Survey Drawing © The British Library Board (OSD 68)

Figure 11. Enclosure from waste:
Former areas of Fairlee Common, Alverstone Common and Staplers Heath.
Extract from 1793-4 Ordnance Survey Drawing © The British Library Board (OSD 73)

Figure 12. Downland enclosure.
Extract from 1793-4 Ordnance Survey Drawing © The British Library Board (OSD 70)

Figure 13. Assarts near Parkhurst Forest.
Extract from 1793-4 Ordnance Survey Drawing © The British Library Board (OSD 70)

Figure 14. Assarts in North-East Wight.
Extract from1793-4 Ordnance Survey Drawing © The British Library Board (OSD 69)

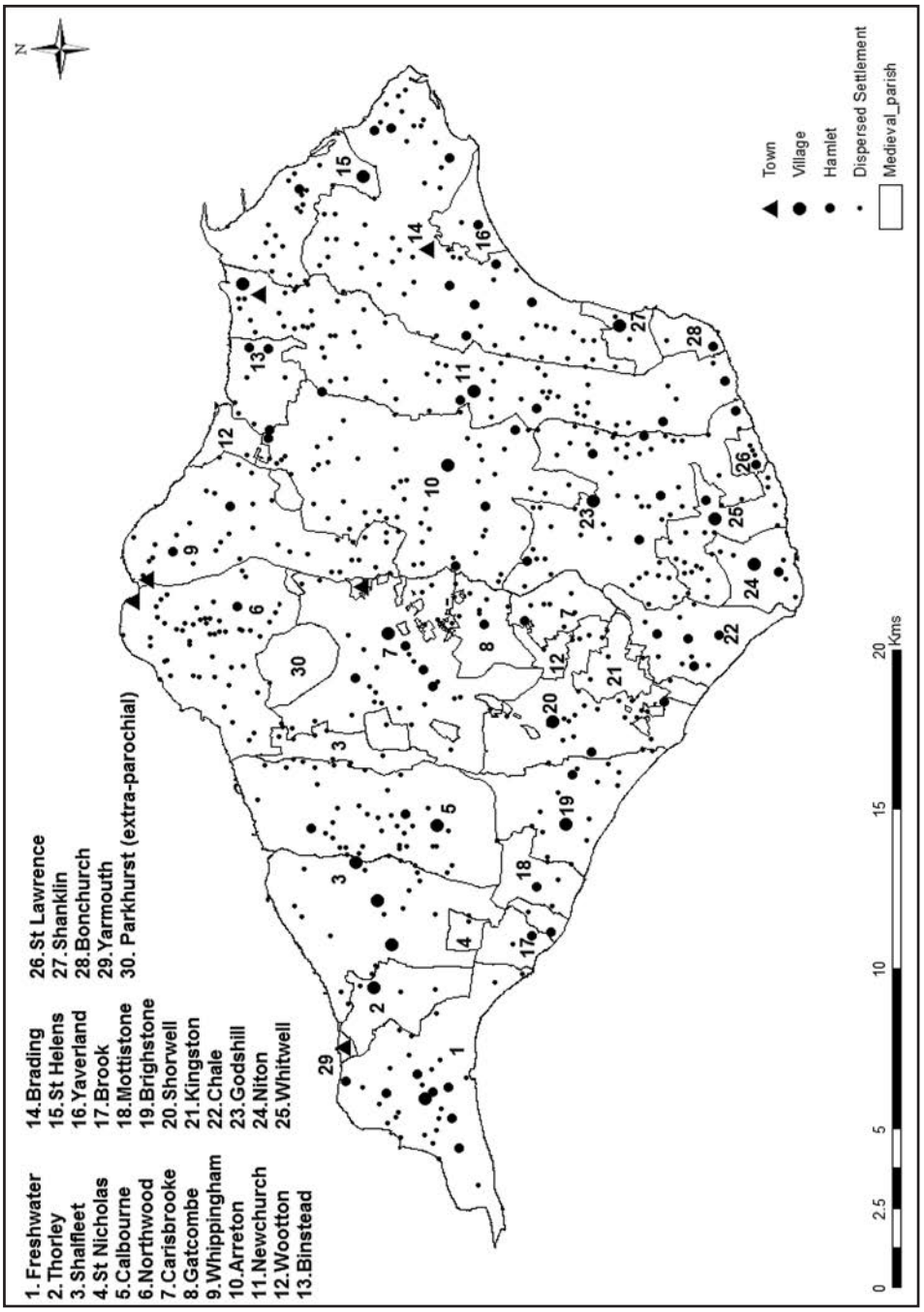

Figure 15. Isle of Wight Parishes and Settlements in the 1790s

THE ISLE OF WIGHT DARWIN COLLECTION; LOST BUT NOT UNRECORDED – SOME REFLECTIONS ON THE PERMANENCY OF BEQUESTS

Dr. P. Bingham and Professor A. Larkum

Introduction

An earlier issue of the Proceedings carried an article on Rev William Darwin Fox (a second cousin of Charles Darwin), and on WDF's sons (Bingham & Crombie, 2009). Since then new evidence has come to light on the fate of a bequest made to the Island by Erasmus and Gilbert Fox. This article has been written to underline the connection of the Fox family with the Isle of Wight (and through them Charles Darwin), and in memory of Hubert Frederick Poole, and also of John Stafford who died in 2010.

The Fox family bequest

William Darwin Fox spent two 'chapters' of his life on the Isle of Wight, separated by 35 years in Cheshire, where he was Rector of Delamere. During the first chapter, when he was first a bachelor and then newly married, the Foxes were visited at Binstead by Charles Darwin who had recently returned to England on the Beagle. The Foxes' final chapter on the Island started with Rev Fox's phased retirement from Delamere to Sandown (see appendix A), and lasted until the death of the youngest son Gilbert Fox (1864-1941).

The Fox bequest, made to the local council (Sandown-Shanklin Urban District Council), already had a geology museum, consisted of a number of artefacts relating to WDF's family (including four Darwin family fob seals and a letter from Charles Darwin to William Darwin Fox dated 24th August 1866). Fortunately, these were described in some detail in the Proceedings of the Isle of Wight Natural History and Archaeological Society (IWNHAS) (Poole, 1935), and would now be worth a great deal at auction. To this bequest was subsequently added the natural history collection of Reginald Fox. Reginald was for many years the IWNHAS bird expert, and from 1926 to 1928 its President.

Hubert Poole: Businessman, naturalist and honorary museum curator

Hubert Poole (1879 to 1945) trained as a tailor, eventually establishing a business at Lake. Prior to the First World War, Poole contributed the chapter on Lepidoptera to Morey's seminal 'A Guide to the Natural History of the Isle of Wight'. In his introduction, Morey noted 'Mr Poole has done valuable work for the 'Guide' in the photographic way, for it will be noticed that the majority of the illustrations bear his name. No one has taken a more active interest in the progress of the undertaking than he has.' During the First World War, Poole rose through the ranks to become a lieutenant in the Royal Worcestershire Regiment and in 1919, when the IWNHS formed, he was a founder member. Over the years Poole contributed more than a dozen articles to the Proceedings, led meetings and lectured to the Society. Poole had very wide interests including archaeology, geology and history, becoming the Local Secretary of the Society of Antiquaries of London, and from 1937 to 1938 the honorary curator of Carisbrooke Castle Museum.

Establishment of the Isle of Wight Natural History Museum, Shanklin

In 1934, Poole was appointed (at his request) by Sandown-Shanklin UDC, in an honorary capacity, to establish a natural history museum to house the Fox bequest and other natural history material.

The museum opened on Wednesday 17th April 1935 and the following Saturday's County Press related:

The recently formed I. W. Natural History Museum at Rylstone Chalet, Shanklin, was opened by Sir Edward Poulton, D.Sc., F.R.S., on Wednesday, when the brilliant sunshine made it possible for the address to be made from the ground floor balcony to the guests on the lawn.

Mr A. J. Harman, CC (chairman of the District Council), presided, supported by representatives of the Local Authority and the Free Library and Museum Committees. The Chairman read a congratulatory letter from the Natural History Museum, London.

Sir Edward Poulton, in opening the museum, said the Island was fortunate in having a Natural History Museum, and Shanklin in possessing it. They were to be congratulated on having councillors with wisdom and foresight in promoting the enterprise. The housing of the collection had been undertaken by Mr Poole (Hon Curator), and its basis was formed with the late Mr R. H. Fox's collection of Island butterflies, moths, birds and birds' eggs. Mr Fox was a dear friend of many present and also of himself. He remembered with pleasure Mr Fox's company on natural history expeditions in the Island. His passing was a loss to be regretted. The museum collection had been valuably augmented by Mr Poole's collection of shells and specimens from the collection of the late Mr Morey, whose fine gift of Borthwood Copse to the National Trust was such a treasured possession of Sandown, Shanklin and Newchurch. Many other Island specimens had been given and others promised. Of special interest to himself were the Darwinian exhibits. The late Mr Fox's father, the late Rev W. D. Fox, was at Cambridge with his cousin, Charles Darwin. Some of the letters exhibited showed that Darwin, in his early efforts, received much stimulus from his cousin. Another thing of great interest was that the Rylstone Chalet Museum was one of three museums in the Island. At Sandown they had the IW Geological Museum and at Carisbrooke the Museum of the Archaeological History of Mankind. Each centre was taking its own line, yet co-operating in perfect sympathy and harmony with successful results. Sir Edward pointed out its educational value to those who came after us by developing powers of observation and manipulation in youth. Although private collections usually had a good beginning, they often had a bad ending in that educational observations were apt to be cramped and crippled by collectors striving to amass a huge collection. Private collections should not be too large. Sir Edward declared the museum open, and unveiled a wall plaque recording the date of the ceremony.

Rylstone Chalet

The Shanklin Museum was not the Island's first museum of natural history, (one had been formed in the Isle of Wight Institution in about 1819), but it was the first museum dedicated to the subject. There are no details of the Shanklin Museum at its zenith, but in the lead up to the opening, Poole sketched out his intentions:

'Rather than use odd second-hand cases inconvenient in form and incongruous in design, he would prefer to wait until suitable cases could be procured; all new cases would be built to match the general scheme of furnishing in light oak, and as several more cases were still urgently required he need hardly say that further donations would be welcomed. It had been decided strictly to limit the scope of the Museum to the exhibition and storage of specimens connected with the botany and zoology of the Island, and he intended as far as possible to make the collection fully illustrative of the late Frank Morey's admirable 'Guide to the Natural History of the Isle of Wight'.

'Owing to the very large amount of work entailed it would not at first be possible to do much more than exhibit specimens in an attractive manner, but it was hoped that later the Museum might include

exhibits of life-histories, habitat groups, local distribution, protective and warning colouration, etc., and it was probable that even from the first the Museum would prove attractive to many of the thousands of visitors who passed through Rylstone Gardens during the summer as well as to school nature study classes, etc., throughout the Isle of Wight. Admission would be free' (Poole, 1934).

Demise of the Shanklin Natural History Museum and the Fox bequest

In February 1939, Poole resigned as curator on account of ill health. He donated his collection of flint implements to Carisbrooke Castle Museum, geology specimens to Sandown Museum and photographic slides to IWNHAS. For the remainder of his life Poole was house, and at times bed, bound.

In 1943, the IWNHAS Proceedings noted that the Shanklin Museum had suffered bomb damage, and it was subsequently closed for the duration of the war.

In a report prepared by John Stafford in 1973 for the County Council 'Museum Service Working Group', Mr Stafford noted:

'In early 1943, a bomb fell near the Chalet damaging some of the exhibits. 'The damage to the building was not repaired, thus allowing the weather to cause further damage. Later in the war the Chalet was occupied by troops, who committed a certain amount of vandalism among the exhibits'.

After the war, the café in Rylstone Chalet reopened, but the museum did not. In September 1946, the café proprietor made an application to the Council for use of some of the museum accommodation for storage. The Council considered relocating the museum to Tower Cottages, but it became apparent that this would require extensive structural alterations. By August 1947, the contents of the museum had been moved into storage (Sandown-Shanklin UDC, 1947).

In 2009, John Stafford related his understanding that during the war, Hubert Poole had taken some of the Darwiniana items into his care. Poole died on 28th July 1945 and left his estate to his wife (who died in 1955), and son. Frederick George Poole died on 31st May 1957, and as well as legacies to friends and family, he left valuable silhouettes by Buncombe and books to Carisbooke Castle Museum. The Darwin items (that were in any case the property of the council), were not mentioned in FGP's will. John Stafford understood that in 1958, some Darwin items were auctioned by Way Ridett (auctioneers), but when he made enquiries in 1973, no catalogue was available (personal communication).

Recently 'Notes for Curator' signed 'Hubert Poole Hon Curator 1938-9' have come to light. These include the paragraph: *'The four seals in the exhibit of Darwin associations are at present retained by Mr H. F. Poole he having been requested to do so by the Rev G. B. D. Fox until such time as he may definitely make up his mind as to finding them a really safe home. They may be recalled from Mr Poole for exhibit at any time they are required but must be returned to him again when such exhibition is over, the unguarded room at Rylstone not being sufficiently secure'*. The present location of the 'Darwiniana' artefacts donated to Sandown-Shanklin UDC, including the four seals, is unknown, apart from the Charles Darwin letter of 24th August 1866. As pointed out by John Stafford, the letter is currently in the possession of the Smithsonian Museum in Washington (Darwin Correspondence Project. Letter 5197).

Discussion

Since the first part of the last century the fashion for, and attitudes to, natural history 'collecting' – particularly of birds' eggs and the shooting of birds and mammals for taxidermy, has changed. Percy Wadham, who contributed the chapter on mammals to Morey's Guide, was a skilled taxidermist and some of the photos in the guide appear to be of his stuffed specimens placed in outdoor settings. A key impetus to the formation of the Shanklin Museum was the preservation of substantial natural history collections, (for example, Reginald Fox's bird eggs, Frank Morey's mollusc and Lt Col West's

coleoptera), that needed a home. Poole recognised that there was a lack of stuffed birds but stated *'he did not anticipate any difficulty in securing a representative collection of birds, as there were so many specimens preserved in private houses which the owners would probably gladly dispose of, as cases of stuffed birds did not fit in with modern ideas of furnishing'* (Poole, 1934).

There perhaps remains a need for very limited collecting to identify some species (for example, obscure grasses, small moths etc.), but it is suggested that digital photography has reduced this to a minimum – although digital images in turn need to be scaled, labelled and curated. The situation is somewhat different for geological specimens that are exposed by coastal erosion and would degrade if not collected, and for archaeology that is similarly exposed by erosion or indeed recovered by rescue digs.

Many natural history specimens need intensive curation (for example, insects are a favourite food for the museum beetle *Anthrenus museorum,* and similar), but are of great future potential benefit to scientists investigating historical biodiversity, recovering DNA, and as a resource for scientific techniques yet to be devised.

Poole carefully documented the ownership of key Darwiniana items. Together with Poole's 'Notes for Curator', a letter has come to light concerning the four Darwin seals that is signed by the museum committee (effectively trustees), and it is unfortunate that after his death and in the early post war years, the committee was unable to effectively oversee the collection. The closure of museums is unthinkable. When it occurs, if items are sold to the highest bidder or misappropriated in the chaos, in terms of the greater good the results can be disastrous.

Poole had concluded his opening presentation: *'As the Museum was the property of the Council its permanency was well assured, and it would serve the needs of the whole Island. All Vectensians should recognise it as the appropriate public repository for local natural history specimens'* (Poole, 1934). On these points Poole was proved wrong.

Appendix A: Retirement of William Darwin Fox to the Isle of Wight

In respect to WDF's retirement spent on the Island, Professor Larkum (2009) relates:

For Fox, these years were one of retirement and family enjoyment. When Fox retired to the Isle of Wight in 1873 his youngest child Gilbert Basil was only 8 years old and he had 5 children still at school. This must have been a considerable concern to him. However the lack of diaries for most of the 1870s, until 1878, provide few clues as to how these concerns were dealt with. One other aspect which drew him closer to Darwin was his new garden: *'It was a wrench to leave my old parsonage where I had spent 35 years, but I felt it right every way. Here I have been busy in doing what you did at Down – not building a house – but in making Gardens &c out of the most unpromising materials I ever had to do with. After buying every potato &c – I have now achieved a good Kitchen Garden and lots of all Vegetables &c a good deal of fruit, & in another year shall look tolerably civilised'*. Fox wrote in 1874, now in his 70th year (Darwin Correspondence Project, letter 9446).

Fox's letters from now on were full of reminiscences and anecdotes. Darwin managed to revive a little interest at this time over insectivorous plants and Fox was happy to give back any special knowledge that he might have, such as advice about 'Old Price'. However, this was as far as he could or would go. When Darwin tried once more: *'I am in great want of a living plant of Utricularia. Have you ever seen it in clear ditches in the I. of Wight? If so, could you send me a plant (with a root if it has one) packed in damp moss in a tin box'*. Fox's reply was that the plant that Darwin wanted occurred at the other end of the Isle of Wight and he had no intention of going so far. In the end Darwin's son William, who lived in Southampton, collected them (see Bingham & Pope, 2009). Indeed Darwin had enough help at this stage from a myriad of correspondents, many of them clergymen, that he did not need Fox's help anymore. Perhaps significantly, this was the last time that Darwin tried to include Fox as a helper in his studies, and their correspondence ebbed.

Both men were now seeing many friends pass away. Of special significance here was Albert Way. It was Way who had been the catalyst for their much remembered expedition to Whittlesea Meer, during

their undergraduate beetling days when they had so much fun with the bombardier beetle, *Brachinus crepitans,* and the rare carabid beetle, *Panagaeus crux-major.* When Fox pointed out that Way had recently died, Darwin's equivocal reply, which could almost do justice to King Lear, was, *'And as you say one looks backwards much more than forwards & can never expect to have nearly such keen enjoyment as in old days, as when we breakfasted together at Cambridge & shot in Derbyshire. Do I remember Brachinus? Am I alive? Poor Albert Way I did not know that he was dead'.*

The last years of the friendship of Charles Darwin and his second cousin William Darwin Fox revealed little that we did not know before. The friends had now grown so far apart that there was little to hold them together except reminiscences. The lives of the two men were very different. On the one side, Darwin had reached the height of his fame and, up to 1878, was still absorbed in biological studies. On the other side, Fox was already reaching the end of his active life in 1868: he did not retire until July 1873, but already in 1869 he was spending the winters at Sandown on the Isle of Wight, where he had bought a house. Nevertheless the friendship had a little life left in it through the shared interest in observations of the countryside, where Fox was clearly still a most keen observer.

For Fox, his major occupation now was his family. He did not try to take up his old studies of fossils and birds on the Isle of Wight. Instead like Voltaire's Candide, facing the void, he adopted the principle *'il faut cultiver notre jardin'.* The result was a spluttering of the flame of friendship, rekindled briefly by reminiscences and Darwin's and his sons' interest in their ancestry, particularly in Darwin's grandfather, Erasmus Darwin.

Towards the end of his life, Gilbert Fox received a letter from Hubert Poole asking for recollections of his father Rev Fox. Gilbert, who had also been a clergyman, replied in a letter dated 6 January 1936:

'Let me send you many thanks for your kind note, and enquiries. I hope that the New Year will be a prosperous one with you, and that you will be comfortable in your new abode, with its picturesque name, and arboreal surroundings. (Poole had moved into a bungalow in Shanklin called Appletrees).

'As regards your enquiries I am woefully ignorant. You see I was the youngest of a family of 17, and was still a small boy at school when my father died, on 8th April 1880. He had been in failing health for a long time, and the last two years of his life he was beyond taking much interest in me, I remember. He was the Rector of Delamere in Cheshire for 35 years. The parish was a widely scattered one, comprising large (almost uninhabited) portions of Delamere Forest – then if not now, a Government property. The living was a very poor one, and I was always told that my father took it up principally on account of the large uncultivated parts of it, which were of interest to him from the flora and fauna point of view.

'We bought Broadlands (a house in Shanklin) in 1870, I think on account of my father's health – also he retained pleasant memories of the Island from his sojourn in former times at Binstead. At that time he became an intimate friend of the Rev Waldo Sibthorpe of Ryde, whose life was written some time ago. He was a man who had a large following – and, I think, St James's church was either built for him or by him. He was singular as passing from Anglicanism to Romanism twice if not thrice in his clerical career. My father sometimes assisted him in taking services etc. and was a correspondent with him. I handed over a packet of Sibthorp's letters to Canon Ollard of Banton Yorks, who has written an account of him. I can remember (only vaguely) that the Delamere various animals and birds were kept in order that Ch. Darwin should be able to note any changes taking place under domestication – at Sandown we kept owls, Jays and harvest-mice, mole crickets and other small deer, but the chief thing I recollect is that we brought with us from Delamere a number of wild ducks, which bred plentifully, and at the time of my father's death there must have been about 50 or 60`.

The letter went on about Samuel Fox (Gilbert's grandfather) and other Darwin relations and concluded:

'I fear I have nothing of value to contribute – one has to recollect that in these days the number of English people interested in Ch Darwin is very limited – time flies so quickly, and other things so soon displace subjects which were at one time matters of general discussion' (Fox, 1936).

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Author: Dr Paul Bingham, 6 Forest Close, Newport, Isle of Wight, PO30 5SF
Professor A. Larkum, 17 Alexandra Road, Glebe, NSW 2037, Australia

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BORED OYSTERS AND OTHER ORGANISM-SUBSTRATE INTERACTIONS ON TWO BEACHES ON THE ISLE OF WIGHT

Dr. Stephen K. Donovan

Abstract

Bored valves of molluscs, mainly the oyster Ostrea edulis Linné, were collected from three sites in east and north Wight. The most productive sites also produced bored cobbles of mudrock (Sandown to Yaverland) and bored limestone pebbles (Queen Victoria's private beach at Osborne House). These clasts preserve a limited variety of modern invertebrate borings. These include the spoor of polychaete annelids (Caulostrepsis taeniola, Caulostrepsis isp.), 'worms' sensu lato (Trypanites isp.), sponges (Entobia isp.), bivalve molluscs (Gastrochaenolites turbinatus, Gastrochaenolites isp.), and an indeterminate producer(s) (Oichnus simplex). One shell preserves a vertebrate trace, namely a seagull beak mark. The function of O. simplex borings penetrating the valves is uncertain, but in most examples it is probably not predatory. The common occurrence of borings on the internal surface of valves indicates post-mortem infestation; borings on the external surfaces may be pre- or post-mortem. The diversity of borings at each site is not identical.

Oysters are rarely pretty shells, but they are a delight for gourmets, shell collectors and palaeontologists for different reasons. The valves of an oyster shell are large when compared with those of most common bivalve molluscs around the coast of the British Isles. In life, the external surface of an epifaunal oyster may provide a hard substrate of various marine plants and sessile invertebrates (including borers), such as juvenile oysters (Littlewood & Donovan, 1988, pl. 91, figs 4, 10). Oysters themselves attach to a variety of substrates, commonly firm or hard and sometimes exotic (Donovan, 2013a). Following death and disarticulation of the valves, both the inner and outer surfaces may be encrusted (Donovan & Novak, in press), and also bored more intensely. A disarticulated oyster valve, replete with encrusting and boring organisms, may thus tell a number of ecological tales to an interested observer.

In the summer of 2013 the author spent part of three weeks collecting bored and encrusted substrates, mainly oyster valves attributed to *Ostrea edulis* Linné (see, for example, Barrett & Yonge, 1958, p. 155, pl. 17, fig. i; Beedham, 1972, p. 160, figure top of p. 161; Tebble, 1976, p. 53, fig. 4A, pl. 4, figs d, e), but also including other bored shells (*Crepidula*) and limestone pebbles. These came, mainly, from two contrasting beaches on the east and north coasts of the Isle of Wight (Localities 1A, 2, below). These valves bear some encrusting shells, but, more commonly, preserve a diversity of borings produced by various invertebrates. Borings in shells and pebbles weaken the substrate, and lead to patterns of breakage during corrosion and abrasion that produce modifications in recognisable patterns.

Herein, I describe the common borings seen on these beaches, classify them according to standard terminology, attribute them to the boring organism(s) (where possible), discuss the preservation of these modern shells, pebbles and cobbles, and consider how they might be interpreted in the fossil record; I also document an unusual trail in sand. The principles of classification of modern traces and trace fossils were eloquently explained by Pickerill (1994). Descriptive terminology of borings and trails follows Häntzschel (1975). The philosophy of open nomenclature follows Bengtson (1988). All specimens are deposited in the Naturalis Biodiversity Center (RGM prefix), Leiden, the Netherlands; most are oysters, and those of other affinities (*Crepidula* sp., limestone pebbles) will be indicated in the text and plate captions.

Localities

Note that the comments below are based on my experience of these sites through a limited period only. Beaches are dynamic systems, and the dead shells upon them are subject to the vagaries of season, weather and hydrodynamics.

Locality 1a: Sandown to Yaverland: The beach between Sandown and Yaverland to the east-north-east, east Isle of Wight [NGR SZ 603 844 to 614 850] (Figs 1, 2A), is mainly sandy, but there are local accumulations of shells and lithic clasts, including flat slabs of bored mudrock (Fig. 3). The ichnofauna (RGM 791 570-791 579) included common *Caulostrepsis taeniola* Clarke, *Entobia* isp. and *Trypanites* isp., with *Caulostrepsis* isp., *Gastrochaenolites turbinatus* Kelly & Bromley, *Gastrochaenolites* isp. and *Oichnus simplex* Bromley. These borings are found in slabs of mudrock (*Gastrochaenolites* isp. only) and disarticulated oyster valves.

Locality 1b: Sandown to Shanklin: The beach between Sandown and Shanklin to the south-south-west, east Isle of Wight [NGR SZ 598 839 to 589 819] (Fig. 1), is sandy and has few, sparsely distributed shells. Only one oyster valve was considered worthy of collection (RGM 791 580), bearing *C. taeniola*, *Entobia* isp. and, less certainly, *O. simplex*.

Locality 2: Osborne House: Queen Victoria's private bathing beach at Osborne House, East Cowes [NGR 525 953] (Figs 1, 2B), is rich in disarticulated oyster valves, other shells and limestone pebbles (RGM 791 581-791 616, 791 617 [=two pebbles]), the latter presumably derived from the Paleogene of the island (Institute of Geological Sciences, 1976; Insole *et al*., 1998, pp. 18-22). See Lloyd & Pevsner (2006, figure on p. 211) for an estate map; the beach is in the area of locality 7 ('Landing House') therein. The ichnofauna includes common *Caulostrepsis taeniola* Clarke, *Caulostrepsis* isp., *Entobia* isp. and *Oichnus simplex*, with rare *Trypanites*? isp. and a seagull beak mark.

Materials and methods

Specimens discussed herein were selected in the field in conditions of good light, both with and without the aid of a hand lens. With the exception of Locality 1B (once only), each site was collected by the author on at least three occasions. Specimens were then prepared by lightly washing in tap-water to remove excess sand and then gently dried on newspaper in a sunny window. Specimens were examined by eye, hand lens and binocular microscope. All photographs were taken with a Canon G11 digital camera.

Systematic ichnology

The Latinized names of trace fossils are not Linnaean *sensu stricto*; rather, they belong to a parallel classification of sedimentary structures generated by biotic activity. Ichnogenera are listed in alphabetical order; no hierarchical arrangement in a systematic palaeontological sense is implied. In addition to the borings, the surfaces of certain of these clasts are encrusted by a range of Recent episkeletozoans (*sensu* Taylor and Wilson, 2002; Pl. 1, fig. A; Pl. 4, fig. A; Pl. 5, figs C, D). The abbreviation 'isp.' for ichnospecies is used as recommended by Bromley (1996, p. 162).

Ichnogenus Caulostrepsis Clarke, 1908

Type ichnospecies: Caulostrepsis taeniola Clarke, 1908, p. 169, by monotypy (Häntzschel, 1975, p. W124).
Diagnosis: See Häntzschel (1975, pp. W124, W126).
Remarks: Caulostrepsis are U-shaped borings with the two limbs separated by a central vane that are produced by boring polychaete annelids (Bromley, 2004, p. 460).

***Caulostrepsis taeniola* Clarke, 1908**

Pl. 1, fig. B; Pl. 2, figs B, C, G; Pl. 3, figs D, H; Pl. 4, figs D-G; Pl. 5, fig. C

Material: RGM 791 570, 791 573, 791 578, 791 579, all Locality 1A; RGM 791 580, Locality 1B; and RGM 791 582, 791 589, 791 590, 791 596, 791 598, 791 601, 791 602, 791 604, 791 607-791 610, 791 612, 791 613, all Locality 2.

Remarks: Caulostrepsis taeniola in oyster shells are robust. They occur on both the external and internal surfaces of valves; the former are pre- or post-mortem, whereas the latter must be postmortem. These deductions are true for all borings in the oyster valves illustrated herein.

Some poorly preserved specimens from both Localities 1A (RGM 791 572, 791 577) and 2 (791 581 (pebble), 791 588, 791 591-791 595, 791 599, 791 603, 791 605, 791 606, 791 611, 791 616 (pebble), 791 617 (two pebbles)) have been left in open nomenclature as *Caulostrepsis* isp. (Pl. 2, fig. E; Pl. 3, fig. A, G; Pl. 5, fig. E). These either lack a central vane within the U- shaped boring or are only apparent as apertures with the characteristic figure-of-eight shape.

Limestone pebbles at Locality 2 may preserve dense infestations of *Caulostrepsis* isp., but commonly limited to one surface (Pl. 3A, B; Pl. 5, figs E, F). This indicates that the pebble was resting on the sea floor in one position without being rolled around, so only the exposed upper surface could be bored. Pebbles, cobbles and fossils in higher energy settings will be rolled about, and may be bored on all surfaces (see, for example, Donovan & Lewis, 2011).

Ichnogenus Entobia Bronn, 1838

Type ichnospecies: Entobia cretacea Portlock, 1843, p. 360, by the subsequent designation of Häntzschel (1962, p. W230) (Häntzschel, 1975, p. W127; see also Bromley, 1970).

Diagnosis: See Bromley and d'Alessandro (1984, p. 238).

Remarks: Entobia are complex networks of chambers and connecting canals, developed close to the surface of hard substrates and with regularly spaced small, rounded apertures. They are only produced by boring sponges, mainly of the family Clionidae (Bromley, 2004, p. 459).

***Entobia* isp.**

Pl. 1, figs C, E; Pl. 2, figs B-D, G; Pl. 3, figs C, I; Pl. 4, figs A, B; Pl. 5, fig. C

Material: RGM 791 574-791 576, 791 578, 791 579, all Locality 1A; RGM 791 580, Locality 1B; and RGM 791-584-791 586, 791 593-791 595, 791 597, 791 600, 791 606, 791 607, 791 611, 791 612, 791 614, 791 615 (*Crepidula* sp.), all Locality 2.

Remarks: Recognition of the sponge boring *Entobia* depends, in part, on the state of preservation of the shelly substrate. In a near-pristine valve, *Entobia* is apparent as multiple, small, circular apertures, commonly arranged in straight or curved lines (Pl. 2, fig. C; Pl. 3, figs C, I), although these linear arrangements are not apparent in more dense infestations (Pl. 1, fig. E; Pl. 5, fig. C). These apertures connect internal chambers to the external environment; chambers are connected laterally by slender, internal canals (Bromley & D'Alessandro, 1984). Where valves are less well preserved, the exfoliation of the surface reveals either enlarged apertures or chambers (Pl. 1, fig. C; possibly Pl. 4, fig. B). The shell of *Crepidula* sp. (RGM 791 615; Pl. 5, fig. C) shows both a dense infestation of apertures and, in the broken edges of the shell, the chambers.

Ichnogenus Gastrochaenolites Leymerie, 1842

Type ichnospecies: Gastrochaenolites lapidicus Kelly & Bromley, 1984, p. 797, by subsequent designation.

Diagnosis: See Kelly & Bromley (1984, p. 797) and below.

Remarks: Gastrochaenolites are clavate borings of rocky and shelly substrates, produced mainly by bivalves, but also some other invertebrate groups (Bromley, 2004, p. 462).

***Gastrochaenolites turbinatus* Kelly & Bromley, 1984**
Pl. 1, fig. F
Material: RGM 791 573, 791 576, both Locality 1A.
Remarks: The diagnosis of *G. turbinatus* states "Smooth *Gastrochaenolites*, acutely conical, having evenly tapered body and neck, the widest point close to the short rounded base; rounded cross-section throughout length" (Kelly & Bromley, 1984, p. 803). This fits the figured specimens particularly well (Pl. 1, fig. F), which have been exposed by breakage of overlying shell layers.

***Gastrochaenolites* isp.**
Figure 3
Remarks: A moderately common component of the flotsam on the beach at Locality 1A is broad, flat fragments of grey mudrock. The rocks are fissile, reflecting the original bedding. These are presumably derived from offshore and are Cretaceous in origin (Institute of Geological Sciences, 1976); no specimens were found containing fossils and, thus, no more accurate determination was attempted. Large, round holes penetrate many of these clasts (Fig. 3) and are interpreted as parts of original, recent *Gastrochaenolites* isp. borings. Similar occurrences are not uncommon in beach environments, and include modern *Gastrochaenolites* borings in Upper Cretaceous chalks of north Norfolk (Donovan, 2011, fig. 2C) and Quaternary peats of the Noord Holland coast, the Netherlands (Donovan, 2013b, research in progress). Archival specimens were not collected due to the friable nature of the mudrock. Also see remarks on *O. simplex*, below.

Ichnogenus Oichnus Bromley, 1981
Type ichnospecies: Oichnus simplex Bromley, 1981, p. 60, by original designation.
Diagnosis: See Donovan & Pickerill (2002, p. 87).
Remarks: Oichnus pits and borings are small round holes in shells. Morphologically similar holes are made by a diversity of invertebrates (Bromley, 2004, pp. 466-467), but *Oichnus* is commonly either the trace of boring predation (penetrative) or a domicile ('incomplete').

***Oichnus simplex* Bromley, 1981**
Pl. 2, figs B, D, F, G; Pl. 3, fig. F; Pl. 4, figs B, C, F
Material: RGM 791 576 from Locality 1A and RGM 791 583, 791 587, 791 603, 791 608 from Locality 2. RGM 791 573, 791 579 (both Locality 1A), RGM 791 580 (Locality 1B) and RGM 791 600 (Locality 2) are all referred to *O. simplex* with some doubt.
Remarks: The palaeoecology of these small round holes is equivocal. *Oichnus* isp. are typically formed by drilling and/or dissolution by predatory or parasitic organisms, particularly certain gastropods (Bromley, 1981, 2004), or unmineralized pit-forming organisms constructing a domicile in a hard substrate (for example, Donovan & Lewis, 2010, pp. 12-13, fig. 2). The *O. simplex* in these specimens are mainly penetrative (but see Pl. 3, fig. F), that is, they go straight through the valve, and are thus not domiciles. However, they are commonly situated towards the thinner shell near the edge of the valve (such as Pl. 2, figs B, D, F, G; Pl. 3, fig. F), away from the centre of internal tissues that would be the target for a predator or parasite. Contrast these with RGM 791 608 (Pl. 4, fig. F) where the boring is in the umbo and would have given the borer access to the soft tissues of the oyster. There is also the enigma of RGM 791 600 (Pl. 4, fig. B), where there are multiple *O. simplex* in close association.

It is conceivable that *O. simplex* borings in these oyster valves may have had multiple origins. RGM 791 608 (Pl. 4, fig. F) may be predatory or could be post-mortem. Other borings close to the commissure could be post-mortem, assuming the shell was stabilised on a firm substrate. The borings may thus form part of a *Gastrochaenolites* isp. substrate (see above). The clustered *O. simplex* (RGM 791 600; Pl. 4, fig. B) can be similarly explained or may be remnants of *Entobia* isp., the valve being modified by post-mortem processes that have disguised much of the original morphology.

***Trypanites* Mägdefrau, 1937 emend. Bromley, 1972**

Type ichnospecies: Trypanites weisei Mägdefrau, 1937, by monotypy (Häntzschel, 1975, p. W136).

Diagnosis: See Donovan & Jagt (2004, p. 122.)

Remarks: Trypanites typically has a circular cross-section (Bromley & D'Alessandro, 1987, p. 403), but Donovan & Jagt (2004, pp. 122-123) noted that "too rigid a definition of boring cross-section would eliminate ichnotaxa that vary from the diagnosis due to factors controlled in part by the nature of the substrate, such as thickness (e.g., thin versus thick shell) and substrate inhomogeneity".

***Trypanites* isp.**

Pl. 1, fig. D; Pl. 2, figs A, C; Pl. 4, fig. E

Material: RGM 791 571, 791 573, 791 576, 791 577, 791 579, all Locality 1A. RGM 791 607 is referred to *Trypanites* isp. with some doubt.

Remarks: Trypanites are cylindrical or subcylindrical, unbranched borings with a single entrance, and are straight, curved or irregular. The type ichnospecies, *Trypanites fimbriatus*, and also *T. fosteryeomani* Cole & Palmer, 1999, both occur perpendicular to the host substrate, unlike the Wight specimens which are closer to *Trypanites solitarius* (von Hagenow, 1840) in being parallel to the shell surface. However, Wight specimens are all incomplete and have been left in open nomenclature.

Seagull beak marks

Pl. 3, fig. E

Material: A single specimen from Locality 2, RGM 791 599.

Remarks: This is the only vertebrate trace discussed herein. The beak mark (Pl. 3, fig. E) is unmistakeable. More commonly, these perforations are found in abundance in shells of the cuttlefish, *Sepia* spp., which are buoyant and are picked clean by gulls either when floating or along the strandline (Cadée, 1997, fig. 3, upper image). It may be that this poorly preserved oyster shell was mistaken for a cuttlefish.

Asymmetrical surface trail

Figure 4

Remarks: The sandy beach at Locality 1A preserves many surface trails and trackways that are produced by intertidal or supratidal vagile invertebrates, and some of which can be assigned to well-documented ichnotaxa. The trail illustrated in Figure 4 was particularly distinctive and unique in the author's experience. It is a large trace, continuous over some tens of cm and shaped like a W, with an asymmetrical development of markings. There is a slightly off-centre scalloping, flanked by minor divoting on the right as illustrated. In places there is a shallow groove on the left as illustrated. The trail makes angular 90º turns with some change in morphology. The direction of movement of the trace maker is uncertain. It is probable that the grooved structure continuous with one end of the trail (Fig. 1A, C, bottom) is also related.

The asymmetry of this trail suggests a similar asymmetry in the producer, most probably a gastropod. The large size might be due to a predator such as a naticid, but these are typically infaunal burrowers in sand (Frey *et al*., 1986, figs 2, 3; Morton, 2008), not epifaunal. Although naticids are boring predators, they produce bevelled borings (=*Oichnus paraboloides* Bromley, 1981), which are distinct from *O. simplex*.

Discussion

This was not intended to be a comprehensive survey of the bored oysters of the Isle of Wight's beaches. Rather, by studying the infestations of mainly the largest common shells, namely *Ostrea edulis*, at both of the main study sites (Localities 1A, 2), it was anticipated that common borings

and other penetrative structures (seagull beak marks) will become apparent. Taxa common to both sites include *Caulostrepsis taeniola*, *Caulostrepsis* isp., *Entobia* isp. and *Oichnus simplex*, the spoor of polychaete annelids, sponges and an uncertain producer(s), respectively. The bivalve boring *Gastrochaenolites turbinatus* and the 'worm' boring *Trypanites* isp. are limited to Locality 1A, with one uncertain record of the latter at Locality 2. The only seagull beak mark is at Locality 2. The relatively rarity of *Gastrochaenolites turbinatus* borings in oyster shells from the Isle of Wight is notable. It was only identified in two specimens, both from Locality 1A. In contrast, in reworked shells and valves of the Upper Oligocene oyster *Hyotissa antiguensis* (Brown) in Antigua, modern *G. turbinatus* borings are common (Donovan *et al*., 2014). The probable explanation is found in the relatively thicker valves of *H. antiguensis* being a more suitable substrate for the large borings of *G. turbinatus* than the thinner shells of *O. edulis*. Note that the two specimens of *O. edulis* from Locality 1A bearing *G. turbinatus* are relatively thick, particularly RGM 791 573 (Pl. 1, fig. F). Even so, the borings are oriented more or less parallel to the inner and external surfaces of the valve, and not perpendicular to them, because there is insufficient thickness of shell material to be vertical to either surface.

Mention of the modern borings in reworked Upper Oligocene oysters from Antigua leads us to some interesting parallels. The only reworked fossils found in the shallow water and beach environments of the study site in Antigua were the extremely robust valves and shells of *H. antiguensis*; the environment also includes common limestone cobbles and pebbles. Note that there are only modern borings which penetrate these shells; none of them are fossil (Donovan *et al*., 2014). The three common borings, namely *C. taeniola*, *Entobia* isp. and *G*. isp. cf. *G. taeniola*, occur in the Isle of Wight, although only the first two can be considered common in the present study. *Oichnus simplex* is rare in the Antigua study and represents non-penetrative domiciles in the oyster valves, unlike the Wight examples, at least some of which may represent sections of *Gastrochaenolites* borings reworked from a firmground setting. The only trace noted from Antigua, but not Wight, is a putative barnacle boring, *Rogerella*? isp.

In conclusion, a collection of shells, mainly oysters, and pebbles from two areas, Yaverland to Shanklin and Queen Victoria's private beach at Osborne House, preserve a limited variety of invertebrate borings. They were made by annelids (*Caulostrepsis taeniola*, *Caulostrepsis* isp.), 'worms' *sensu lato* (*Trypanites* isp.), sponges (*Entobia* isp.), bivalve molluscs (*Gastrochaenolites turbinatus*, *Gastrochaenolites* isp.), and an indeterminate producer(s) (*Oichnus simplex*). One shell preserves a seagull beak mark. The common occurrence of borings on the internal surface of valves indicates post-mortem infestation. The diversity of borings at each site is not identical; similar surveys of other shell-rich beaches may add to the ichnotaxa illustrated herein.

Acknowledgements

My partner, Karen Robinson, and my children, Hannah and Pelham, are thanked for, once again, encouraging my ichnological fieldwork which always seems to emerge in the middle of a family holiday.

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Author: Dr. Stephen K. Donovan, Department of Geology, Naturalis Biodiversity Center, Postbus 9517, 2300 RA Leiden, The Netherlands. E-mail Steve.Donovan@naturalis.nl

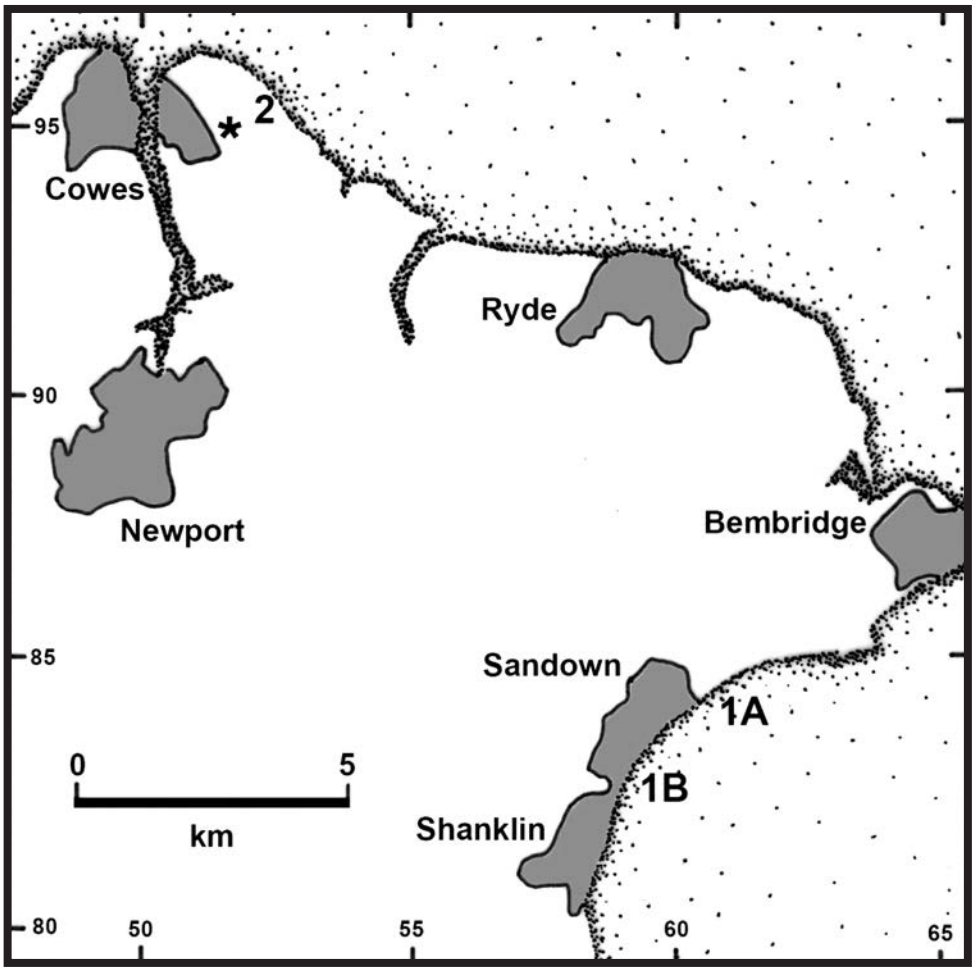


Figure 1. Outline map of the eastern and northern Isle of Wight (redrawn and modified after Lloyd & Pevsner, 2006, map on pp. ii-iii). Coastline and sea stippled; principal towns grey. Key: * = Osborne House; 1A = Sandown to Yaverland beach (Fig. 2A); 1Bn = Sandown to Shanklin beach; 2 = Queen Victoria's private beach at Osborne House (Fig. 2B).

Figure 2. Principal localities discussed herein. (A) Locality 1A (and 1B in the distance), near Yaverland looking towards Sandown and Shanklin. Note that the beach is extensive, has a shallow slope, and is broad and sandy at low tide, with local accumulations of shells, pebbles and cobbles. (B) Queen Victoria's private beach at Osborne House, looking north-west. The beach is small, has a steep slope, is relatively narrow, and is sandy with abundant shells and pebbles.

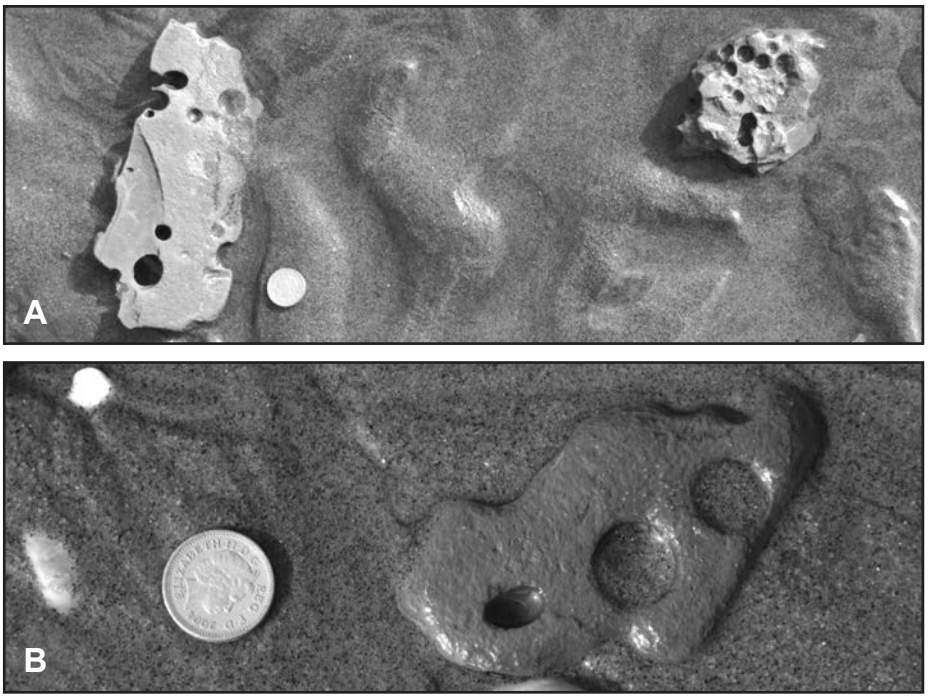


Figure 3. (A, B) Gastrochaenolites isp. in mudrock slabs at Locality 1A. These large borings are very incomplete and typically consist of sections; the bedding characteristics of the mudrock determined this partial preservation. The right specimen in (A) is a moderately thick mudrock cobble that preserves the bases (Kelly & Bromley, 1984, text-fig. 1) of a number of smaller borings; more typically, slabs are broad and flat. Pound coin for scale.

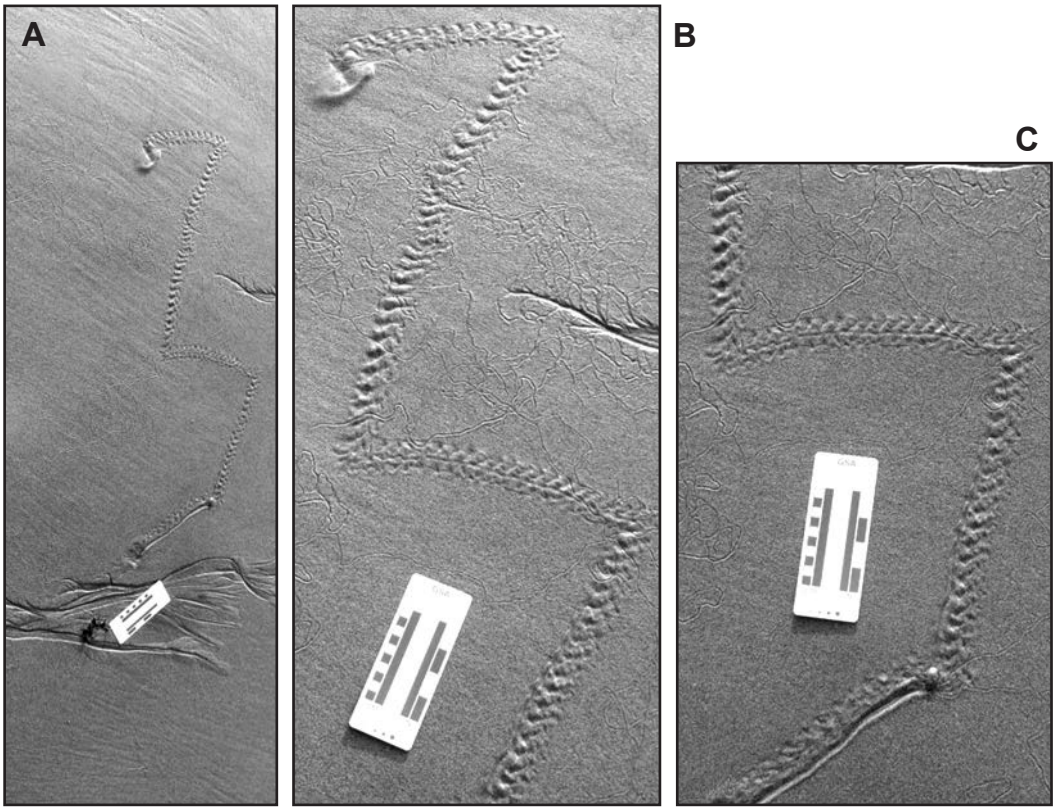


Figure 4. Asymmetrical surface trail, near Yaverland, Locality 1A. (A) Complete trace. (B) Detail of upper part of trail, showing sharp changes in direction and asymmetry within the trail. The direction of movement is uncertain. Note that some fine, meandering surface trails cut across the asymmetrical trail and thus post-date its formation. (B) Lower part of trail; the groove towards 8 o'clock is presumably related to the asymmetrical trail, representing a change of motion of the producer. Scale bar in cm (left) and inches (right).

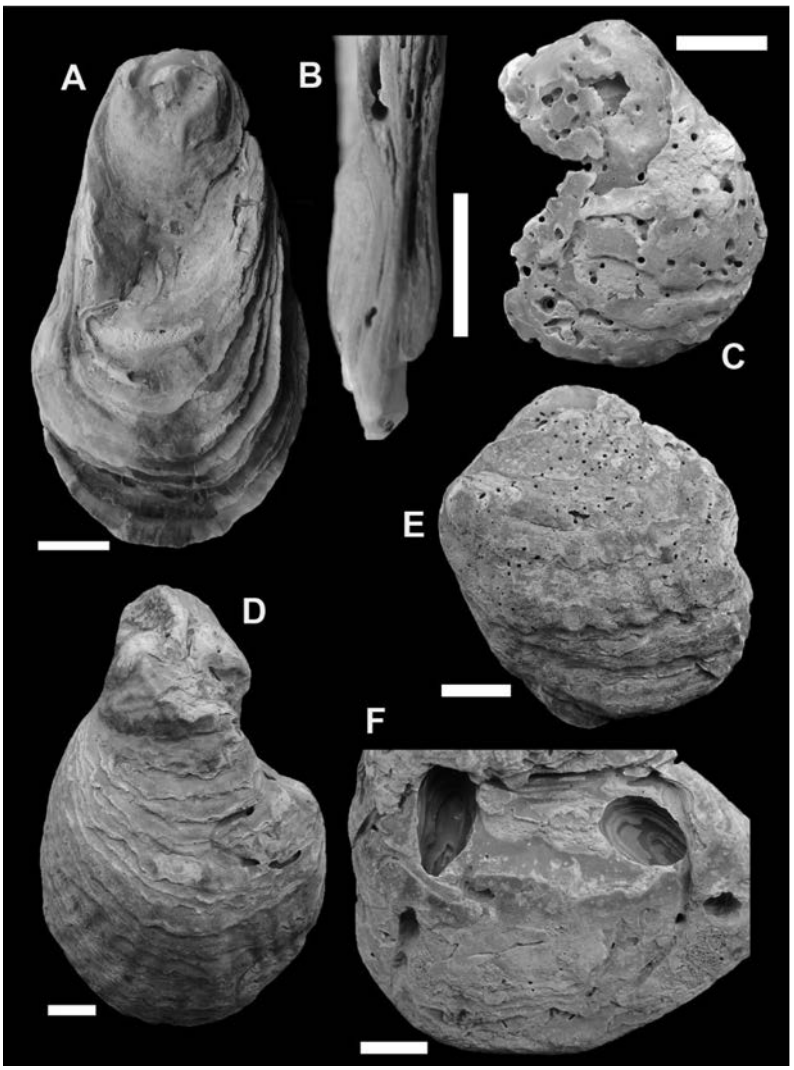


Plate 1.
Borings in the oyster *Ostrea edulis* Linné, all from Locality 1a.
Figures A, B. RGM 791 570. A, external surface encrusted by serpulid and spirorbid worm tubes (none on inner surface), with *Caulostrepsis taeniola* Clarke near the umbo. B, lateral view (umbo towards bottom of page) showing two apertures of different sizes of *Caulostrepsis taeniola* Clarke.
Figure C. RGM 791 575, external surface of valve strongly infested by *Entobia* isp.
Figure D. RGM 791 571, external surface, borings attributed to *Trypanites* isp. in right centre.
Figure E. RGM 791 574, external surface, valve showing numerous apertures of *Entobia* isp.
Figure F. RGM 791 573, *Gastrochaenolites* isp. cf. G. turbinatus Kelly & Bromley in a thick valve, external surface; borings parallel to plane of paper, that on the left towards 1 o'clock and on the right towards 10 o'clock.
All scale bars represent 10 mm.

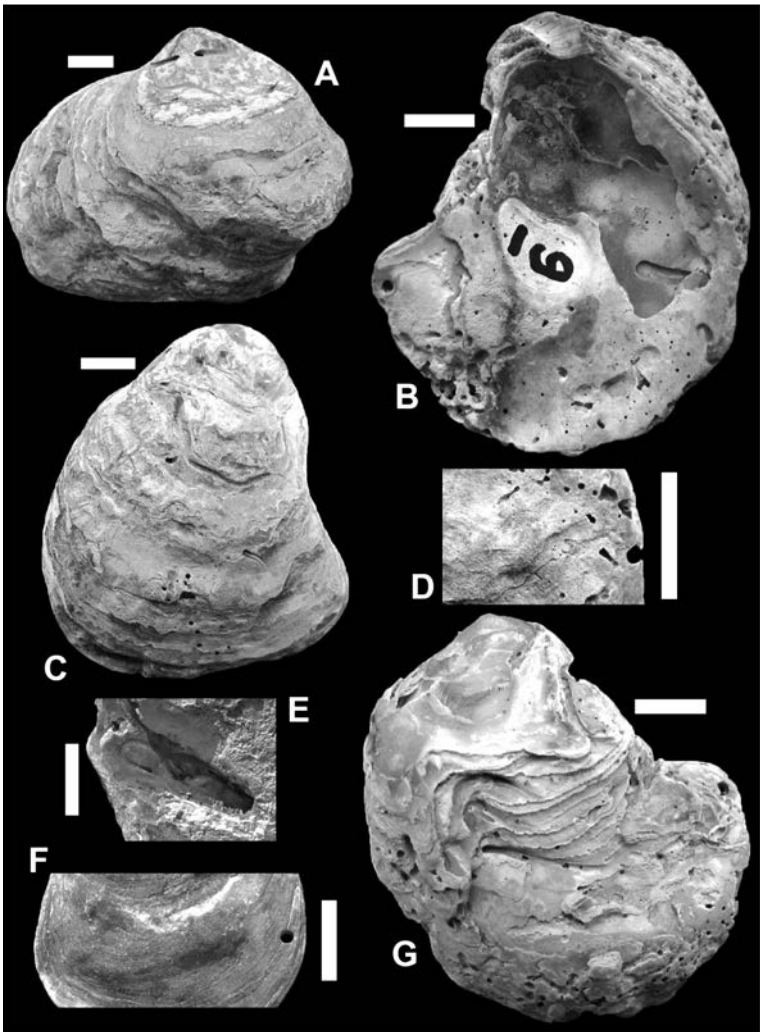


Plate 2.
Borings in the oyster *Ostrea edulis* Linné, from Localities 1A (A-C,G), 1B (D) and 2 (E, F).
Figure A. RGM 791 577, external surface of valve with two borings of *Trypanites* isp. near umbo.
Figure B, G. RGM 791 578, internal (B) and external (G) surfaces of valve with multiple borings. Identifiable borings include single, prominent *Oichnus simplex* Bromley (B, left; G, right), multiple small apertures of *Entobia* isp. and *Caulostrepsis taeniola* Clarke (B, right of centre).
Figure C. RGM 791 579, external surface of valve with *Trypanites* isp. (just above centre), *Caulostrpesis*
taeniola Clarke (just below centre) and apertures and/or chambers of *Entobia* isp. (in a line towards the middle of the commissure).
Figure D. RGM 791 580, external surface with *Entobia* isp. and *Oichnus simplex* Bromley.
Figure E. RGM 791 582, internal view, probable *Caulostrepsis* isp., but incompletely preserved.
Figure F. RGM 791 583, external surface with *Oichnus simplex* Bromley.
All scale bars represent 10 mm.

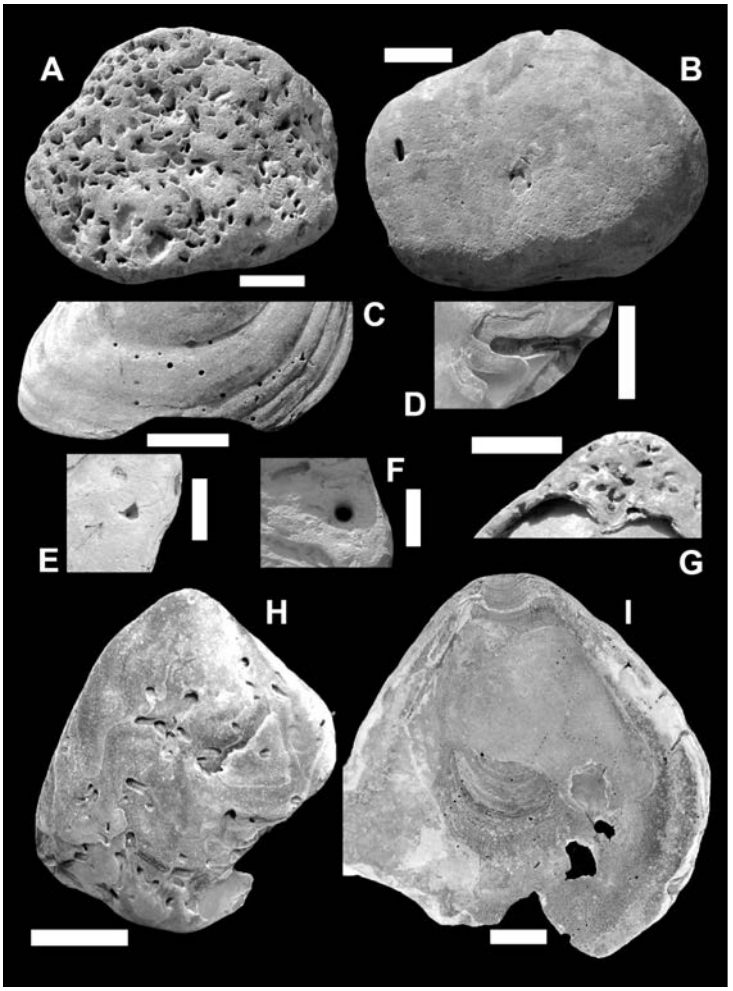


Plate 3.
Borings in a pebble (A, B) and the oyster *Ostrea edulis* Linné, all from Locality 2.
Figure A, B. RGM 791 582, flat, fossiliferous limestone pebble, showing abundant remnants of the boring *Caulostrepsis* isp. on one surface (A) and almost no borings on the other (B).
Figure C. RGM 791 584, external view, numerous small apertures of *Entobia* isp.
Figure D. RGM 791 589, internal view, probable *Caulostrepsis taeniola* Clarke, but incompletely preserved.
Figure E. RGM 791 599, internal view, probable beak mark made by a seagull.
Figure F. RGM 791 587, non-penetrative *Oichnus simplex* Bromley in external surface of valve.
Figure G. RGM 791 592, external view of umbo, probable *Caulostrepsis* isp., but incompletely preserved.
Figure H. RGM 791 596, external view, valve infested by numerous *Caulostrepsis taeniola* Clarke.
Figure I. RGM 791 593, internal view, numerous small apertures of *Entobia* isp. arranged in straight to curved lines.
All scale bars represent 10 mm.

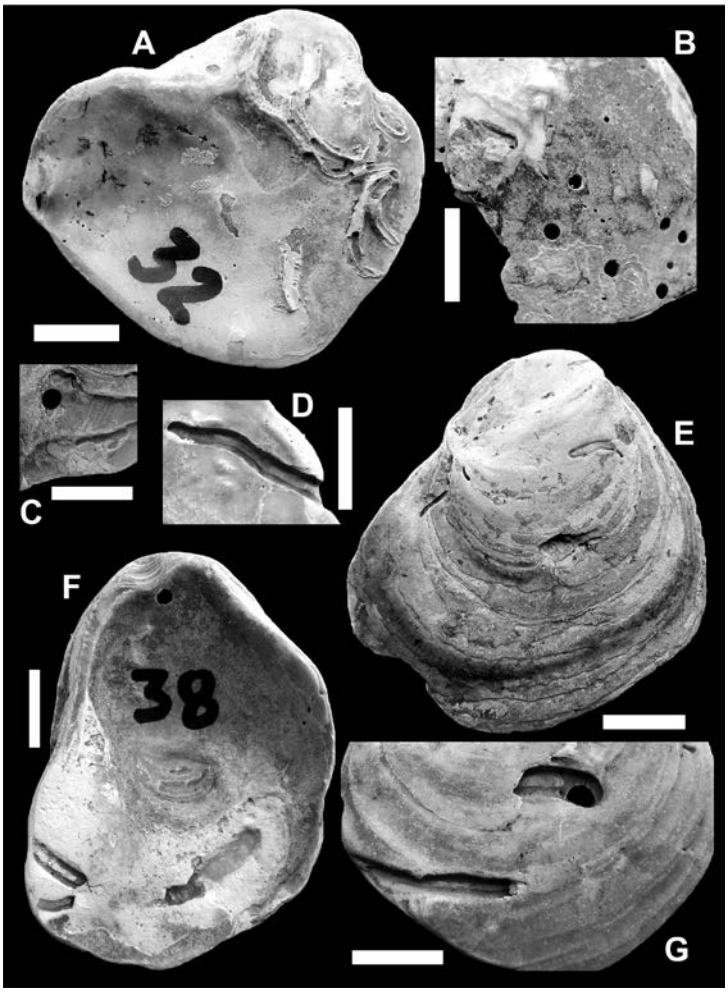


Plate 4.
Borings in the oyster *Ostrea edulis* Linné, all from Locality 2.
Figure A, E. RGM 791 602. A, internal surface (umbo to left), encrusted by serpulid worms and cheilostome bryozoans, and perforated by apertures of *Entobia* isp. E, external surface, infested by *Caulostrepsis taeniola* Clarke (upper left), *Trypanites* isp. (right) and boring(?) of uncertain affinity (centre).
Figure B. RGM 791 600, external surface, perforated by several round holes, presumed *Oichnus simplex* Bromley or modified Entobia isp. (see text).
Figure C. RGM 791 603, external surface, *Oichnus simplex* Bromley.
Figure D. RGM 791 612, internal surface, *Caulostrepsis taeniola* Clarke.
Figure F. RGM 791 608, internal surface, *Oichnus simplex* Bromley near umbo and three *Caulostrepsis taeniola* Clarke close to the commissure.
Figure G. RGM 791 609, external surface, *Caulostrepsis taeniola* Clarke; the round hole appears to be mechanical damage where the valve is thin due to physical and biological damage.
All scale bars represent 10 mm.

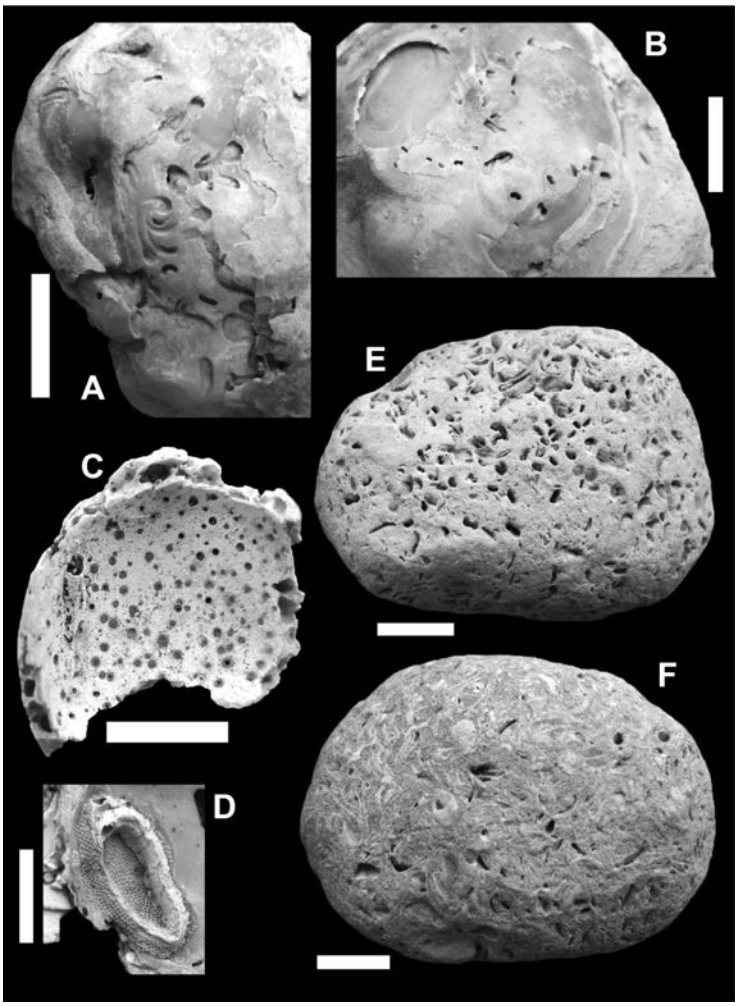


Plate 5.
Borings in and encrustations on the oyster *Ostrea edulis* Linné (A, B, D), the slipper limpet *Crepidula* sp. (C) and pebble (E, F), all from Locality 2.
Figure A. RGM 791 610, external surface (umbo 4 o'clock), multiple *Caulostrepsis taeniola* Clarke.
Figure B. RGM 791 613, external surface near umbo, multiple *Caulostrepsis taeniola* Clarke.
Figure C. RGM 791 615, apertural view of Crepidula sp. infested by *Entobia* isp.; serpulid worm tubes towards 9 and 11 o'clock.
Figure D. RGM 791 614, internal surface, intimate association between a cheilostome bryozoan colony and serpulid worm tube encrusting an oyster.
Figure E, F. RGM 791 616, flat, fossiliferous limestone pebble, showing abundant remnants of the boring *Caulostrepsis* isp. on one surface (E) and few borings on the other (F) in which numerous fossil shells are apparent.
All scale bars represent 10 mm.

AN ANT-LION NEW TO BRITAIN
MYRMELEON FORMICARIUS (L., 1767) (NEUROPTERA: MYRMELEONTIDAE)

Tim Norriss, Dave Cooke, Lynn Fomison

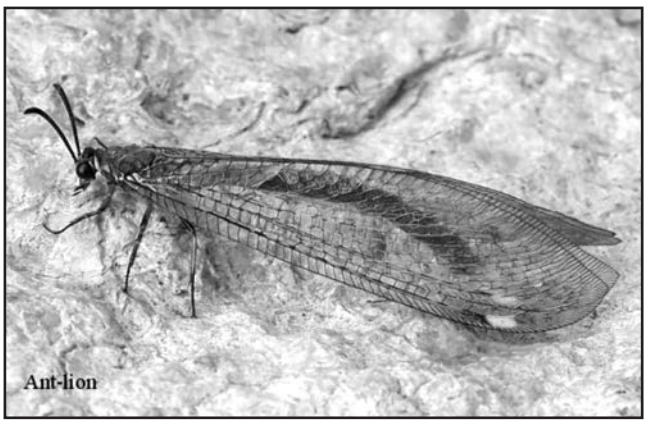
Abstract

The Ant-lion *Myrmeleon formicarius* (Linnaeus, 1767) is recorded new to Britain from the Isle of Wight in August 2013. This is a summary of the full paper published in the Entomologist's Record in Sept/Oct 2013 (Vol. 125 Part 5).

Introduction

DC runs his 125 MV Robinson moth trap regularly in his suburban garden in Freshwater about 1.25km inland from the south coast. During the night of Friday 23 August 2013 there had been a light north-west breeze throughout and amongst the 108 species recorded in the trap were several potential immigrants including 13 *Plutella xylostella,* 10 *Udea ferrugalis,* 1 Dark Swordgrass and 42 Silver Y. *Evergestis limbata* and *Udea fulvalis* were also recorded but these are resident in the area. In the morning there were many moths outside the trap including several Jersey Tiger, which is now abundant in many places along the south coast of the Island. Upon the arrival of TN and LF to stay for the weekend, we started to empty the trap of its contents. Near the bottom of the trap TN noticed what he thought was an ant-lion and so it was potted.

A hasty picture on a mobile phone was sent straight away to Paul Brock who in turn emailed it to Colin Plant. He responded with the information that this was a species of *Myrmeleon* (L,) and that on the basis of the wing venation and patterning could only be either *M. formicarius* (L.) or *M. bore* (Tjeder). Subsequent examination of additional photographs showing the colour pattern on the pronotum, together with a knowledge of the wing-length, generated the response that (in the absence of the actual specimen) in his opinion this was certainly *M. formicarius.*



CP then emailed a selection of images to his colleagues in Europe who are familiar with this species, and who supported the identification.

The specimen now resides at the Natural History Museum in London

An erroneous earlier record

The first confirmed British record of an Ant-lion came on 5 September 1931 At Gorleston near Yarmouth on the east coast of Norfolk. This insect was

identified by Claude Morley as *Myrmeleon formicarius* but later investigations at Ipswich Museum turned up the specimen and it proved to be *Euroleon nostras*. This latter species has been found to be resident at Minsmere, Suffolk and more recently at Dungeness, Kent. A population of this or a related species has also recently been found near Wells-next-the-Sea, Norfolk.

Potential origin

This current capture of *Myrmeleon formicarius* represents an addition to the British fauna. It is widely distributed from Spain in the west to Turkey (and beyond) and from Italy to the southern half of the Scandinavian peninsular in the north. It is local but not uncommon across this entire area. The likelihood of *M. formicarius* being an overlooked resident on the Island is small although the recent discoveries of *E. nostras* in Norfolk and Kent show that this is not impossible. Perhaps more likely is that this was an immigrant from the continent in a year when there were many such Lepidoptera.

Acknowledgements

We are grateful to Paul Brock and especially to Colin Plant for his invaluable help and assistance.

Photos by Dave Cooke.

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Cooke, D., Norriss, T., Fomison, L., Plant, C. W., *Myrmeleon formicarius: an Ant-lion New to Britain* The Entomologist's Record **125** (5): 174-178.

Author: Norriss, T., tim@kitsmail.com

NOTABLE MOTH RECORDS FOR THE ISLE OF WIGHT 2013

Sam Knill-Jones

This was a year of two halves with the first six months being the worst on record and the last six months being the best on record, with four macro-moths and eight micro-moths new to the Isle of Wight. After a mild start to the year, it turned out to be the coldest spring for fifty-one years. We then had the best summer since 2006 and a mild but wet autumn. It was the stormiest and one of the wettest Decembers on record.

The twelve species new to the Isle of Wight are summarized below :-
White Colon *Sideridis albicolon* (Hubn.) 5th July at Newtown by Tim Norris. Gold Spangle *Autographa bractea* (D & S). I took one at Totland on 13th July.
Pale Shoulder *Acontia lucida* (Hufn.). One photographed on a flower on the2nd August in his garden at Ventnor by Andy Butler.
Plumed Fanfoot *Pechipogo plumigeralis* (Hubn.). One on the 30th August and 3rd Sept. at Bonchurch, by James Halsey,
Box Tree Moth *Diaphania perspectalis* (Walker). 28th July at Bonchurch by James Halsey. This is the first record for the Isle of Wight of this potential pest of Box trees and possibly the first melanic of the species for the British Isles.
Hymenia recurvalis (Fabr.). 2nd October at Bonchurch by James Halsey,
Ectoedemia decentella (Herr.-Sch.). 5th September at Freshwater by Dave Cooke.
Argyresthia trifasciata (Stdgr). 16th June at Freshwater by Dave Cooke.
Coleophora prunifoliae (Doets). At Niton on 6th June when Dr. John Langmaid & S.M. Palmer found several cases from which three moths emerged.
Batrachedra pinicolella (Zell) on 13th July at Freshwater by Dave Cooke.
Zeiraphera ratzeburgiana (Ratz.) on 10th August at Briddlesford Copse by Stephen Plummer.
Parachronistis albiceps (Zell.). on 13th July at Shanklin by Ian Outlaw.

Other highlights are listed below:-
Crimson Speckled Footman *Utetheisa pulchella* (Linn.). On 7th October at Freshwater by Caroline Dudley.
Sombre Brocade *Dryobotodes tenebrosa* (Esper). 27th Sept. at Luccombe, 29th September at Totland & 2nd & 10th October at Bonchurch.
Flame Brocade *Trigonophora flammea* (Esper). 6th, October at Brook and 24th October at Ventnor.
Bordered Straw *Heliothis peltigera* (D. & S.). On 3rd August at Ventnor. Small Mottled Willow *Spodoptera exigua* (Hubn.).2nd.October at Bonchurch.
Clifden Nonpareil *Catocala fraxini* (Linn.). On 23rd September at Freshwater. 27th September & 4th October at Totland & 3rd October at Brook.
Dark Crimson Underwing *Catocala sponsa* (Linn.). On 10th August at Briddlesford Copse. Bedstraw Hawk-moth *Hyles galii* (Rott.). 27th August at Bonchurch.
Netted Pug *Eupithecia venosata* (Fabr.).19th June at Freshwater cliffs.
Death's-head Hawk-moth *Acherontia atropos* (Linn.). 14th October. Larva found at Thorley Common.
Uresiphita polygonalis (D.& S.) 7th & 23rd October at Bonchurch,
Jersey Mocha *Cyclophora ruficiliaria* (Her-Sch,). 30th July, 30th August (Two) & 3rd September at Bonchurch. Probably not resident.

Acknowledgements
I should like to thank Dave Wooldridge for reading and commenting on the manuscript and to Andy Butler, John Chapple, Julian Clarke, Dave Cooke, Sue Davies, Caroline Dudley, James Halsey, R.E. Jones, Dr. John Langmaid, Ian Outlaw, S.M.Palmer, Tim Norris, Stephen Plummer, D. Westerhoff and others for their records.

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Author: Sam Knill-Jones, 1 Moorside, Moons Hill, Totland, Isle of Wight. P039

HEMIPTERAN GALLS ON THE ISLE OF WIGHT 2013

Dr. D.T. Biggs

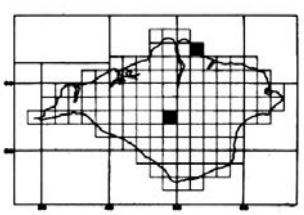
A paper on Isle of Wight sawfly galls was published in the Proceedings for 2012. The largest group of gall inducing insects not so far addressed is that of the order HEMIPTERA. That order is divided into two suborders, the HETEROPTERA or true bugs and the HOMOPTERA which includes aphids, hoppers, jumping plant lice or psyllids and scale insects.

With respect to the HETEROPTERA, although some lace bugs of the family TIINGIDAE can cause galling, this has not been recorded on the Island. The HOMOPTERA is itself divided into the AUCHENORRHYNCHA of which only the froghopper *Philaenus spumarius* is a facultative gall inducer and the STERNORRHYNCHA. In this latter larger group about two-thirds of the psyllids (Psylloidea) and half the aphids (Aphidoidea) can induce galls, mostly simple and without tissue differentiation. In addition a few scale insects (Coccoidea) can induce pit galls on the stems of their hosts.

The following account relates to Swanton's paper on I.W. galls published in the Proceedings for 1939 and to field work undertaken between 1980 and 2013.

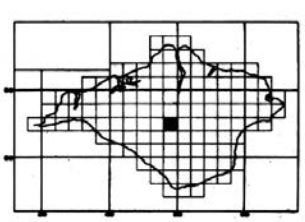
ADELGIDAE

***Adelges abietis* (Linnaeus, 1758)** on Norway Spruce *Picaea abies*



The adelgids are closely related to aphids and resemble them in appearance but are confined to conifers. This species spends its whole life on Norway Spruce which although not native is widely planted. The insects induce "pineapple" galls on the young shoots. These are oval structures, in my specimens 14 x 11 mm, and surround three sides of the stem. They are paler than the unaffected shoot and are formed from the swollen bases of the needles which are themselves much shorter than usual. Each gall eventually contains numerous internal chambers within which the pinkish-orange nymphs develop. Exit slits, initially red, develop in August/ September and the yellow winged females emerge to lay eggs. Young spruces grown for Christmas trees if heavily infested can be unmarketable. In Swanton's list of Isle of Wight galls (1939) there is one record of this gall, from Mottistone 1937. There are only two recent records. The first British record was in 1922.

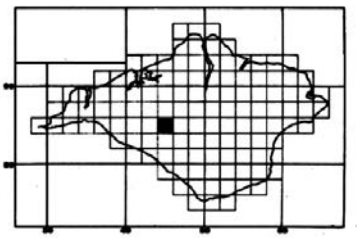
***Adelges laricis* Vallot, 1836** on Norway Spruce *Picaea abies*



This insect induces another "pineapple" gall on Norway Spruce but here the gall is smaller (9 x 8 mm.) more or less globular and waxy, cream or pale yellow, at the extremity of the shoot and with exit slits in June which are not discoloured red. The emergent greyish-black winged females fly to larches (*Larix* spp.) which may also be galled. This species was originally restricted to the Alps but is now widespread throughout Europe, arriving in Britain in 1871. It is now widespread in this country and can be of economic importance, the galls sometimes preventing growth of the shoot. The species was not recorded in Swanton's list and the only record so far was made by Sue Blackwell on February 24th 2005 from Gatcombe SZ4885. Another adelgid *A. tardus* induces similar galls but is rare. The adult insects should be identified if possible, but this did not occur for this specimen.

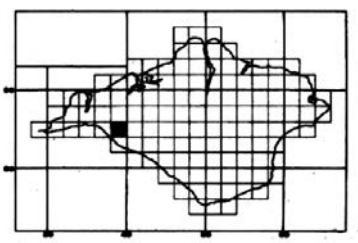
APHIDIDAE

***Aphis lantanae* Koch, C.L., 1854** on Wayfaring-tree *Viburnum lantana*



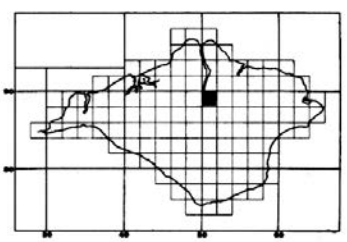
Aphids of the family Aphididae are facultative gall inducers, usually producing leaf-curls which may or may not be thickened, the young aphids living within the curl. There is little tissue differentiation. About 50% of our aphids can induce galls. There is only one record of this gall for the Island. Swanton found galling on Wayfaring-tree on Cheverton Down SZ4484 in 1932 (MS found in Haslemere Museum). The gall is a loose leaf-edge roll in which live the olive green aphids. Young leaves on new shoots are the usual sites of gall induction. The aphid is common in central Europe.

***Brachycaudus helichrysi* (Kaltenbach, 1843)** on Hemp-agrimony *Eupatorium cannabinum*



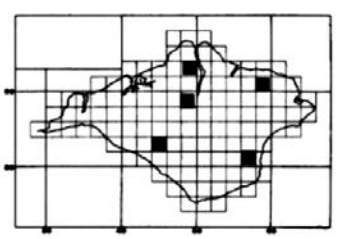
This aphid can be a pest of cultivated *Prunus* but galling has only been found once on the Island, on Hemp-agrimony on Shalcombe Down SZ3985 on July 4th. 1992. At the extremity of the shoot there was a collection of bunched, curled and thickened leaves, the leaves smaller than usual and markedly wrinkled. The causative aphids are bright yellow to yellowish-green. This species was not recorded by Swanton and many authorities would not deem this to be a true gall-causer.

***Brachycolus cerastii* (Kaltenbach, 1846)** on Common Mouse-ear *Cerastium fontanum*



Swanton had no record for this gall and in recent years it has only been found once, on May 27th 2000 by Colin Pope in Shide Chalk Pit SZ5088 where five galled plants were found. The gall is a leaf-edge roll where the margins are thickened and upwardly rolled and incurved to form a spoon-shaped bunch due to marked shortening of the apical internodes. The aphids which are yellowish-green or bluish green and more or less powdered with wax live within the bunched leaves.

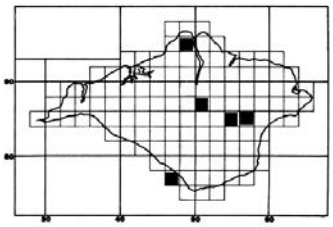
***Cryptomyzus ribis* (Linnaeus,1758)** on Currants *Ribes spp.*



This is the Red Currant Blister Aphid. Colonies of pale yellow aphids live on the under surface of young leaves in spring and early summer. They induce red blistering on red and white currants and yellow or red blistering on black currants. The secondary host of this aphid is Hedge Woundwort *Stachys sylvatica* which is not galled. The affected leaves on currants have raised thickened discoloured patches on their upper surfaces with hairy depressions below on the often downturned leaves. No doubt gardeners would be able to add many more records to the distribution map but I have recorded this species only from wild plants. There are three records

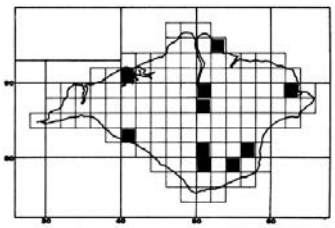
from Red Currant *R.rubrum*, one from Black Currant *R. nigrum* and one from the hybrid *R.nigrum x uvacrispum* which Lorna Snow recorded in her garden in Shanklin. In Swanton's list Frank Morey recorded it from "gardens in Newport".

***Cryptosiphum artemisiae* Buckton, 1879** on Mugwort *Artemisia vulgaris*



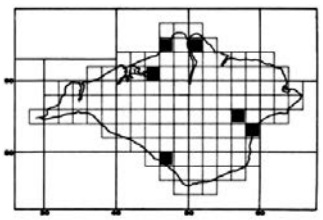
This greyish-brown aphid induces the terminal leaves of a shoot to be shortened, bunched together, thickened, curved downwards and discoloured red or purple. The aphid is monophagous and has no other host; it lives on the underside of the leaves within the leaf curl. The gall was not recorded in Swanton but has now been found at five sites, the first at Newchurch SZ5685 on September 11th 1991.

***Dysaphis crataegi* Group** on Hawthorn *Dasineura crataegi*



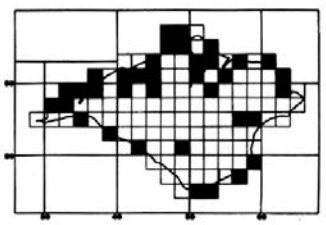
Most species in this genus have two host plants. In this species group the primary galled host is Hawthorn and the ungalled secondary host is wild and cultivated carrot (*Daucus carota*) and perhaps other umbellifers. Young hawthorn leaves exhibit bright red blisters on their upper surface with the corresponding lower surface concavities containing pink or pale green aphids which are more or less covered with a fine white wax. There may be six different aphid species in this group and accurate identification may not be possible. This gall was not recorded by Swanton. The first record was from Bagwich SZ5181 May 24th. 1992 by Toni Goodley. There are now nine further records.

***Dysaphis ranunculi* (Kaltenbach,1843)** on Hawthorn *Crataegus monogyna*



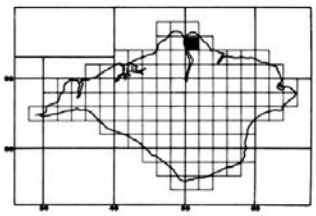
This gall was not recorded in Swanton 's list of 1939. The first Island record was in 1980 from Borthwood. It has still only been recorded from five sites. It seems only to occur singly. The gall is a yellow inflated down curved leaf looking somewhat like an upturned boat. The causative deep grey aphids live within a waxy covering and are present May to June. They then leave for their secondary host *Ranunculus* which is not galled.

***Hayhurstia atriplicis* (Linnaeus, 1761)** on Chenopodiaceae



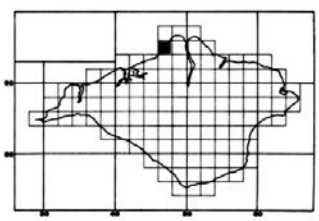
This is a yellowish-green aphid which galls *Atriplex* and *Chenopodium.* Galled plants are unmistakable. The gall is a very pale green thick leaf-edge roll which folds the leaf upwards in bulging pod-like structures. The petioles are usually distorted also. Although now common, strangely this gall was not recorded by Swanton. There are now 30 sites for *Atriplex prostrata* and two sites for *A.patula* with five sites for *Chenopodium album.* At six other sites the host plant was not identified to species.

***Hyadaphis foeniculi* (Passerini, 1860)** on Honeysuckle *Lonicera periclymenum*



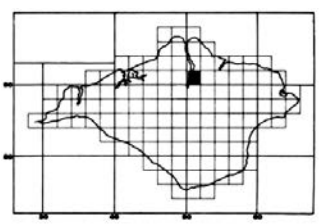
This gall is not in Swanton's 1939 published list but on a visit to Haslemere museum where Swanton was curator I found specimens found at Hamstead and Carisbrooke in August 1922 by Frank Morey. The only other records are two specimens found by me at Osborne July 23rd 1988. This is reported in the literature to be a generally common pest of Honeysuckle and to be widespread in Europe. Affected leaves are rolled or folded upwards, more or less thickened and distinctly pale. The enclosed aphids are dark blueish-green with a waxy bloom, are present in May and June and then migrate to their secondary host, a member of the Apiaceae.

***Myzus ligustri* (Mosley, O., 184)** on Wild Privet *Ligustrum vulgare*



I have only found this gall once, in Gurnard in my garden; three leaves galled July 5th. 1992. The leaves are somewhat swollen, distorted and with both margins rolled downwards, curving to reach the midrib. The enclosed aphids are a shiny yellow or yellowish- green. They have no secondary host. The aphid is widespread in Europe but in Britain it mainly affects Privet in southern counties where it can be a pest of suburban hedges.

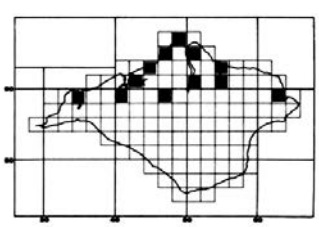
***Myzus persicae* (Sulzer, 1776)** on Greater Periwinkle *Vinca major*



This is a polyphagous aphid which attacks more host plants than any other species. It is also a vector of viral diseases. Affected plants have stunted terminal shoots, shrivelled or swollen and twisted leaves which can be severely curled downwards; buds and flowers can also be distorted. The wingless aphids which cause the damage are yellowish-green. Blackish-brown winged forms develop in the summer and spread to the secondary hosts such as brassicas. This aphid species is widely distributed in Europe. Swanton did not record this, perhaps because he did not consider its effects as galling. I have only one record of this aphid causing thickening of leaves, at Dodnor SZ504912 on March 27th 1998.

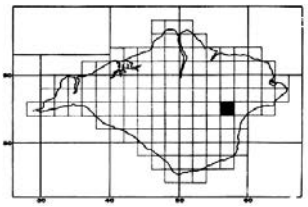
ASTEROLECANIIDAE

Asterodiaspis sp. on Oaks *Quercus spp.*



The first record of one of these galls was from Brading Marsh SZ628884 when several of them were found on a first year shoot on March 12th1989. This gall was not recorded by Swanton. It is a very small round or oval pit sunk into the bark of the young shoot and surrounded by a thickened rim. The greyish-green scale insect lies within the depression and can be found from May until September. The three species in the genus cannot be separated in the field and no attempt to identify to species level has been made.

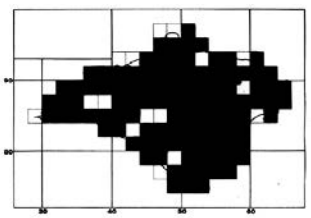
***Planchonia arabidis* (Signoret,1876)** on Yarrow *Achillea millefolium*

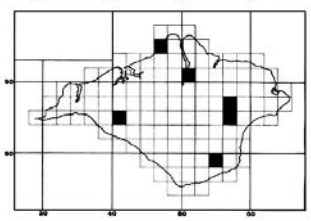


I found three galls on one plant July 8th. 2000 at Brett's Meadow, Alverstone SZ571855. This is so far, the only record of this gall, Swanton not recording it. This scale insect induces a pit gall in the stem of the plant 3-4mm x 0.75-1.75mm, oval in shape with a distinctly thickened rim and causing thickening of the stem up to 1mm across. Each pit contained an oval scale insect. Distal to the galls there was some wasting of the plant with distortion of the stem.

CERCOPIDAE

***Philaenus spumarius* (Linnaeus, 1758)** on many plants

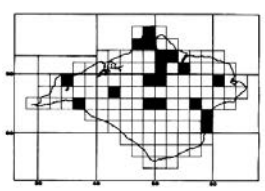




This is the only leaf hopper which is cecidogenic, i.e. can induce galling. It is highly polyphagous. Normally this insect, known for its production of cuckoo-spit, only causes inhibition of the growth of the leaf and subsequent wrinkling of the leaf surface. Swanton (1939) recorded galling on five species of plants in the family Apiaceae – "rays of the umbels shortened, leaves dwarfed and thickened at attacked parts. Brook, Shorwell, etc." I have recorded the insect from 105 of our 123 tetrads but have found galling at only six sites, on Elder *Sambucus nigra* four times, and once each on Elm *Ulmus procera,* Hemlock water-dropwort *Oenanthe crocata,* and Weld *Reseda luteola*. The two maps show this disparity. The insect itself is strongly built, 5.3 – 6.9 mm in length and extremely variable in its patterning, varying from uniformly yellowish-white to unicolourous black with numerous banded or spotted intermediate forms, many of which were originally described as separate species.

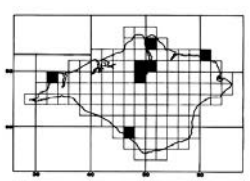
PEMPHIGIDAE

***Eriosoma lanigerum* (Hausmann, 1802)** on Apple *Malus* spp.



This is a common pest of Apple but also infests *Cotoneaster, Pyracantha, Crataegus* and rarely Pear *Pyrus.* It is found throughout the world. Strangely, it was not recorded in Swanton. First recorded from my garden in Gurnard, all my records are from Apple. Roots, trunks and branches can be galled. Initially the gall is a soft, irregular lumpy swelling 10mm across and which causes new growth to be malformed and the wood of older branches to be split. The galls develop into large cankers. The gall inducer is a purplish-brown woolly aphid covered with masses of white flocculent material which gathers in large groups mainly around wounds and splits in the bark and there initiates gall formation.

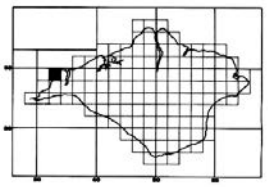
***Eriosoma lanuginosum* (Hartig, T, 1841)** on Elms *Ulmus* spp.



This is another fairly common gall not recorded in Swanton's 1939 list. Here the whole leaf is induced by the woolly aphid to form a large pale green thin-walled bladder with initially a mealy surface. 30-80mm across, it contains pale-green waxy aphids in July and August, by which time the gall takes on a purplish colour. After the aphids leave in late

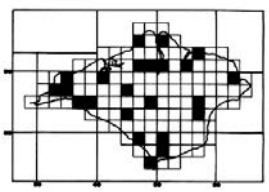
summer the galled leaf turns brown and persists on the tree into autumn and winter. The first record of this gall was from Windmill Copse, Chale, September 3rd 1990. I have found this gall only on small leafed elms and not on Wych Elm *Ulmus glabra.*

***Eriosoma patchiae* (Bőrner & Blunck. 1916).** on Elms *Ulmus* spp.



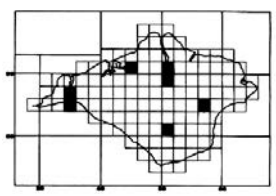
There is only one record so far of this gall, from Fort Victoria SZ336895 when several new shoots of Wych Elm, *Ulmus glabra* were found affected, October 11th 1992 by Bill Shepard and David Biggs. There are no records in Swanton. The Pemphigidae are the woolly aphids which are heteroecious, inducing quite conspicuous and characteristic galls on their primary host. This species alternates to *Senecio.* Both sides of a leaf are inrolled but not markedly thickened. Found on sucker shoots predominantly. The aphids are waxy and yellowish-green.

***Eriosoma ulmi* (Linnaeus, 1758)** on Elms *Ulmus* spp.



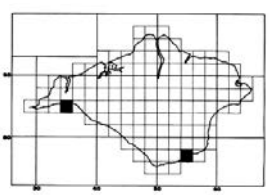
There are now many records of this gall which was first recorded by Frank Morey from Watergate Road, Newport in 1922. I have records from all our Elm species. The gall is induced by greyish aphids which cause the margins of the leaves to roll up and inwards, usually along one side, to form a pale, swollen, turgid bladder. The aphids are protected by masses of blueish or whitish wax. Winged forms migrate in July to the roots of currant and gooseberry bushes *Ribes* spp. The gall is found throughout Europe and Asia. Severe infestation causes inhibition of shoot growth.

***Pemphigus bursarius* (Linnaeus, 1758)** on Black Poplar *Populus nigra* and hybrids



The gall here is a pouch gall, 8-15 x 6-8 mm on one side of the petiole of the leaf, reddish in colour and developing a beak-like opening from which winged aphids migrate to the roots of members of the Asteraceae. In Europe it can be an important pest of cultivated chicory and lettuce. Frank Morey recorded this gall from St Helen's in 1922. The first recent record was from Afton Marsh in 1985. Although it is described as common in the literature I only have seven records, four on Lombardy poplar *Populus nigra "Italica"* and three on hybrid black-poplar *Populus x canadensis*. The winged aphids are brownish-orange and the wingless forms which initiate the galls by feeding on the petioles are yellowish-white with a tuft of white wax posteriorly.

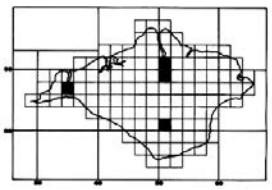
***Pemphigus gairi* Stroynan, 1964** on Black Poplar *Populus nigra* and Hybrids
***Pemphigus phenax* Börner, C & Blunck, 1916.**



These two aphids both induce a mid-rib gall on the leaves of Black Poplar, the underside of the mid-rib becoming swollen into a bright red, elongate pouch 10-25 x 5-8 mm. At maturity the galls open by a long slit-like opening on the lower surface which by now is wrinkled. The lateral walls at maturity are tinged yellow. The interior of the gall contains many waxy aphids, the colour of which determines the species. Unfortunately in the two modern records the first of which was from Freshwater Gate on June 27th, 1987 the colour

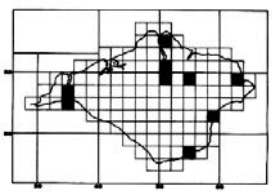
of the aphids was not noted. Swanton did not record this gall. Quentin Groom who found the second specimen at Ventnor Botanic Gardens tentatively identified his specimen as caused by *P. phenax.* It is known that *phenax* has carrot *Daucus* as its secondary host and that *gairi* aphids migrate to Fool's Parsley *Aethusa cynapium.*

***Pemphigus populinigrae* (Scrank,1801)** on Black Poplar *Populus nigra* and hybrids



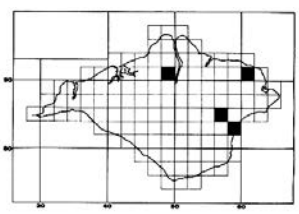
This aphid induces another midrib gall but which is broader than that caused by the previous species, usually 20 x 10 mm. It is yellowish or reddish. The causative aphids are green to greyish-green and develop amongst a mass of mealy wax. Eventually brown winged forms leave the gall and migrate to cudweeds *Filago* and *Gnaphalium* spp. which themselves can be galled in that the flower heads can be distorted, the stems shortened and the leaf edges inrolled. Not recorded in Swanton, there are four modern records; one on *Populus x canadensis* and three on *P.nigra "Italica".*

***Pemphigus spyrothecae*, Passerini 1860** on Black Poplar *Populus nigra* and hybrids



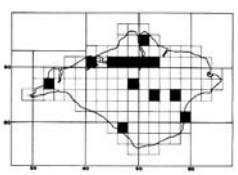
Swanton did record this very obvious gall but only from one site, St Helens where Frank Morey had found it in 1922. There are eleven modern records mostly on Lombardy Poplar *P.n. "Italica"* and also on the authentic Black Poplar at Flower's Brook, Ventnor. The petiole of the leaf is thickened, lengthened and spirally coiled. There are two or three complete turns to the spiral and the gall eventually attains 15-30mm in length. Initially green the gall reddens at maturity and the spiral coils loosen to allow the contained aphids to emerge in August. Unlike other *Pemphigus* aphids this species has no secondary host and the aphids which leave the galls spend the rest of their life cycle on the Poplar tree.

***Prociphilus bumeliae* (Schrank,1801)**
or
***Prociphilus fraxini* (Geoffroy, 1762)** on Ash *Fraxinus excelsior*



These two species of woolly aphid induce very similar galls and can only be separated by experts. Both alternate between Ash *Fraxinus excelsior* and the roots of Firs *Abies* spp. The petioles and leaflets are distorted and bunched together to form "leaf-nests". This deformity is basically caused by shortening of the internodes of the terminal shoots. The aphids live amongst the leaves and are covered by wax. *P.bumeliae* tends to cause leaf nests lower down on the tree than *P.fraxini* which has less wax that the former. Unfortunately three of my four records of these galls do not describe the site of the gall nor the degree of its waxiness. Not having been recorded in Swanton, the first record of this gall was made by Tom Pretty from his garden in Noke Common SZ486914 on August 23rd. 1989. In this specimen the terminal shoot of a small sapling was affected.

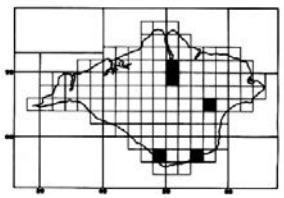
***Tetraneura ulmi* (Linnaeus, 1758)** on Elms *Ulmus* spp.



This now widespread gall was not recorded in Swanton. The first record was made by a visiting gall expert J.P. Bowdrey in July 1985 from Freshwater. It is called the "fig-gall" because of its shape, a smooth pouch up to 15mm high, club-shaped and stalked, arising from the upper surface of an elm leaf which, at the point of attachment is yellowed and

thickened. The gall is initially green but later turns cream then brown. Several galls often occur on any one leaf. The inducing waxy aphids alternate to the roots of grasses. The gall is widespread in Europe, on various species of *Ulmus.* I have records from *Ulmus procera, glabra*, and *carpinifolia.*

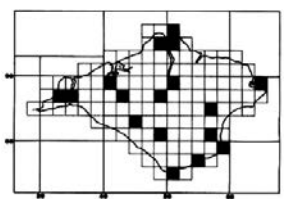
Thecabius affinis (**Kaltenbach, 1843)** on Poplars *Populus spp.*



The green waxy aphid induces a marginal leaf fold and her offspring turn a whole leaf into a pouch which is a light yellowish green initially, turning reddish on the upper side at maturity. Winged aphids leave the gall in July and migrate to the roots of buttercups, especially Creeping Buttercup *Ranunculus repens.* From these subterranean colonies other winged individuals return to Poplar in October and November to lay the eggs which overwinter and hatch in the spring. If galls develop on young shoots, growth can be inhibited and the shoots disfigured. The first recent record was from Dodnor SZ501902 on September 16th. 1987. To date there are three records from Lombardy Poplar *Populus nigra* "Italica", three from *Populus nigra x*, one from Aspen *Populus tremula* and one from Black Poplar *Populus nigra.*

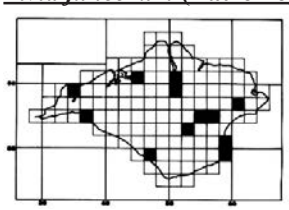
PSYLLIDAE

Cacopsylla buxi **(Linnaeus, 1758)** on Box *Buxus sempervirens*



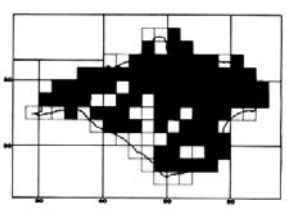
Not recorded in Swanton, the first record of this gall was made by Dr Brian Spooner October 28th. 1984 from Brighstone. This can be a disfiguring affliction of Box. The terminal leaves are thickened, crowded and markedly concave with a noticeably pallid appearance. The clustered leaves measure 10-20mm across and contain pale green psyllids, also known as jumping plant lice. No other host plant is required for the insect's life cycle. Growth of new shoots can be inhibited by the feeding of the psyllid. It is present throughout Europe and has been introduced into North America. Hedges and bushes seem to be more affected than mature trees.

Livia juncorum **(Latreille, 1798)** on Rushes *Juncus* spp.



This psyllid induces the characteristic "tassel gall" on several different species of Rush. The nymph induces a flowering spikelet to become leafy and thickened (phyllanthy). With up to 80 spikelets affected, the internodes shortened and thickened, the gall develops into a reddened mass up to 80mm across, from June to October. Swanton had one record, from Hillis in 1920 (Frank Morey). The first recent record was from Shanklin in July 1986 (Bill Shepard), Most of my records unfortunately are from unidentified Rush species but one is from Jointed Rush *Juncus articulatus.*

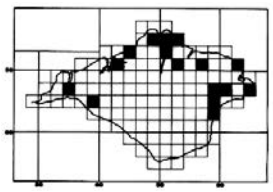
Psyllopsis fraxini **(Linnaeus, 1758)** on Ash *Fraxinus excelsior*



This insect is now very common on the Isle of Wight. Strangely, Swanton had only one record, from Brook in 1937. It is widespread in Europe and has been introduced into North America. Nymphs, hatching from overwintering eggs, by feeding on the young leaves in early summer cause the edges of the leaf to roll downwards and thicken to form a purple-veined pouch within which the insects develop, surrounded by a

white waxy flocculent material. There is a very similar psyllid *Psyllopsis discrepans* which induces identical galls. The adults have very minor differences in their wing venation and my records and the accompanying map do not differentiate the two species.

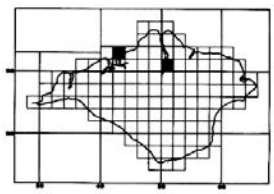
***Psyllopsis fraxinicola* (Fórster, 1848)** on Ash *Fraxinus excelsior*



Shallow dimples in the leaf blade on the underside with a more or less paler bulge above are caused by the green nymphs of this psyllid. The gall is not easily seen but if searched for, it seems to be fairly common. There were no records in Swanton and the first recent record was from Shalcombe Down SZ3985 on July 4th 1992. Recently it has been shown that similar galls can be caused by *Psyllopsis fraxini* and *Ps. discrepans* and accurate identification to species level requires identification of the nymphs. My maps show the distribution of the gall-form.

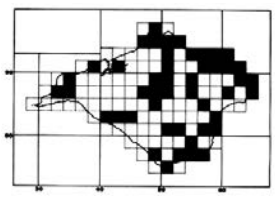
TRIOZIDAE

***Trichochermes walkeri* (Fórster,1848)** on Purging Buckthorn *Rhamnus catharticus*



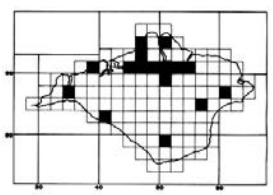
Swanton had one record of this gall from near Cheverton Farm, Shorwell in 1937. The first recent record was from the tree on the old railway line at Belmont SZ 619915 on July 8th 1988 (Dr Eric Laidlaw). Despite Pope et al. giving 10 sites for the host tree there is so far only one other record of the gall, from Brickfields, Newtown SZ 424923, Val Gwynn Sept. 9th 1999. Nymphs of this family Triozidae are flattened oval creatures fringed with long white hairs. In this species they initiate a swollen leaf edge roll gall which develops into a very obvious reddish or purplish pouch 5-10mm long, often several on a single leaf. The insect is widespread in Europe and locally common in southern England.

***Trioza alacris* Flor, 1861** on Bay *Laurus nobilis*



This insect is now so common that it has an English name – the Bay Sucker. Originally a Mediterranean pest of Bay, it was introduced into Britain in the 1920's and now flourishes in the south of England and is spreading northwards. The gall which it induces is a leaf-edge roll gall, initially yellow and later reddish then brown. The edge of the leaf is markedly thickened and tightly rolled. The yellowish-green nymphs, coated with white wax live within the roll and secrete a large quantity of honeydew. This gall was not recorded in Swanton's 1939 list of Island galls. The first record was from my garden in Gurnard July 20th 1987.

***Trioza remota* Fórster, 1848** on English Oak *Quercus robur*



Another insect the gall of which was not recorded by Swanton and the first record of which was found in my garden in Gurnard, but not until June 30th. 2000. This is a much less obvious gall. The sedentary nymphs live and feed in a small depression on the underside of an Oak leaf. On the upper surface there is a corresponding convexity but only 1-2mm across. There are usually several galls on any one leaf but only a small number of galled leaves on any one tree. The nymph is tiny but quite beautiful. It measures 1.8-2.0mm, is flattened and scale like, pale orange in colour with a pair of longitudinal dark orange stripes and with a very distinct fringe of glistening white hairs surrounding the entire body.

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Author: Dr D.T.Biggs, Plum Tree Cottage,
76 Albert Road, Gurnard, Cowes, Isle of Wight. PO31 8JU.

NEW VICE-COUNTY RECORDS FOR HEMIPTERA 2013

Dr D.T. Biggs

This was a poor year for Hemiptera recording. One new Homopteran was discovered by Sue Blackwell in 2013 and a new Heteropteran was identified in 2013 from a photograph taken by Roger Hewitt in 2011.

HOMOPTERA

TRIOZIDAE

***Trioza vitreoradiata* (Maskell, 1879)**
This insect belongs in the superfamily Psylloidea, the jumping plant lice. It comes from New Zealand where it is a pest of *Pittosporum.* The first British record was from Cornwall in 1993. Sue Blackwell found adult insects in galls on *Pittosporum tenuifolium* at Colwell SZ331877 on May 18th 2013. The adult insect is relatively large at 3-4mm long, with large membranous wings and strong hind legs and coloured a dirty yellowish-green. It is the nymph which is a green, flat and scale-like insect with a marginal fringe of short waxen filaments which is the inducer of the gall.

HETEROPTERA

PENTATOMIDAE

***Peribalus strictus (*Fabricius, 1803)** previously *Holcostethus vernalis* (Wolff, 1804)
There were breeding populations of this shield-bug in Kent in the 1950s and probably one in Devon in the 1900s. It then seemed to disappear until one was discovered in Dyfed in 1979 then again in Bedfordshire in 1993. There was a record from East Sussex in 2003 and from Hampshire in 2007. Roger Hewitt sent me a photograph of a shield-bug which he had tentatively identified as this species. He had found it on lilac, *Syringa* at Birchmore SZ514855 on April 24th 2011. This is a difficult t beast to identify, closely resembling common shield-bugs such as *Palomena prasina, Pentatoma rufipes* and *Troilus luridus.* Examining the photograph I thought that Roger might well be right so I sent the photograph to Dr Bernard Nau, the National Recorder for Heteroptera. He confirmed the identification. It is a large shield-bug 9.5-11 mm in length, brown above with black punctures, a yellow and black edge to the abdomen and orange and black antennae. It is widespread and often common in mainland Europe and is considered to possibly be carnivorous.

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Author: Dr D.T.Biggs, Plum Tree Cottage,
76 Albert Road, Gurnard, Cowes, Isle of Wight. PO31 8JU.

LEAF MINING ORGANISMS NOT PREVIOUSLY RECORDED ON THE IOW – 2013

Dr D.T. Biggs

As with the order Hemiptera, 2013 was a poor year for the recording of new leaf-miner species. Only two new species were found, one a relatively new immigrant.

DIPTERA

AGROMYZIDAE

***Liriomyza cicerina* (Rondani, 1875)** on Restharrow *Ononis repens*
Sue Blackwell found these mines at Bembridge Ponds SZ638882 on August 25th 2013. Many leaves of three adjacent plants were affected. The mine is an upper – or lower – leaf surface corridor mine, narrow, long and winding, sometimes forming a secondary blotch and with the frass in conspicuous black streaks. Pupation is external. The fly is locally common in the south of England; and widespread in Europe, particularly in the south. The fly also mines chick-peas *Cicer arietinum* and is a serious pest in Spain, Turkey and the Ukraine.

***Phytomyza hellebori* (Kaltenbach, 1874)** on Stinking Hellebore *Helleborus foetidus*
On Boxing Day December 26th 2012 on the Osborne Estate SZ5194 I noticed that nearly every plant of cultivated Stinking Hellebore in one area was mined. The larva of this fly causes a long white upper-surface leaf-mine 3.5cm long, ending in an elongated blotch 2cm long. The fly has been long known but local and uncommon in central Europe. The first British record was from Peterborough in 1999. Mines were subsequently found in Cambridgeshire and Surrey in 2000. The host plant is regarded as native in only a very few sites in Britain but has been widely introduced into parks and gardens from garden centres and nurseries.

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Author: Dr D.T.Biggs, Plum Tree Cottage,
76 Albert Road, Gurnard, Cowes, Isle of Wight. PO31 8JU.

ADDITIONAL RECORDS OF PLANT GALLS FROM THE IOW – 2013

Dr D.T. Biggs

After many years of new gall records I am surprised to be able to report another seven new species this year. One is reported because a previously known species has been split into several new species. Two are species only recently arrived in Britain. Another, the first Island record of a galled lichen, was only identified by an expert. That was also the situation with yet another, this time a species new to Europe.

FUNGI

ASCOMYCOTA; HYPOCREALES

***Epichloë sylvatica* (Leuchtm. & Schardl)** on False Brome *Brachypodium sylvaticum* Spooner and Kemp (2005) wrote an article in Mycologist dividing the fungal causes of "choke" disease of Grasses *Epichloë typhina* into six different species, depending partly on the host grasses affected. I have reported previously on the finding of *E.baconii*, *clarkii* and *festucae.* On June 6th 2013 I found *Epichloë sylvatica* on False Brome *Brachypodium sylvaticum* at Chawton, Northwood SZ5092. Several affected grass stems were found with c. 3cm long fungal stromata.

ASCOMYCOTA; VERRUCARIALES

***Telogalla* (previously *Guignardia*) *olivieri* (Vouaux) Nik. Hoffm & Hafellner**

on *Xanthoria parietina*

The Blackthorn bushes *Prunus spinosa* at Hurst Stake SZ501901 have yielded interesting lichenicolous fungi in the past. On November 29th 2012 I was examining them again and came across galling of the common foliose lichen *Xanthoria parietina.* The orange apothecia were overgrown by ugly lumpy outgrowths. I sent specimens to Dr Tom Preece who identified the fungal gall-inducer as *Telogalla olivieri*, which is described in Brian Spooner's checklist of gall- inducers of Lichens in Britain (2008) as widespread but scarce.

ACARI

***Cecidophyopsis malpighianus* (Canestrini and Massalongo)** on Bay Laurel *Laurus nobilis*

There were unconfirmed reports of this gall-inducing mite from Lancashire in the early 20th century but it either died out or was overlooked until 2005 when its gall was found in London. The first Island record was from my garden in Gurnard SZ476954 on March 3rd 2013. The identity of the mite was confirmed by Dr J Ostojā-Starzewski of the Central Science Laboratory at York. A second record was made by Richard Smout on an Entomological Section walk at Afton Marsh SZ3485 on June 16th 2013. The gall is a hugely swollen terminal flower bud, up to 10 times the normal size, initially cream then becoming reddish and remaining on the tree as hard swollen buds over winter. The hypertrophied buds contain numerous mites. The host plant originated along the Mediterranean and the first record of the gall was from Italy in 1893. It has since been described from Morocco, the old Yugoslavia, Belgium and the USA. In England there are now records from Middlesex and Surrey.

***Phytoptus bursarius* (Nalepa)** on Large-leaved Lime *Tilia platyphyllos*

Bill Shepard and I on October 10th 2013 were inspecting the planted Lime Trees at West Hamstead Farm SZ394909. We were surprised to find numerous pouch galls not previously recorded from the Island. Two forms of gall were present; this species and the next. *Phytoptus bursarius* induces a club-shaped gall 1-3mm high on the upper leaf surface, with a rounded apex and with long white hairs on the outside, particularly at the base. The gall is green initially then reddens by maturity. The gall opens on the lower leaf surface by a narrow slit.

***Phytoptus stenoporus* (Nalepa)** on Large-leaved Lime *Tilia platyphyllos*
This is the other gall found at West Hamstead Farm. The description of the previous gall applies to this gall also with the exception of the features of the lower leaf surface exit slit which in *P.stenoporus* is rounded rather than narrow. The 2nd edition of the British Plant Galls by Redfern, Shirley and Bloxham (2011) which I have followed, makes two important points. First, that the descriptions of mite pouch galls based on the European literature is tentative only and secondly, that the identity of the mites needs to be confirmed by an expert. There is only one in England, Dr J Ostojā-Starzewski, and his full time work at the C.S.L. precludes much identification work for amateur naturalists.

NEMATODA

***Subanguina guizotiae* (Van den Berg, 1986)** on Niger *Guizotia abyssinica*
Colin Pope was brought a plant from the garden in Wootton SZ534911 of Mrs P Chalkley. The plant *Guizotia abyssinica* had grown from Niger seeds put out in a bird-feeder to attract goldfinches. Colin noticed galls on the leaves and brought some to me on September 9th 2013. The galls were very obvious, rounded to oval swellings up to 10mm in length, reddish in colour and also found on the stems. On sectioning one I was surprised to see a writhing mass of eelworms. The host plant is not included in Redfern *et al.* (2011). Neither is it included in Dr Brian Spooner's Check list of Nematode Galls (1999). I spoke to Brian Spooner who recommended that I sent specimens to Dr Rebecca Lawson at the Central Science Laboratory, York. She was able to confirm the eel-worm as *Subanguina guizotiae*, a species from Ethiopia not previously recorded from Europe.

HEMIPTERA

***Trioza vitreoradiata* (Maskell, 1879)** on Kohuhu *Pittosporum tenuifolium*
The Botanical Section held a meeting on May 18th 2013 at Colwell Baptist Church SZ331877. Sue Blackwell found galls on *Pittosporum* together with the gall-inducer, a psyllid or jumping plant louse (Homoptera; Triozidae). The terminal leaves of a shoot were yellowish and distorted by an upward curving of the thickened leaf blade with a concavity beneath in which the insects were sheltering. The psyllid is a well-known New Zealand pest of this bush and was first recorded from Britain in 1993 in Cornwall. It is now well-established in S.W. England and is thought likely to spread.

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Author: Dr D.T.Biggs, Plum Tree Cottage,
76 Albert Road, Gurnard, Cowes, Isle of Wight. PO31 8JU.

FLOWERING PLANTS AND FERNS - 2013

Colin R. Pope

The year kicked off to an exciting start with the discovery of an Early Spider Orchid on Tennyson Down. The guided group, led by Paul Davies, were fortunate to see the plant in its prime, for a storm two nights later, resulted in the plant being battered to the ground, making the remains very difficult to find subsequently!

2013 was notable for the very cold spring. Plants were late into growth and it was well into May before they were starting to catch up with the seasons.

A considerably less spectacular but equally exciting plant of chalk grassland was found in September during a Botany Section meeting on Mottistone Down. Once again, those fortunate enough to be in the group were able to share the excitement of finding Dwarf Sedge. It must have been here for many years but is an easily overlooked species if you don't have your eye in.

Other good finds this year included Yellow Bird's-nest, White Helleborine and Dense-flowered Fragrant Orchid CRP, each reappearing in sites where they haven't been seen for many years.

I am grateful to everyone who submits their records; all of them are valuable and all records are entered into a Mapmate database and shared with the BSBI.

The records below relate to new, previously unrecorded sites and to first Island and first recent Island records.

Abbreviations used at the start of the accounts are an attempt to establish the status of the records, namely: N. Native; C. Casual Alien; E. Established Alien; and P. Planted.

Maidenhair Fern *Adiantum capillus-veneris*
E. Osborne House. Abundant on the inside & outside walls of glasshouse. SZ513947 PS

House Holly-fern *Phanerophlebia falcata*
E. Two clumps growing in a crack of the wall of Rondell's Taxis above head height, Ventnor High Street SZ564776 PS

Martin's Ramping-fumitory *Fumaria reuteri*
N. Seven plants growing by the side of A3054 at Colwell SZ336880 PS

Stinging Nettle narrow-leaved subsp. *Urtica dioica* subsp. *galeopsifolia*
N. This form of stinging nettle has narrow, non-stinging leaves. It was found growing along the south of old railway track near Sandown treatment plant. SZ1586851 PS Occurs scattered in damp habitats and riverbanks across the country but this is the **first record of this form from the Island**. It is likely to have been overlooked.

Four-leaved All-seed *Polycarpon tetraphyllum*
E. Established as a pavement weed and growing in a grass verge at Forest Way, Winford Estate. Flowering on 2nd February! SZ586851 PS

Giant Knotweed *Fallopia sachalinensis*
E. A small stand was recorded growing on a bank outside SW wastewater treatment plant, Sandown SZ602851 CH

Perennial Wall-rocket *Diplotaxis tenuifolia*
E. A single plant at Thorley in a roadside verge. SZ374887 PS

Chinese Mustard *Brassica juncea*
C. A couple of plants growing beneath a wild bird feeder in a garden at Wootton Common SZ534911 EJC/CRP

Yellow Bird's-nest *Monotropa hypopitys subsp.hypophegea*
N. Calbourne Bottom, Brighstone Forest is a well-known site for this nationally scarce saprophytic plant but it has not been found here (or anywhere else on the Island) for over fifteen years, despite searching. This year 60+ plants, including old fruiting stems from the previous year, were found in a site close to where it had been seen previously SZ420845 RP. Subsequently, a second population of 40+ plants was located 50 m away by the roadside SZ419848 A&KM. It was last recorded from this area in 1998.

Hydrangea *Hydrangea macrophylla*
C. A single plant, originating from abandoned gardens at Blackgang Undercliff SZ491761 EP

Tasteless Stonecrop *Sedum sexangulare*
E. Well established at Hillrise Avenue, Binstead over 20m of roadside and front garden lawns SZ575917 PS.

Bramble *Rubus*
N. David Allen has submitted details of the following redetermination of material of *Rubus winteri* collected on Tennyson Down (Pope *et al* 2003 *The Isle of Wight Flora* p. 108). It has been redetermined as *R. riddelsdellii*, **a new Island taxon**. Details from David Allen are as follows:
Rubus winteri from Tennyson Down (SZ332857), voucher specimen in BM, is actually *R. riddelsdellii* Rilstone, nowadays allocated to series *Rhamnifolii*, although earlier specialists used to put it in the series *Discolores*, the same series as *R. winteri*.

R. riddelsdellii is an addition to the Isle of Wight lists and there is only one Hampshire record for this taxon. It has a strongly south-western range, in contrast to *R. winteri*, and mainly occurs in Cornwall and South Devon, although there are scattered occurrences as far east as Beachy Head. There are several records from Purbeck (Bowen, H. 2000 *The Flora of Dorset*) and therefore the solitary patch on Tennyson Down can now be seen to be a outlier of these.

R. winteri is particularly frequent around Portsmouth and the Island records, of which there are now two, are from the far east Wight and are likely to be bird brought from there.

Japanese Rose *Rosa rugosa*
E. Well established at St Helen's Duver on the front edge of the developing dunes at the mouth of Bembridge Harbour SZ638887 mo

Cotoneaster bradyi
E. Four bushes growing at Shide Quarry, Newport SZ505881 PS conf. Jeanette Fryer This is only the 2nd British record for this taxon in the wild, and the **first Island record**.

Spreading Cotoneaster *Cotoneaster divaricatus*
E? A plant found growing on the wall at Alverstone Mill, Alverstone SZ578857 PS conf. Jeanette Fryer. The second Island record outside of gardens.

Cotoneaster induratus
E? One bush growing in Shide Quarry, Newport SZ505881 PS conf. Jeanette Fryer. **First Island record.**

Late Cotoneaster *Cotoneaster lacteus*
E? Growing on top of a wall at St Catherines School, Ventnor. SZ561776 PS conf. Jeanette Fryer. **First Island record.**

Cotoneaster prostratus
E? A plant growing on the top of a wall at Shide Lane, Newport SZ504882 PS conf. Jeanette Fryer. **First Island record.**

Broad-leaved Oleaster *Elaeagnus macrophylla*
E? Growing by the old railway track by Bembridge ponds off Embankment Road SZ638882 SB. **First Island record.**

Water Purslane *Lythrum portula*
N. In quantity, colonising a small dune slack north of the boatyard on St Helen's Duver. SZ636889 CRP A new site for this uncommon species.

Spear-leaved Willowherb *Epilobium lanceolatum*
N. Recorded by Paul Stanley from a number of previously unrecorded sites in East Wight: East Cowes SZ511951; Ryde SZ589913; Sandown SZ590845: Shanklin SZ583813.

Hybrid Willowherb *Epilobium x aggregatum (E. montanum x obscurum)*
N. Recorded from Golden Hill Fort, Freshwater SZ338880 PS Conf. G. Kitchener

Hybrid Willowherb *Epilobium x brevipilum (E. hirsutum x tetragonum)*
N. Recorded from the grounds of St Mary's Hospital, Newport SZ493903 PS Conf. G. Kitchener

Epilobium x semiobscurum (E. obscurum x tetragonum)
N. Recorded from Haslett Farm, Shorwell SZ462820 PS Conf. G. Kitchener

Mistletoe *Viscum album*
N. On a single roadside sycamore growing close to the junction of Nodgham Lane and High Street, Carisbrooke SZ482882 CRP. Although there are many plants of mistletoe in the Carisbrooke area, it has never previously been recorded from Sycamore.

Pencilled Crane's-bill *Geranium versicolor*
C. A single flowering plant on Luccombe Chine ledge where there had been much slippage. Presumably originated from the gardens above. SZ583794 CRP. A new Island site.

Yellow Dodder *Cuscuta campestris*
C. Growing beneath a bird feeder, charged with niger (*Guizotia abyssinica*) seed, in a garden at Wootton Common. The dodder was growing parasitically on plants of *Guizotia* which had grown beneath the bird seed SZ534911 CRP, conf. EJC. Eric Clement, on examining the bird seed, found that it was contaminated with dodder seed. It is quite likely that a contaminated seed crop grown in Ethiopia, had been imported. The dodder grew aggressively producing abundant flowers and seeds by early autumn. Originally from North America, *Cuscuta campestris* can be a serious weed of crops in some countries, including East Africa. To date, there are few records from this country. **First Island record.**

Garden Anchusa *Anchusa azurea*
C? Plants originating from abandoned gardens at Blackgang undercliff SZ490762 EP

Common Fiddleneck *Amsinckia micrantha*
E. Growing in Ventnor Botanic Gardens on waste ground at top of cliff SZ546767 RW

Hybrid Forsythia *Forsythia x intermedia (F. suspensa x viridissima)*
C? A single bush originating from abandoned gardens at Blackgang undercliff SZ491762 EP

Small Toadflax *Chaenorhinum minus*
N. Growing on old trackbed of cycleway near Whippingham Station building, following clearance of overhanging trees SZ520915 DB

Pale Toadflax *Linaria repens*
N. A single plant growing in a pavement crack at Embankment Road, Bembridge SZ637883 SB; many plants in pavement cracks and adjoining garden at Mill Hill Road, West Cowes SZ494950 IB

Field Cow-wheat *Melampyrum arvense*
N. Tony Stoneley has continued to monitor plants at the St Lawrence bank reserve. This year, he counted a maximum of 1437 plants, a substantial increase over recent years. This is the highest count since 2001. SZ536768 TS

Hybrid Yellow Bedstraw *Galium x pomeranicum (G. mollugo x verum)*
N. One patch near cliff edge on West High Down, growing with both parents SZ307848 CRP

Valerianella eriocarpa
N. Five plants in rear of chalk pit, Shorwell, a new inland site SZ458836 PS.

Great Lettuce *Lactuca virosa*
N. Several plants growing in the verge, Froglands Lane, Carisbrooke SZ483873 SB

A Dandelion *Taraxacum bracteatum*
N. Newtown, Town/Walters Copse SZ430905 EP conf. A. J. Richards. A native dandelion of damp habitats. **First Island record**

A Dandelion *Taraxacum croceiflorum*
N. Totland SZ321863 EP conf. A. J. Richards. A native dandelion of grassy places and waysides. **First Island record**

Rough Hawk's-beard *Crepis biennis*
N. A single flowering plant growing in grassland at Ashey Cemetery, south of Ryde. SZ578897 EJC

Leptinella *Cotula squalida*
E. Well established in short grassland on steep roadside grass bank at Wroxall; it has probably been spread by strimming. SZ550795 PS conf EJC. This is a plant which is readily obtainable from garden centres **First Island record**

Narrow-leaved Ragwort *Senecio inaequidens*
E. About 60 plants growing on the roadside and in front gardens along Parkway, Binstead. This plant has only ever been recorded in the past as single, short-lived plants. The number of plants in this location suggests that it is well established here SZ573920 PS

Ragweed *Ambrosia artemisiifolia*
C. One plant found in Borthwood Copse. It is known that a local farmer's wife scatters bird seed in wood, explaining its likely origin. SZ570844 IR

Water Soldier *Stratiotes aloides*
E. Well established in Capel Furlong farm pond, Brook SZ395838 CH

Hybrid Lords-and-ladies *Arum italicum x maculatum*
N. One plant with growing with both parents in Little Pax Wood, Steephill SZ551773 PS First modern Island record.

Thin-spiked Wood-sedge *Carex strigosa*
N. Growing very locally in quantity in Brighstone Forest. This is a surprising record because *Carex strigosa* is generally considered to be a faithful indicator of ancient woodland. Brook Forest is plantation woodland established in the second half of the nineteenth century SZ4284/ 4285. Also discovered in Westover Plantation, also plantation woodland 409849 Both PS.

Dwarf Sedge *Carex humilis*
N. Paul Stanley found two clumps of this sedge by a track on Mottistone Down during a botany meeting in September SZ416845 PS/mo. One clump was approximately 2m x 1m and the second was 1m x 1m. They may have originated from two individuals which have gradually increased in size. This is a nationally scarce sedge of short calcareous grassland with its stronghold in Wilshire. We did not think that it occurred on the Island until Paul discovered a patch on the north side of Afton Down in 2006. It is just possible that it may be growing undetected elsewhere on downland in the west Wight.

Wavy Hair-grass *Deschampsia flexuosa*
N. One shoot located in short grassland on steep roadside grass bank at Wroxall. Heather (*Calluna vulgaris*) also grows on this bank and could be native here SZ550795 EJC

Garden Tulip *Tulipa gesneriana*
C. In slumped and deserted garden at Blackgang undercliff SZ489762 EP

Cast-iron Plant *Aspidistra elatior*
E? A large clump growing in Little Pax Wood, a secondary wood at Steephill SZ551773 PS. It was first noticed here in 2011 but it might be a survivor from the original Victorian garden. **First Island record.**

Grape-hyacinth *Muscari neglectum*
E. Growing beneath a wall at Witchingberry Farm, Calbourne, having escaped from gardens SZ425868 PS This is the wild native species still growing in Breckland. It is rarely recorded as a naturalized species and is frequently misrecorded for the common garden grape hyacinth, *Muscari armeniacum* **First Island record.**

Compact Grape-hyacinth *Muscari botryoides*
E. Naturalised below the back wall of St Mary's church, Brighstone, growing with Winter Heliotrope SZ429827 PS **First Island record**

Pale Yellow-eyed Grass *Sisyrinchium striatum*
E. Many hundreds of plants growing on the old tip site at Stag Lane, Dodnor, by far the largest naturalized population recorded on the Island SZ503917 DB

Stinking Iris, yellow-flowered form *Iris foetidissima var.citrina*
N. A large flowering clump growing in roadside bank between Priory Drive and Caws Avenue, Seaview. SZ625904 JS

White Helleborine *Cephalanthera damasonium*
N. A single tall flowering plant with 11 flowers growing on a bank alongside the footpath running parallel to Castle Hill, Carisbrooke Castle mount SZ488880 RP. This was a remarkable found. The plant has been known in small quantity from The Shrubbery at Carisbrooke since 1847 but it was last seen here 1984, when two plants flowered. We thought it had been lost from this location so Roger Powley's find this year was most heartening.

Dense-flowered Fragrant Orchid *Gymnadenia densiflora*
N. 13 flowering plants on the north slope of Nansen Hill, Bonchurch SZ578789 CRP Another orchid re-found at a traditional site. It was first found here in 1982 and recorded most years thereafter but not since 1993, despite searching.

Early Spider-orchid *Ophrys sphegodes*
N. Tennyson Down. A single flowering plant pit in a brief appearance in short downland turf close to the Tennyson Monument on Freshwater downs. There have now been three reports of singletons on Tennyson Down since 1992 but they never appear to persist for more than one year SZ324853 PD

(Photo by Paul Davies – National Trust

Recorders

AM Anne Marston
BS Bill Shepard
CH Claire Hamilton
CRP Colin Pope
DA David Allen
DB David Biggs
EJC Eric Clement
EP Rev. Edward Pratt
IB Ian Boyd
IR Ian Ridett
JS Jill Salter
MO many observers (botany section)
PD Paul Davies
PS Paul Stanley
RP Roger Powley
RW Rob Wilson
SB Sue Blackwell
TS Tony Stoneley

Author: C.R.Pope, 14 High Park Road, Ryde, Isle of Wight, PO33 1BP

ANNUAL FUNGI FORAY REPORT 2013

Alan R. Outen

The 2013 annual foray weekend was as always a very enjoyable occasion. A good number of interested participants, including several from the Hampshire Fungus Recording Group, enjoyed excellent weather whilst fungi were plentiful in number and diversity with many interesting species.

On the afternoon of Friday 4 October four of us visited Culver Cliffs, though not with Fungi specifically our intended interest. Nonetheless we noted 19 species of which the most interesting was *Coprinopsis pseudonivea*, a dung inhabiting species with relatively few records in Britain and new to the island. The young fruit bodies often show a pinkish tinge and it is one of the few species of this and related genera (formerly all *Coprinus*) to have a distinct smell. Most of the other finds were also on dung and of these *Conocybe lactea* and *Panaeolus sphinctrinus* are perhaps worthy of mention as also the small grassland mushroom species *Agaricus lutosus*. A brief stop was also made below Ashy Down to confirm the identification of *Phellinus pomaceus* **(Fig 1)** on Blackthorn that had recently been found there by Lesley and Howard Atkins.

The venue for the full day foray on Saturday 5 October was Briddlesford Copse and this proved extremely productive. The site has been visited for this event before but this year we entered from the station of the steam railway to cover a rather different area of the copse. An excellent total of 201 species was recorded with *Phellinus robustus* **(Fig 2)** new to the Isle of Wight and a rare species in the UK, the first of many exciting finds made during the day. The list included five species of *Amanita* (including *A. vaginata* sensu stricta); eight *Lactarius* (including *L. azonites* and *L. chrysorrheus*); six *Marasmius* (including *M. bulliardii, M. cohaerens, M. epiphyllus* and *M. epiphylloides*); eighteen *Mycena* (including *M. acicula, M. pelianthina* and *M. pura* - this latter now shown by DNA studies to be a complex of eleven species!); six *Russula* (including

R. chloroides); four *Tricholoma* (including *T. lascivum* and *T. sejunctum*) and three of the Ascomycete genus *Scutellinia* (of which *S. hirta and S. subhirtella* were both new for the Island). Other interesting species worthy of specific mention were: *Conocybe ambigua, Hebeloma aestivale, Hypholoma polytrichi, Hymenochaete cinnamomea, Dictyochaeta querna,*

Nemania (=Hypoxylon) confluens, Lachnum apalum, Stictis

stellata (all of which were new for the island), *Asterophora parasitica, Hemimycena tortuosa, Hydropus floccipes, Leccinum aurantiacum, Lepiota felina, Pluteus leoninus, Craterellus cornucopiodes* and *Otidea onotica*. Specimens of the attractive *Lepiota lilacea,* collected in East Cowes from a pot plant, were brought to the foray by Pat Luckett. Although the *Checklist of the British and Irish Basidiomycota* states that this is known from the Isle of Wight there was previously no record in the island database.

Another find at Briddlesford Copse was *Agaricus essetei (=abruptibulbus* auct). In the *Checklist of the British and Irish Basidiomycota* this was synonymised with *Agaricus silvicola*, though I have personally never accepted this, among many other synonymies appearing in that publication. Indeed in my original listing for the foray I had written "I do not accept synonymy of this taxon with *A. silvicola"*. (I do not accept synonymy of this taxon with ..... is a phrase I use a lot and you will find other examples in the species list. See also my comment below regarding *Inocybe brunneoatra*). Recently, having demonstrated by DNA studies that this is indeed a good species, the latest volume of *Fungi Europaei*, on *Agaricus*, has reinstated *A. essetei* as well as a number of *Agaricus* spp. that had been discarded. This demonstrates the value of individual mycologists continuing to record taxa that they regard as distinct, until such time as synonymies are categorically proven!

The part-day foray on Sunday 6 October saw us at Parkhurst Forest, another of the sites visited previously as part of the Foray weekend. This was again very rewarding in numbers of fruiting bodies of larger fungi and overall species diversity. The total of 150 species in a little over three hours was again very impressive. The pink-spored genus *Entoloma* was represented by no fewer than nine species these including *E. asprellum* and *E. serrulatum* (both sub-genus *Leptonia)*, *E. hebes* (sub-genus *Nolanea*). Nomenclature in some of the species in this genus has in the past been confused. I personally much preferred to keep the sub-genera as genera, as the creation of a 'super genus' is in my view inclined to deter people from tackling this group, which are more manageable than many imagine. Thirteen species of the genus *Russula* were identified (mostly through the efforts of Eric Janke) and these included *R. luteotacta, R. plumbeobrunnnea* (new to the Island and a recently described species closely related to *R. parazurea*), *R. praetervisa* (also new to the island),

R. puellaris and *R. violeipes*. *Russula silvestris* was also new to the Island though probably previously overlooked as *R. emetica*. Five stipitate Hydnoids was also impressive, these being *Hydnum repandum, H. rufescens, Hydnellum spongiosipes* **(Fig 3)** new to the Island., *Phellodon confluens* **(Fig 4)** and *P. niger* (the latter three found by Colin Pope were identified by Alan Lucas). Other noteworthy finds were *Coprinellus callinus, Inocybe soluta*, the blackening *Lyophyllum gangraenosum (=leucophaetum), Psathyrella albidula, P. fusca* (all of which were also additions to the Island list) *Amanita eliae, Gomphidius roseus, Hebeloma aestivale* (again!), *Inocybe petiginosa, Ripartites tricholoma, Cantharellus cibarius* and *Thelephora spiculosa. Inocybe brunneoatra* has been recorded on the Isle of Wight before but should not be synonymised with *I. fuscidula*. Despite their synonymy in the *Checklist of the British and Irish Basidiomycota* the two were kept separate in the *Keys to British Species of Inocybe* (Outen and Cullington) and preliminary DNA studies have indeed shown that *I. fuscidula* is a complex.

My thanks to all those who participated in the foray for their interest, enthusiasm and collections contributing to these lists. Thanks also to those others who have contributed identifications (often the result of careful microscopy), particularly by members of the Hampshire Fungus Recording Group and Dr David Biggs. I am also very grateful to Lesley and Howard Atkins for their very kind hospitality during my stay on the Isle of Wight and to Colin Pope for his selection of such superb foray sites. Jackie Hart kindly checked the species that were new to the Island database. Finally my thanks to my many friends on the island and indeed to all participants on the forays, for their excellent company.

References

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Parra-Sánchez A.L. (2013) Fungi europaei Vol 1A - *Agaricus* L. *Allopsalliota* (Parte II).
Pub: Edizioni Candusso

Author: A. Outen, 14 Fairfax Close, Clifton, Shefford, Beds SG17 5RH

Figure 1.
Phellinus pomaceus
Growing on blackthorn,
Knighton Down

Photo by Colin Pope.

Figure 2.
Phellinus robustus
A rare bracket, found
for the first time in
Briddlesford Copse.

Photo by David Bone

Figure 3. *Hydnellum spongiosipes*
A tooth fungus, found for the first time in Parkhurst Forest. Photo by Eric Janke

Figure 4. *Phellodon confluens*
A tooth fungus found for the first time this year in Parkhurst Forest. Photo by C. Pope

Year 3 – BELOW THE GROUND SURVEY 2013

Newnham Farm, Binstead, Isle of Wight. NGR SZ 566915.

David Marshall

Background

Land at Newnham farm was surveyed between May and September of 2013 at the invitation of John and Diane Cleaver. This was in response to an earlier discovery of a small amount of Romano-British pottery while draining a small declivity and spring on the west side of the Newnham Brook (NGR SZ 564916) Analysis of a pollen core, extracted from this minor wetland, showed an onset of peat accretion during Late Neolithic times, after 2910-2580 *cal*. BC (GU-5424). The pollen record from the peat showed an ensuing decline in tree cover and an increase in grasses and cereals. This has been attributed to increased Bronze Age agriculture and associated forest clearance. This episode is complemented further pollen evidence obtained from the ditch of the upstanding survivor of the two round barrows (Scaife, 2012, 142-146). These are sited some 0.7km northwest of the farmhouse, at Puck House.

Where Vectis ware and burnt flint were stratified within the wetland peat, the pollen record showed a further expansion of cereals and grasses while some continuing tree cover was still provided by oak, alder and hazel. The presence of the intestinal parasite *Trichuris*, also indicated human or animal excrement in this Romano-British horizon. (Scaife, *ibid*).

It appears that in Late Saxon times the land at Newnham lay at or just beyond the boundary of a neighbouring coastal settlement or 'landing-place' named *Stathe* (Margham, 2012). Where the boundaries of *Stathe* are cited in a charter of *Aethelred*, dated 982, John Margham has recently presented us with a well reasoned interpretation of their physical presence on the ground (Margham, *ibid*, 281, fig. 8.32). His discussion concludes that the *Stathe* estate accommodated both open land demarcated by hedges or banks, and old woodland areas that may also been 'marked out' according to the needs of forest management or ownership.

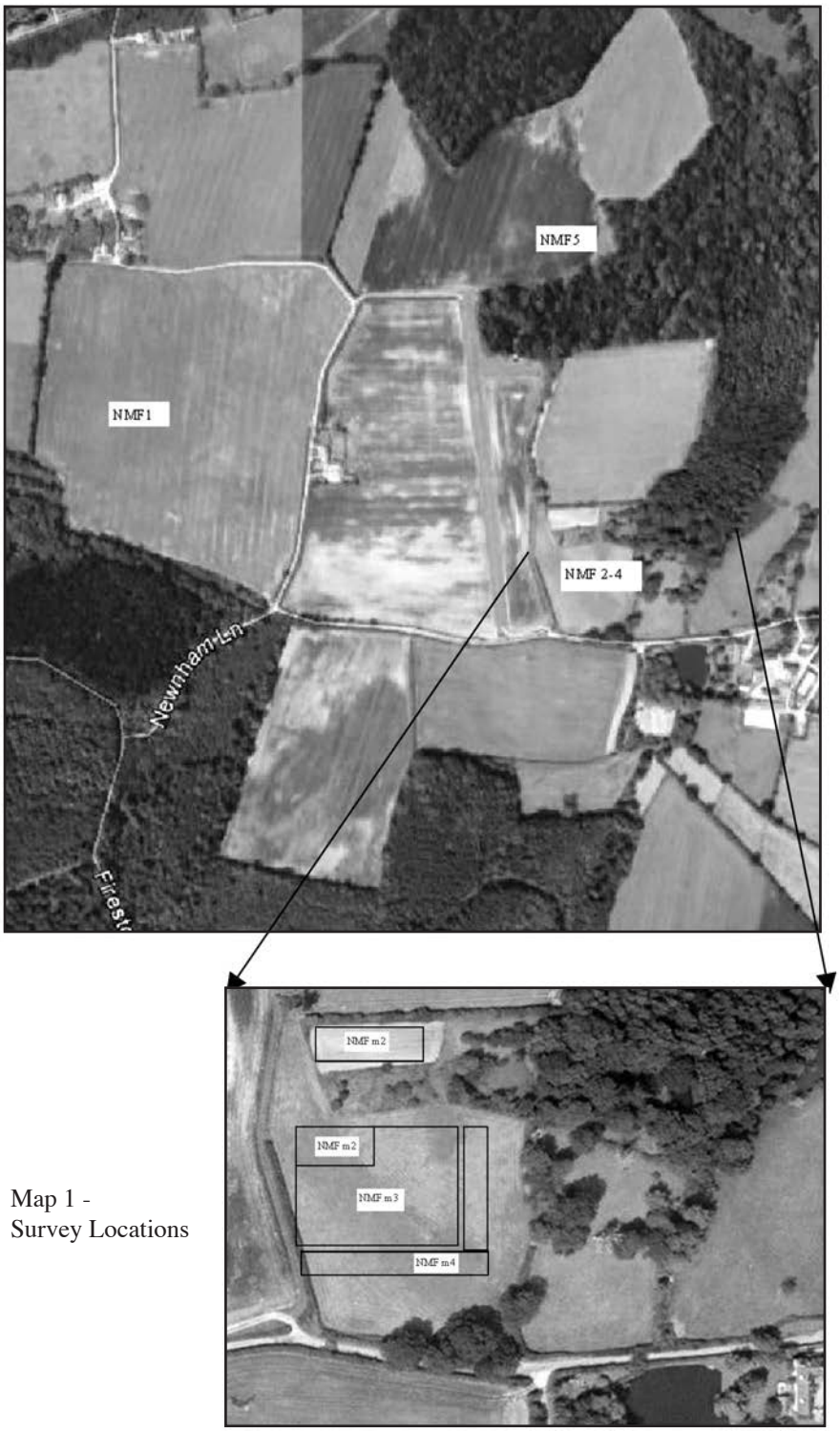
In 1255, Newnham is cited as the grange farm of Quarr Abbey, its name then being given as *Neweham* (Kokeritz, 1940, 43-4; Hockey, 1970, 49-50). There is little doubt that the area was thickly wooded with some ancient woodland still remaining but much assarted land has been recorded (HLC).

Geology

The farm is located on the Island's 'Northern Lowlands' as defined by Margham (2003) and occupies an area of clay, sand and gravel. The 'solid' geology of most of this farmland is Bembridge Marl and Hamstead Clay (BGS units i9 & i10) but north-west of the farmhouse these deposits are capped with a spread of Pleistocene gravel that has provided greater fertility.

Survey description and results

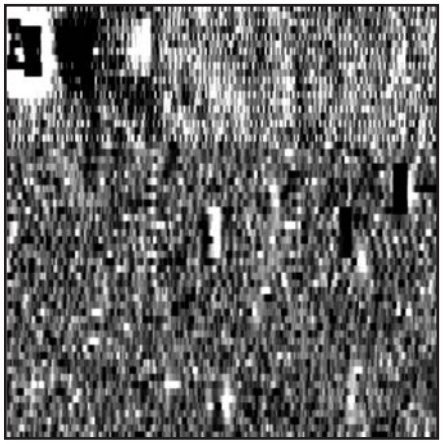
Within this localised and semi-drained wetland, some minor augering was carried out to test the extent of the Romano-British burnt flint horizon within the peat-filled hollow. In pasture and on ploughland adjacent to this site, magnetometry and resistivity was used to test for the presence of peripheral features. Where 'ground-truth' was sought by test-pitting, it was concluded that geophysical anomalies were the products of periglacial fissuring**.**



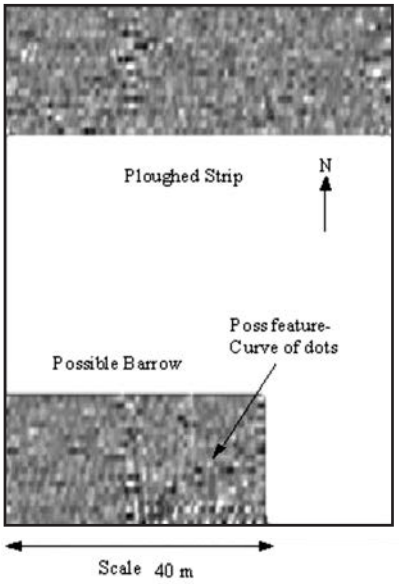
Map 1 -
Survey Locations

Survey details

NMF m1



NMF m2



Round (Bowl) Barrow SZ55844 91770
The above barrow was investigated in 1992. The Google image suggest additional possible barrows. The magnetometry surveys were inconclusive. The original investigation of the barrow noted that it was badly degraded by ploughing and was given a high risk rating. The second barrow was investigated in 1985 when a few fragments of Grooved Ware were found beneath a highly degraded mound.

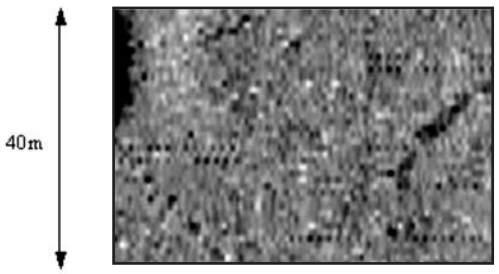
NMF m1 20-6-2012
Field-walking part of field. SZ 56161 91908
A total of 36 8mx8m squares revealed a total of 35 finds. 22 post-medieval tile, 6 worked flint, 4 pottery sherds (to be assessed) and 3 other stones (to be assessed). This is not regarded as significant and probably results from manuring. Many small rounded pebbles (not recorded) could reflect the use of sea-weed to enrich the soil.

NMFm 2 : 16-5-2012
Magnetometry of possible archaeology - Ploughed area SZ 56303 91643
-Field SZ 56312 91590
Ploughed area – no features.
Field –There are features that need further examination. The topography of the field suggested the possibility of archaeology but the results, so far, do not support this hypothesis.

NMFm 3 : 30-5-2012 and enhanced in **NMFm 4**

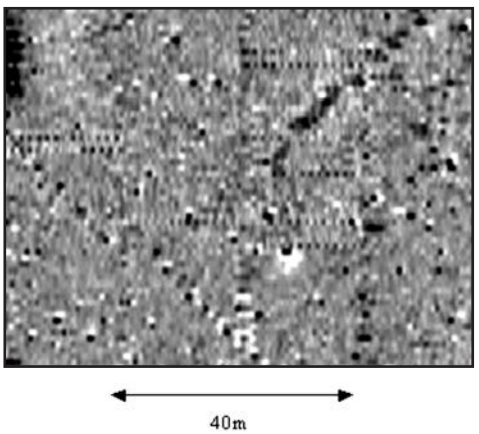
Further magnetometry in field NMF2m SZ 56312 915

NMF3m



A linear feature from top right, a possible small circular feature right off centre towards bottom and a line of dots from bottom centre to the north-west were noted. However, these features are impossible to interpret.
It may help to extend the survey to South and East.
NMFm 3 30-5-2012 and enhanced in **NMFm 4**

NMF4m



NMFm 4 4-7-20An enhanced view of Survey NMFm3 SZ 56312 91590

It was decided to investigate the above features with 3 trenches.

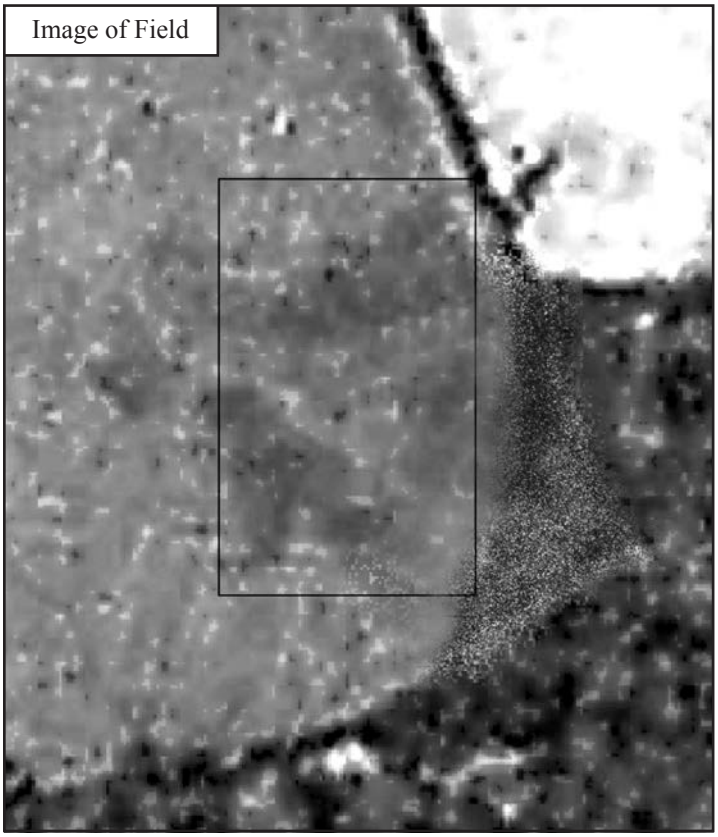
Trench 2 - This trench was located near a marshy area and had previously revealed some finds (Tomalin unreported). Finds included early Vectisware. Finds from this trench included burnt flint and charcoal.

Trench 3 – A layer of natural gravel. Most likely peri-glacial/post glacial stream bed. No evidence of disturbance to the natural geology in the trench section.

Trench 4 – Further examination, as gravel layer might be archaeology although it is likely to mirror trench 3.

NMF5 – Crop-Marks

Mag Result



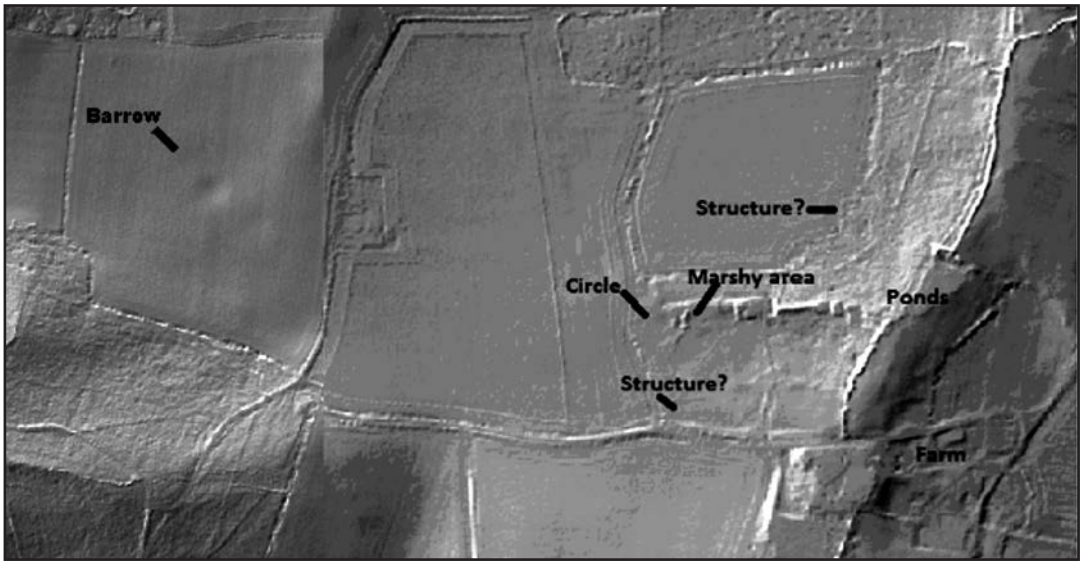
NMFm 5 12-9-2012
Magnetometry was used to investigate crop-marks shown above. (SZ 56310 92032 in aerial photo). Results matched the crop-marks. John Cleaver said that there are land drains in that area leading to a nearby brook. No further action taken.
A fieldwalk covering 8 - 10m x 10m squares in NMFm 5 did not result in any significant finds.

AUGER HOLES AT NEWNHAM FARM 10TH JULY 2013

Listed from the lower end of the slope upwards.
The results suggest nothing of any significance.

	SZ56347			
4	91617	126ft	No flint	
	SZ56341			
3	91618	126ft	No flint	
	SZ56334			
2	91616		sparse	
	SZ56330		in tree (on east side of	
1	91612	131ft	stream).	
	SZ56329			Between tree and
M1	91611	134ft	No flint	stream
	SZ56327			Hole and auger on east
M2	91609	138ft	sparse burnt flint	side of stream
	SZ56325			Hole and auger on west side of stream,
M3	91612	123ft	lots of flint	original holes
	SZ56319			Red flag. Up spoil site,
M4	91616	130ft	sparse flint	west side of stream
	SZ56317		sparse flint, clay and	
M5	91612	128ft	gravel	

Lidar image of Newnham Farm
The Lidar image indicates a circular shape slightly outside the area of the surveys. This might require a return visit to establish what it might be. There is a suggestion of a possible rectangular structure next to the road in the same field. There is another possible structure on the filed boundary to the north-east of the marshy area. The marshy area noted above is also shown. The woodland in the north and east of the image shows field boundaries that existed prior to the woodland. Similar exists under Firestone Copse to the west. Image by permission of Geomantics



Lidar image of the environs of Newnham Farm showing features investigated in the Below-the- ground survey.

The numerous visits to Newnham Farm have failed to produce any results of substance. However, the lidar image has been helpful by indicating further potential areas for future investigation. Decisions on this will be made in light of the programme of surveys that have been identified by the team.

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Acknowledgments

With thanks to Leader + for the funding which enabled us to this Project.

Author: David Marshall on behalf of the IWNHAS Archaeology Group.

BELOW THE GROUND PROJECT FOR 2014
Mersley Farm, Newchurch, Isle of Wight

David Marshall

Location
Mersley Farm is located at the foot of the south-facing scarp of Wight's lateral Chalk ridge. The scarp crest at this point is named Mersley Down. The farm buildings are sited at NGR SZ 555869. The Google Earth image presented in this report shows these buildings and three survey areas (MF1, 2 and 3) in fields south of the farm (fig. 1). Approximately 1km south of the farm lies the Eastern Yar river, a modest stream flanked by a narrow floodplain. Here, an old stone bridge at Langbridge gives access to the perched village of Newchurch.

Geology and geomorphology
The farm and most of its curtilage occupies light sandy soils underlain by the Carstone, Sandrock and Ferruginous Sands of the Lower Greensand Series. North of the farmhouse, a bench of Gault Clay leads upwards to the Chalk scarp of Mersley Down. Immediately east of the farm a minor spring rises in a scarp-foot declivity.

Earlier investigations
1. In 1982, a fourth century T-shaped corn-dryer was excavated in Packway field, some 0.5km south of Mersley Farm. This structure was discovered after its capstone had been struck during spring ploughing. The presence of grain and an absence of chaff suggested that the corn was intended for milling. It was suspected that the area around this feature had been occupied by a Romano-British farming community (Tomalin, 1992).

2. In *c*. 1983, **a**n oval pit of Late Iron Age or Early Romano-British date was excavated by Martin Boswell at Packway. The nature and positioning of pottery vessels within this pit suggested a possible burial. This dated no later than the mid-first century AD. No human bones were found in the acidic Greensand fill of the pit but one heavily decomposed ox mandible was recovered (Tomalin, 1998, 97).

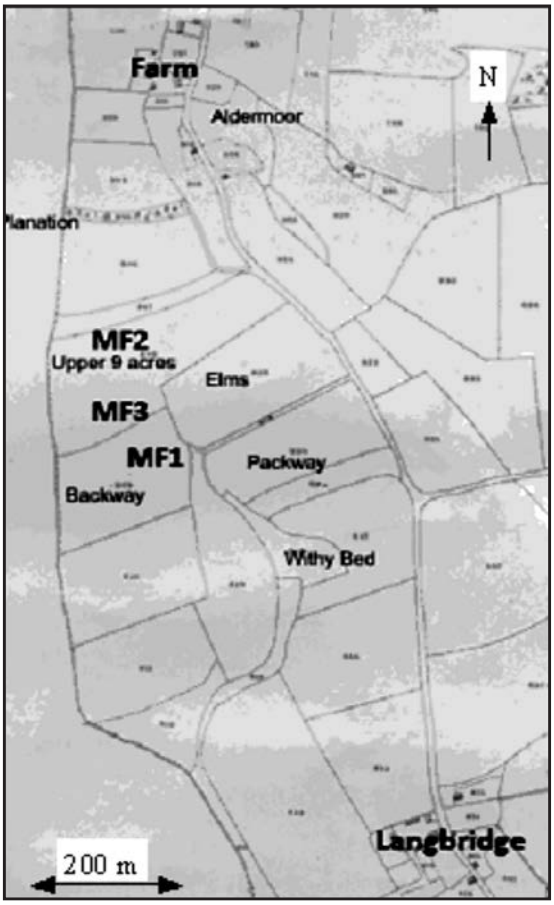
3. In 1996 an archaeological field evaluation was conducted at Mersley Farm pond. This site was a wetland hollow concealing a weak scarp-foot spring some 60m east of the farmhouse. Test pits were cut here prior to a planned deepening and enlargement of what appears to have been a former pond. All five trenches uncovered Late Neolithic/Early Bronze Age flint tools and debitage. One trench revealed a little Late Iron Age/Early Roman pottery. Some medieval pottery indicated activity near the stream. (Trott, 2000a).

4. In 1999 members of the IWNHAS carried out a brief fieldwalking assessment of fields south of Mersley Farm. A moderate scatter of Mesolithic, Neolithic and Bronze Age flintwork was observed together with some fire-cracked flint, indicative of occupation. Specific artefacts included an unfinished Bronze Age barbed and tanged arrowhead and a small scatter of Romano- British sherds. One Early Saxon sherd and another of Late Saxon date were recovered. A small amount of early and late medieval pottery was present as well as some post-medieval sherds. (Trott, 2000b).

5. Roman pottery and tile found in plough-soil on the east side of Packway field was examined in 2002. Some 219 sherds were dominated by Vectis ware of first-second century type. A little Late Iron Age pottery of Durotrigian and Atrebatic types was also recorded. A small quantity of Roman ceramic roof, flue and floor tile was also recovered (Trott, 2002).

Current investigations

While a range of artefacts of prehistoric and historic date have been recovered by fieldwalking, no undisturbed structural evidence of early human habitation has yet been found at Mersley. The brief of the Below the Ground team was to make full use of aerial photographs, satellite imagery and field evidence before proceeding to a geo-physical investigation of potential sites.



Survey areas MF1, MF2 and MF 3 were selected in October 2012. Work then continued to December 2013. A further survey area, much closer to the farm, was also selected at NGR SZ 556868. Where a platform has been perceived on a gentle south-facing slope, this site is seen to be a possible area of habitation. Investigation at this location is now on-going and initial results seem encouraging. The locations of the first survey areas are shown on the Google image (fig. 3).

The starting point of the survey was in the field named 'Backway' (Fig 1). This is shown on the on the tithe map and is to the immediate east of the Packway field, adjacent to the Medieval parish boundary. The field name Packway is still in common use whereas the name 'Backway' may have been miss-recorded. The track that might be associated with the Packway field seems, from its name, to have been in use for some time and may have been part of a scarp-foot route between Newport and Brading. This route is now known as the Bembridge trail.

Figure 1.
Field names at or near Packway, Mersley Farm.

Results of fieldwalking and geophysical survey in area MF1

Artefact summary.

1.	Pottery base, Vectis ware.	Romano-British.	Field 1.
2.	Pottery rim, Verwood. Glazed.	Post medieval.	Field 1.
3.	Chert flake. Retouched. 2012.	Neolithic?	Field 1.
4.	Single red tile tessarae? 2012.	Romano-British.	Field 1.
5.	Pottery Vectis ware sherd, burnt. 2012.	Romano-British	Field 1.
6.	Pottery rim with glaze. 2013.	Post med.	Field 2.
7.	Tegula and imbrex roofing tile.	Romano-British.	Field 1.
8	Tegula and imbrex roofing tile.	Romano-British.	Field 1.
9.	Pottery sherd glazed.	Post med.	Field 1.
10.	Pottery glazed tile.	Post med.	Field 1.

11.	Cornish green slate (See 1277. 2012).	Medieval	Field 1.
12.	Pottery. Vectis ware 2012.	Romano-British.	Field 1.
13.	Pottery. Candleholder. 2012.	Late Saxon? Med.	Field 1.
14.	Pottery rim. Unglazed. Cooking pot?	Medieval.	Field 1.
15.	Sagging bases cooking pot 5 sherds. 2012.	Saxo-Norman.	Field 1.
16.	Metal. Alloy. Candlestick fragment. 2012.	Post med.	Field.1.
17.	Roofing tile. 2012.	Romano-British.	Field 1.
18.	Horn finger guard? Knife trim? 2012.	Post medieval.	Field 1.
19.	Pottery. Gaulish? 2012.	Romano-British	Field 1.
20.	Romano British tile. 2012.	Late Iron Age/R-B.	Field 1.
21.	Flint tool. Retouched core/faceted. 2013.	Neolithic?	Field 2.
22.	Fine flint point. 2012.	Mesolithic.	Field 1.
23.	Flint scraper. 2012.	Neolithic.	Field 1.
24.	Retouched flints. Various. 2012.	Neolithic.	Field 1.

Although this has been a relatively small field assessment, the results are broadly similar to those obtained in 1999 (Trott 2000). This indicates successive episodes of human activity in the Mersley Farm area, beginning in Mesolithic times. This evidence is subject to the usual caution that some of these artefacts may have been more recently introduced on to these particular fields when manure was brought in from elsewhere.

Resistivity results in area MF2

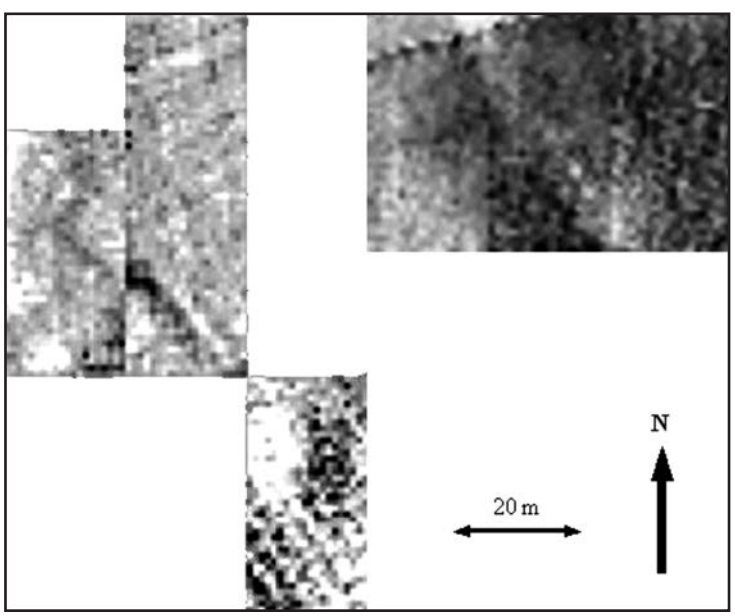


Figure 2.

Results and interpretation

The results acquired from resistivity survey (Fig 2) showed no indication of wall lines or other solid structures. The dark parallel lines top right are better seen on the magnetometry and are interpreted as a trackway or droveway of varying width. There are some further anomalies but thought not to be significant. The lines in the lower image may indicate medieval ploughing.

Magnetometry results in areas MF1, MF2 and MF3

Figure 3.
The results of all geophysical surveys combined with an aerial view of fields south of Mersley Farm (Photographic image courtesy of Google Earth. Image @ 2014 The Geoinformation Group).

Due unevenness of the ground, and the presence of sensitive crops, such as asparagus, it was not possible to undertake blanket geophysical coverage of the entire area. Nevertheless, the magnetometer results indicate that the trackway or droveway leads southwards from the vicinity of the current farm and can be traced through all four sets of results (fig. 3).

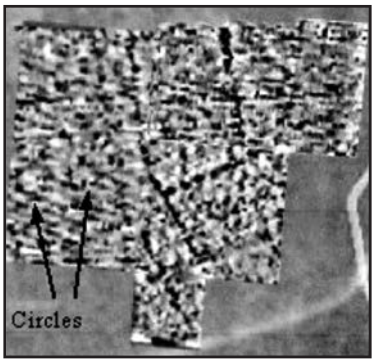


Figure 4.

Leading off the Mersley droveway are a number of what appear to be rectilinear enclosures. Their linear pattern suggests that they are of the same age. Slightly to the west is the medieval parish boundary of Newchurch. The relationship of this to the field/ enclosure boundaries has not been established. This is an area for future investigation

There is a suggestion of circular shapes in the centre image (fig. 4) both bottom right and centre left. These resemble hut circles within an enclosure. Similar possibilities can be seen in the bottom left of the top image. However, these observations are speculative and require further investigation.

Commentary

Approximately 1km south of Packway field lies the Eastern Yar river. If this was the destination of the detected droveway then perhaps it served a river-crossing similar to that found some 2km to the east, at Alverstone.

In 2005, an excavation found wooden posts and a brushwood causeway across the bed of the Eastern Yar at Alverstone. Some of the posts dated from early medieval times (MOLA, report forthcoming). Where Iron Age and Roman deposits were also found here, it seems that the river may have been crossed repeatedly at this point. It would be instructive to survey the bank opposite the Alverstone structure to establish if a droveway of the Mersley type was also present at this point

It seems unlikely that the past tidal reach of the Eastern Yar allowed practical navigation much beyond Alverstone. Nevertheless, there is some evidence of an Anglo-Saxon settlement named *Tidelingham,* some 4km further upstream near Horringford (Kokeritz, 1940, 24). While not necessarily indicating that the river was fully tidal to this point, this ancient name could denote past incursions of brackish water. The 5metre contour line crosses the river 3km downstream from Horringford and 0.8km below Langbridge. If this upstream section of the river was once tidally affected, there has since been considerable accretion.

Conclusion

When the geophysical plots are viewed collectively, it is evident that the Mersley droveway tapers as it leads southwards (fig.3). This configuration seems particularly well suited to the herding of animals when approaching a watering point or crossing point on the north bank of the Eastern Yar. Such a route seems best suited to animals grazed on the chalk down. If, however, this droveway did not reach the river, then perhaps it served the Packway route, leading westwards towards Newport or eastwards towards Brading.

Although we have no indication of the age of these boundaries, it has been suggested that their form might represent a ‘ladder settlement’. Similar forms in the Yorkshire Wolds have been dated to the Iron Age/Romano-British periods. (Derych, 2012).

Further work

Further work should investigate the upper field (NGR SZ 554868) and the course of the droveway towards the river. Early results are promising and both satellite image and lidar complement the initial ‘Below-the-ground’ surveys. From present results it seems that these Greensand soils are best suited to resistivity survey rather than the use of magnetometer. This will be the basis of a future report.

Acknowledgements
We wish to thank Mr Colin Boswell for his kind permission to allow access to investigate Mersley Farm.

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Acknowledgments
With thanks to Leader + for the funding which enabled us to this Project.

Author: David Marshall on behalf of the IWNHAS Archaeology Group.

METEOROLOGICAL REPORT FOR SHANKLIN, I.O.W, FOR THE YEAR 2013

Clive Cooper

ABSTRACT

Shanklin Weather Station was established approximately 63 years ago, although weather diaries are only available from February 1983. The station is owned by the Isle of Wight Council and is maintained by the Met. Office. It is situated at The Mead, a park area near Shanklin 'Old Village' towards the outskirts of the town and is 50 feet above sea level. The station is a simple one consisting of a 5" standard rain gauge and a Stevenson's Screen equipped with four thermometers. Readings and observations are taken once daily at 09.00 GMT. The Campbell Stokes sunshine recorder is located on the roof of Shanklin Theatre, at a height of 180 feet above sea level.

TEMPERATURES

The yearly mean temperature was 10.62°C and was 0.28°C below the long-term average. 2013 was the 11th coldest in the 31-year series. The months with the positive anomalies were December with 1.7°C, July with 1.5°C, October with 1.4°C and August 0.3°C. There were seven months with a negative anomaly; March with 2.9°C, April and May both with 1.4°C, February with 1.3°C, November with 0.8°C, June with 0.4°C and January with 0.3°C. September had a mean temperature that was equal to its long-term average. The winter period December 2012 - February 2013 was the 12th coldest since the winter of 1983-1984. The spring of 2013 was the 2nd coldest in the series. The coldest spring was in 1986. March 2013 was the coldest March in the 31-year series. Autumn 2013 was the 12th warmest since 1983. Summer 2013 was the 8th warmest summer in the last 31 years.

The highest temperature of the year, 28.2°C, occurred on 1st August and was the highest recorded temperature since 2006. There was a total of 39 days (the long-term average being 31) when the temperature reached or exceeded 21.1°C *(70°F)* - 1 in May, 2 in June, 22 in July, 11 in August and 3 in September. The lowest maximum daytime temperature, 0.0°C, was recorded on 20th January. The highest overnight temperature was 17.2°C and was recorded on the 15th July. The lowest overnight minimum temperature was -2.7°C, on 17th January. There was a total of 21 air frosts, defined as a temperature below 0.0°C; 6 in January, 3 in February, 7 in March, 4 in April and 1 in November. The latest frost was recorded on 21st April. The first frost of the autumn was on the 20th November. December was frost free in Shanklin.

RAINFALL

The rainfall for the year 2013 totalled 1070.4mm, representing 121% of the long-term average. There were 173 days with measurable rainfall. The seven months with above average rainfall were December with 221.2mm, October with 196.8mm, March with 90.8mm, January 123.7mm, April with 59.7mm, May with 49.4mm and June 51.0mm. This represented 211%, 169%, 151%, 130%, 105%, 101%, and 101% respective positive anomalies. November, with 109.1mm, was equal to its long- term average. The four months with below average rainfall were August with 30.2mm, February with 38.9mm, July with 34.3mm and September with 65.3mm. This represents 54%, 59%, 67% and 94%, respective negative monthly anomalies.

2013 was the 4th wettest year that I have recorded. The year started wet with the winter and spring both being wetter that usual. The summer produced 115.5mm of rain, which made it the driest summer since 2006 and the 11th driest summer in the last 31 years. Three months that stand out; December was the second wettest in the 31-year series, October was the third wettest in the series and March was the fourth wettest in the series.

The 82 days from 11th October till the 31st December produced 499.7mm of rain, which fell on 56 days out of the 82. An amount of rainfall reaching or exceeding 25.4mm*(1inch)* in a 24hr period ending at 09.00GMT, occurred on four days; 20th October with 26.4mm, 27th October with 48.3mm, 3rd November with 27.7mm and 23rd December with 62.0mm.

SUNSHINE

The total sunshine hours for 2013 were 1888.4, which represents 98% of the long-term average. 2013 was the dullest since 2000. The sunshine for the three summer months, June, July and August, totalled 849.4 hours, the highest since 2006. The three spring months totalled 503.2hrs, the lowest since 2001. The sunniest month was July with 324.0 hours representing 126% of its long-term average. During 2013 four months of the year had above average sunshine hours. The months with the highest sunshine anomalies were July with 324.0 hours – 126%, August with 278.1 hours - 118%, November with 87.7 hours – 106%, and May with 243.8 hours – 101% long-term average. There were eight months that did not attain their monthly average; March with 66.8 hours of sunshine achieved only 49% of its long-term average. The other months that did not reach their long average were January at 70%, September at 80%, December at 88%, October at 93%, April at 95%, February at 98% and June at 99%. The sunniest day of the year occurred on the 26th May when 15.2 hours of sunshine was recorded.

MISCELLANEOUS PHENOMENA

Thunder

Thunder was heard on 5 days, once in June, July, August, and December and twice in October.

Hail

Hail was recorded on 1 day, in December.

Sleet / Snow

Sleet/ Snow was observed on 13 days, 6 in January, 3 in February and 4 in March.

Gales

Gales occurred on 11 days during the year; 2 in January, 2 in October, 1 in November and 6 in December.

MONTHLY WEATHER SUMMARY – 2013

	AVERAGE TEMP.	MEAN MAX.	MEAN MIN.	RAINFALL	SUN HOURS
JAN	5.5	7.5	3.6	123.7	48.4
FEB	4.2	6.5	1.9	38.9	86.4
MAR	4.2	6.5	1.9	90.8	66.8
APR	7.6	10.8	4.4	59.7	192.6
MAY	10.7	14.4	7.1	49.4	243.8
JUN	14.3	17.6	10.9	51.0	247.3
JULY	18.3	22.7	13.9	34.3	324.0
AUG	17.4	20.9	13.9	30.2	278.1
SEP	15.1	18.2	12.0	65.3	142.7
OCT	13.7	16.2	11.3	196.8	115.2
NOV	8.1	10.7	5.4	109.1	87.7
DEC	8.3	10.9	5.7	221.2	55.4
YEARLY FIGURE	**10.62**	**13.57**	**7.67**	**1070.4**	**1888.4**

Author: Clive Cooper, Meteorological Observer. 20 Newport Road, Godshill, I.O.W. PO38 3HR

AN ARCHAEOLOGICAL SURVEY OF WIGHT'S SOLENT COAST:

A SUBJECTIVE RÉSUMÉ AND OVERVIEW OF COASTAL ARCHAEOLOGY IN A DYNAMIC ENVIRONMENT: A COASTAL STUDY.

David Tomalin

David Tomalin, Rebecca Loader, Robert Scaife (eds.). English Heritage. British Archaeological Reports (British series), no 568. Hadrian books, Oxford. 2013. £60.

A subjective resume and overview

For many readers this has been a long awaited report, its text having been completed more than a decade before its publication. Here are 545 pages and an attached CD dealing with a pioneering archaeological survey of the on-shore, inter-tidal and sub-tidal zones of the Wootton- Quarr section of the Solent coastline.

Discovery

In the introduction we learn how a chance discovery, in the early 1980s, of some Samian sherds in beach shingle led to a careful examination of the eastern inter-tidal foreshore of Wootton Creek. When a small scattered hoard of late fourth century bronze coins was metal-detected here and a fine Viking bronze cloak pin was reported by Tom and Bill Winch, the site soon won further archaeological attention.

Were active erosion was evident on Fishbourne beach, an initial evaluation of 'heritage loss' was funded by Wightlink UK and English Heritage. After a variety of wooden structures had been identified in the inter-tidal sediments, inspection was extended for four kilometres along the Solent coast to become the 'Wootton-Quarr survey'.

Scoping the project

In their conclusion to the fieldwork, the editors explain that the project's first objective was to seek '*an overview of the archaeological potential and sea-level chronology of the inter-tidal wetlands and submerged landscape of the Solent*'. This statement is sure to raise expectations above a localised study of a specific shoreline. Other pertinent inter-tidal sites along the Island's northern coastline are soon examined. These include the drowned (ria) inlets of Wight's coastline at Yarmouth, Newtown and Kings Quay. Later, communications with specific sites on the Dorset, Hampshire and West Sussex coasts are also drawn into the report.

East of Wootton Creek the survey reaches Player's Beach at Ryde, where more inter-tidal wooden structures are recognised. Where Wootton Creek is fed by the Chilling Brook, inland investigations are extended to the entire catchment, a configuration that reaches to the chalk downland and a springhead at Combley Roman villa. Where questions of earlier land-use and colluviation arise within this area, cores and sections have been cut in the header valleys of the chalk dip-slope.

Studies of the coastal environment

The report on this ambitious project opens with account by Colin Pope of the modern and remnant flora of this part of the Island's coast. This is an appropriate prelude to the extensive palaeoenvironmental investigation of the Holocene coastline described by Rob Scaife. With the aid of deep auger cores sunk at Norton Spit (Yarmouth); East Spit (Newtown) and Ranelagh Spit (Wootton), we are presented with the first outline history of the marine incursion and shoreline development of the Solent seaway.

In the Eastern Solent, the report concludes that, during the early Holocene, the submerged palaeovalley known as the 'Solent River' was already being transformed by marine inundation. A marked rise and advance of the sea towards the margins of the present coastline eventually occurs

around 6000 *cal*. BC. After this date some coastal peat still persists, but after c.2000-1500 *cal*. BC these are eventually submerged or eroded as the sea advances into the mouths of Wight's coastal streams. The interfluves between these inlets are also planated by the sea (fig. 1).

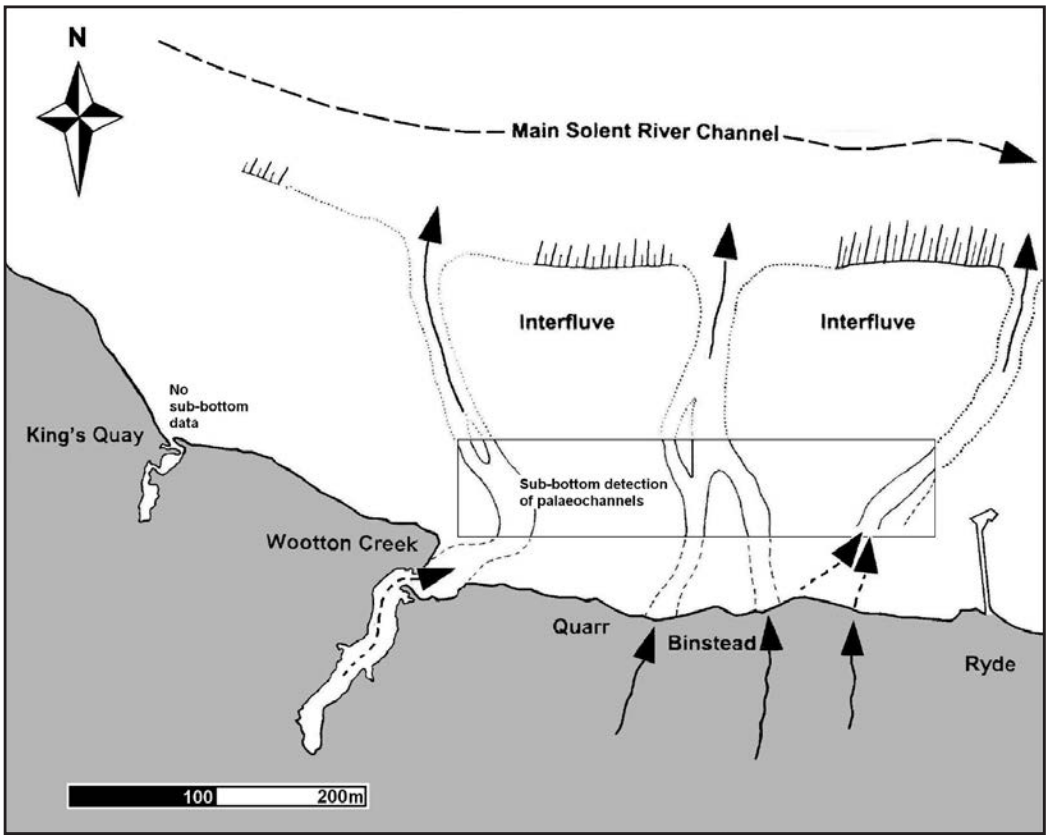


Figure 1.
The setting of the inundated Early Holocene coast a Wootton-Quarr showing the palaeochannels in the sub-tidal zone detected by CHIRP sub-bottom geophysical survey.

This history of coastal change is well supported by diatom analyses by Nigel Cameron and sedimentological studies by Matthew Canti. Where coastal plant communities had responded to these changes, these are fully documented in Rob Scaife's palynological studies of the coastal peat horizons and their associated depositional and palaeobotanical settings. A synthesis of all of this evidence is enhanced by Anthony Long's Holocene sea-level curves. These are the first for the Solent region.

Mesolithic activity in the coastal zone
In the inter-tidal zone on this coast, significant human activities are marked by scatters of fresh flint tools and debitage. Clusters of wooden stakes also intimate the trapping of fish. Assemblages of microliths in seven of the flint scatters suggest that Late Mesolithic activities were focused at the mouths of the Solent's inlets. These were eventually submerged by the advancing sea. A surprising phenomenon is the number of flint tranchet picks and axes recovered from the margins of these creeks and also the open shore. In the Wootton-Quarr survey, these amounted to ninety examples.

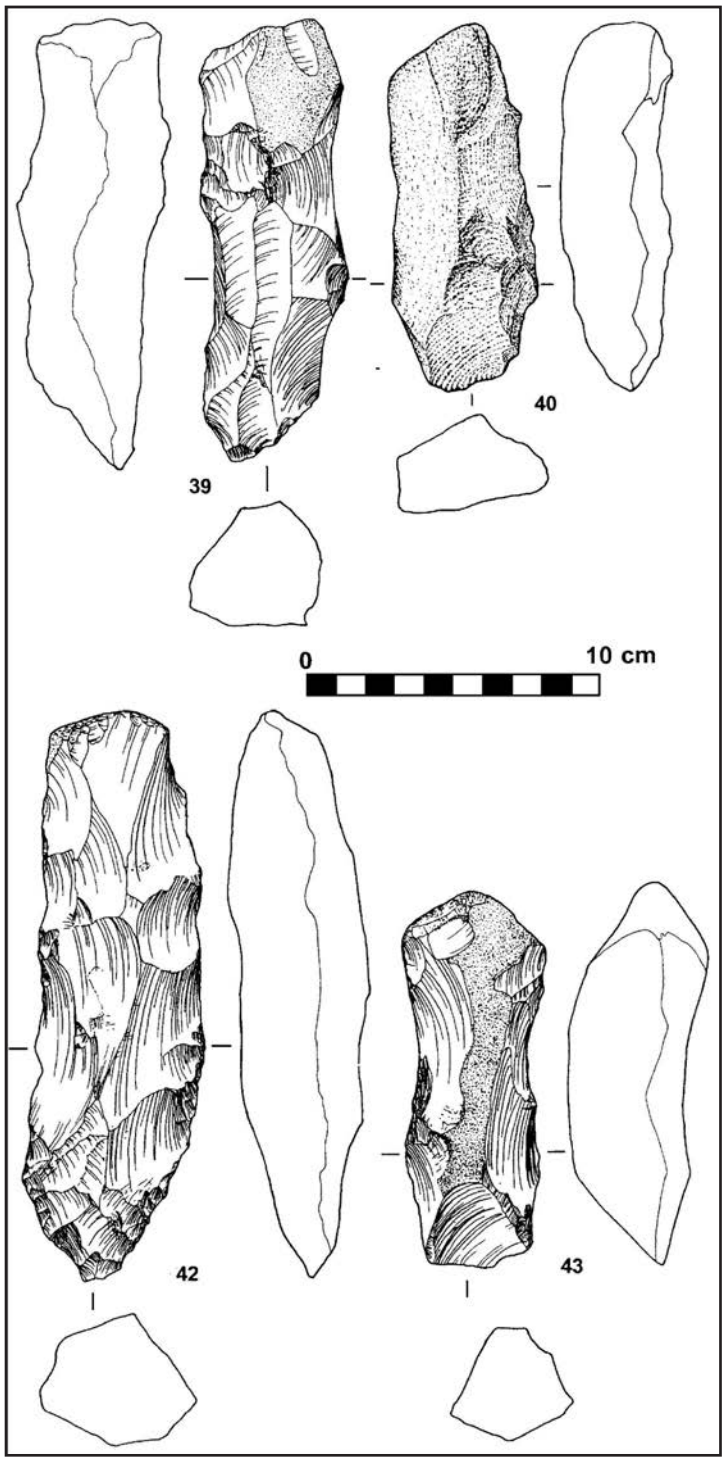


Figure 2.
Tranchet axes of flint and chert from Quarr/Binstead beach

Grasping the nettle of interpretation, Rebecca Loader observes that due to daily tidal submergence it was difficult to gather datable evidence concerning the picks and the lithic scatters. Nevertheless, on Quarr beach, site Q99 produced a massive deposit of fire-cracked flint together with some fifty microliths, two flint picks, four scrapers, twenty-eight cores and some six hundred waste flakes. All had been deposited in a saltmarsh environment near the earlier mouth of the Newnham/Quarr stream.

Organic silt sealing this deposit produced a date 4340-3990 *cal*. BC (OxA-6352). This *terminus post quem*, seems to place this particular site in the late fifth millennium BC. The earliest dated stake cluster in this vicinity is Q24. This is dated at 4040-3710 *cal*. BC (GU-5251). The change from saltmarsh to organic silt seems to have been induced by the back-ponding of stream water to produce a lagoonal and brackish wetland habitat. This, presumably, was induced by the presence of coastal bars.

The Neolithic coast

Around the middle of the fourth millennium BC further inundation is progressing on the Wootton-Quarr coast. A human response is represented by some seven Neolithic trackways that perhaps approached the postulated offshore bars. The earliest trackways (Q152, Q153 & Q190) are all dated around 3700-3340 *cal*. BC (GU- 5660, 5661 & 5664). Differences in construction suggest that they were not all laid at the same time.

On Keys Beach (Binstead), trackways K45 and B46 are later Neolithic constructions, their radiocarbon dates approximating to 2900-2500 *cal*. BC (GU-5696 & GU-5582). On the shore of the Western Solent, a further trackway is dated at 2920-2500 *cal*. BC (GU-5341) at Newtown.

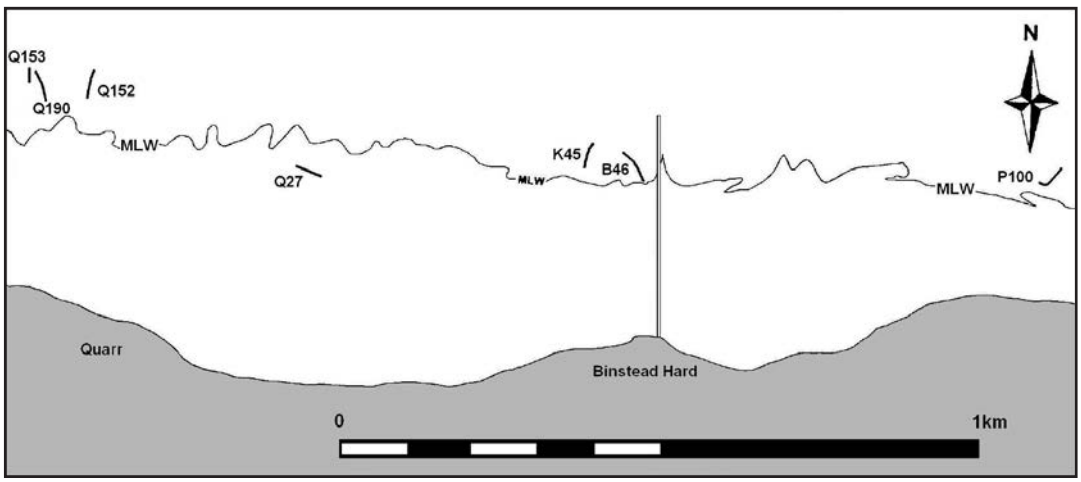


Figure 3.
The location of the Neolithic trackways of Quarr-Binstead beach.

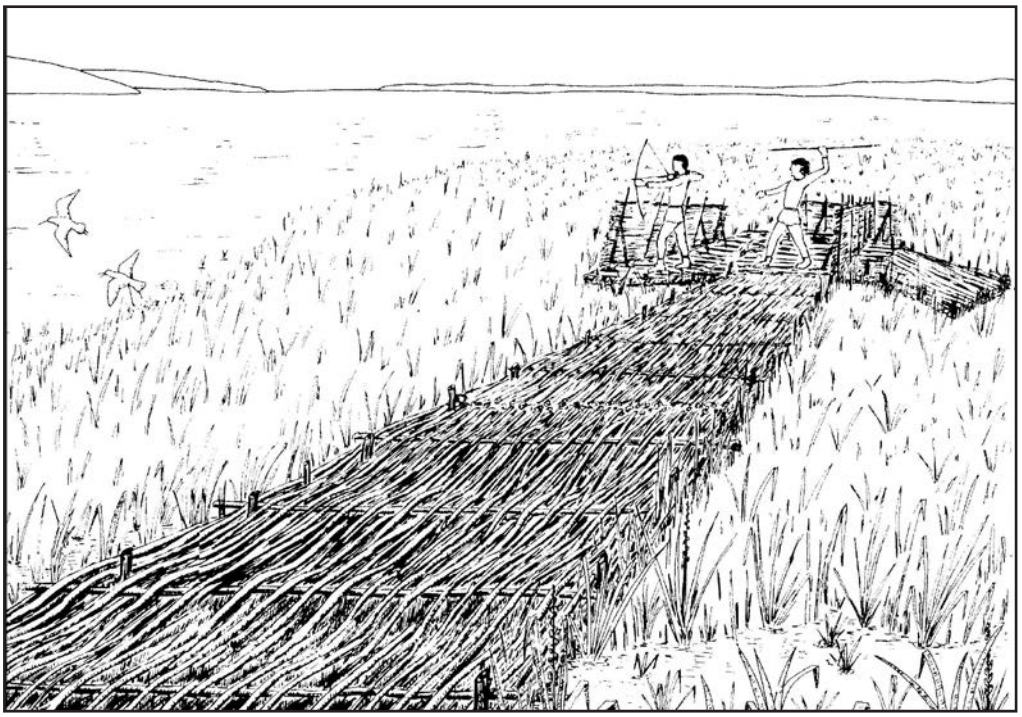
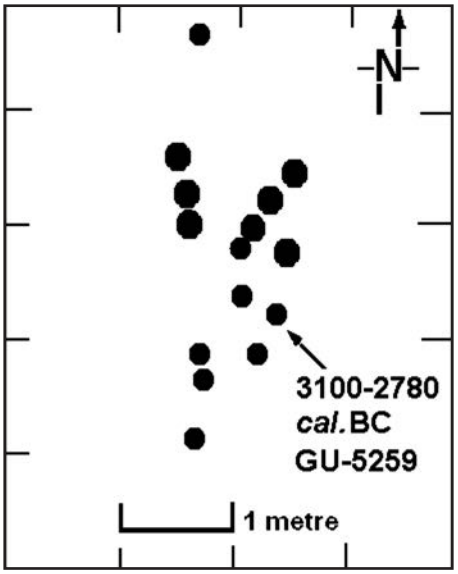


Figure 4.
Reconstruction of the Neolithic trackway Q190, now in the inter-tidal zone of Quarr Beach.

The earliest dated stake cluster offering the appearance of a fish trap is K20, on Key Beach, Binstead. This was composed of nineteen posts approximating to a V or Y-shaped setting (Fig. 5). This arrangement closely resembles the traps or 'putts', historically set in the Severn Estuary. A hazel stake from this structure has been dated to 3100-2780 *cal*. BC (GU-5259).



The submerged forest and its dendrochronology In her dendrochronology report, Jennifer Hillum examines some fifty-six recumbent oak trees entombed in the inter-tidal silts at Wootton- Quarr. Her results cover the period 3463 BC to 2694 BC, an unbroken record of growth patterns covering 770 years. For the earlier part of this period the trees show healthy growth but around 3200 BC their rings betray stress. Growth then recovers and peaks around 3000 BC. After 2800 BC the health of the trees shows a terminal decline. This is attributed to an advancing sea, its permeating salinity now progressively invading the roots of these former monarchs of the forest. Coastal changes are now surely afoot and the laying of trackways K45 and B46 may be a further response to this event.

Figure 5. Post cluster K20 on Keys Beach, Binstead. The V-setting is suited to the securing of a hooped funnel-shaped fishtrap of the Severn type.

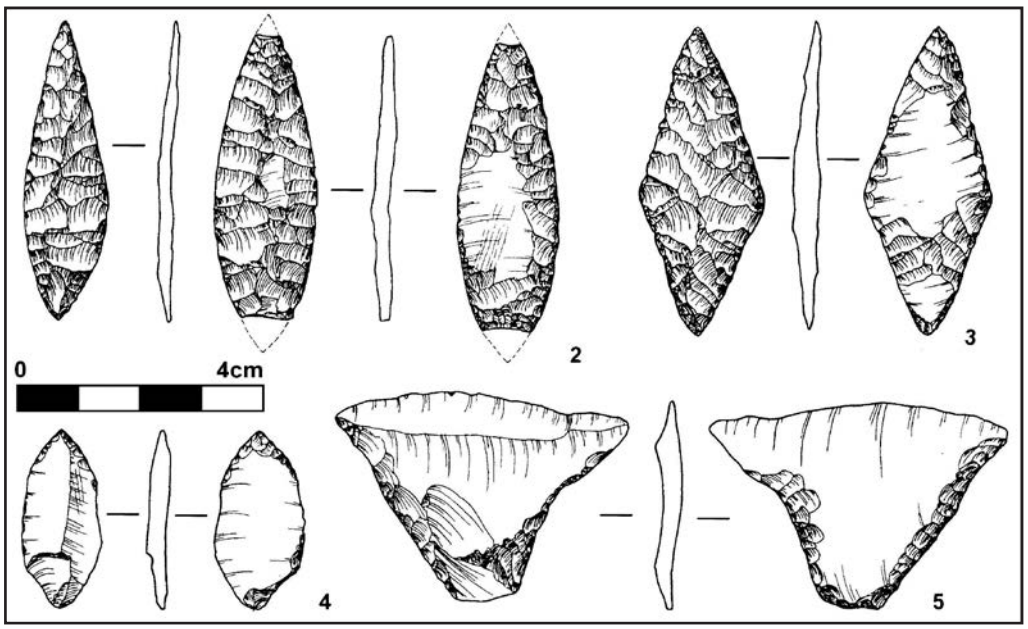


Figure 6.
Neolithic arrowheads from the inter-tidally submerged landscape at Wootton-Quarr.

Late Bronze Age wooden structures
During the Late Bronze Age a new series of wooden structures was erected near the coastal margin at Binstead. Structures B77-B81 are five narrow rectangles of stakes that are each some 1.5m wide and 6-7m long. A date of 840-530 *cal*. BC (GU-5339) for post group B79 seems agreeable with a few urn sherds found in and around this particular example. Where the narrowness of these structures would easily permit the fitting of transoms, it seems that each could have supported a platform of some kind. Such could account for the presence of the pottery. Where the authors find no analogies for these structures, speculation on their use rests with the reader.

Late Iron Age and Romano-British activity in Wootton Haven
Description and discussion maritime goods traded in and out of Wootton Haven is an important part of this report. Late Iron Age and early Roman imports abandoned on Fishbourne Beach include Terra Rubra and Terra Nigra finewares, Gallo-Belgic white wares and a few fragments of Dressel sp.1 amphorae. The latter are unlikely to have arrived after about AD 10. Later, the delivery of amphorae changes to Dressel 20 vessels from southern Spain and Gauloise 4 types from southern France.

Other arrivals at the haven include quantities of black burnished ware (BB1) delivered from the kilns adjacent to Poole Harbour. On the Isle of Wight, use of this pottery is infrequent, for it was commonly disregarded in preference to the familiar local indigenous brown-burnished pottery we know as Vectis ware. Where a salt-making kiln and scatters of Romano-British cattle skulls are also recorded on the lower foreshore of Fishbourne Beach, this report postulates a military contract involving Vectensian cattle and the outward shipment of their salted carcasses. The BB1 cooking pots and bowls may have been casual discards by crews temporarily assembled on this beach.

The report on the Roman pottery by Malcolm Lyne identifies the importation of Central Gaulish and Rhenish Samian ware at Wootton Haven during the second and third centuries. Other continental imports are Moselkeramik and Lezoux colour-coated beakers. From the Romano-British mainland come pots from Rowlands Castle, Alice Holt, East Sussex, Hardham (Kent) and Verulamium. The Sussex, Kent and Verulamium products suggest shipments from the Thames estuary. These might be items brought home by Vectensian crews.

During the fourth century imports from the neighbouring mainland include New Forest ware, Hampshire grog wares, some Overwey cooking pots from Surrey and a red-slipped mortarium from Oxfordshire. When dredged pottery from the Solent floor and the submerged banks at Brambles and Ryde Middle is added to the picture, we find traces of cargoes bringing Burgundian, North Gaulish and North African products into the Eastern Solent. To these David Williams adds Baetican amphorae (commonly used for olive oil), a southern Spanish amphora suited to the delivery of fish-paste and an amphora suited to the delivery of Palestinian wine.

The post alignments and their interpretation

During the first millennium BC, long-shore alignments of posts appear on the Wootton-Quarr shore. The earliest, at Fishbourne beach, is dated 800-400 *cal*. BC (GU-5052 & GU-5598). This alignment of eighty stakes follows the present low water boundary. Where its tip is intercepted by a cross-shore line of similar stakes, it may have served as a fish weir.

On the Quarr-Binstead beach eight more long-shore alignments are recorded. The first (B18) is dated at 400-200 *cal*. BC (GU-5253 & GU-5583). The longest of all of these alignments is made up of segments individually labelled Q137, Q14, Q15, K16 and B17. With a total length of 1.25km, this appears to be a single Early/Middle Saxon structure installed sometime between *cal.* AD 540 and 770.

While a fish weir seems to be the most appealing explanation for this particularly long structure, the report cautions us that no hurdling was discovered and that the posts could not be traced where they crossed the Quarr and Binstead palaeochannels. These two features could offer the best locations for fish-capture. We are reminded, however, that the soft sediments in these channels may have easily relinquished their truncated posts to past wave action. We must also allow that the original height of this alignment is unknown. This means that any hurdling once linked between the posts may have been removed when wave action was attacking this structure at a much higher level.

The Late Saxon fish weir and its neighbouring stone quarry

Unequivocal evidence of late Saxon fish trapping comes from structure B48/110 on Binstead Beach (fig. 7). This is a large V-shaped fish weir, is dated around *cal.* AD 810-1020 (GU-5399). Erected sometime in the ninth or early tenth century, this weir was well placed to feed a workforce then engaged in quarrying the local outcrop of Quarr limestone. This stone was selectively used in Hampshire and Sussex churches at this time (Jope, 1964). The quarry pits are sited some 400m inshore from the weir and just 100m inshore from mean high water mark.

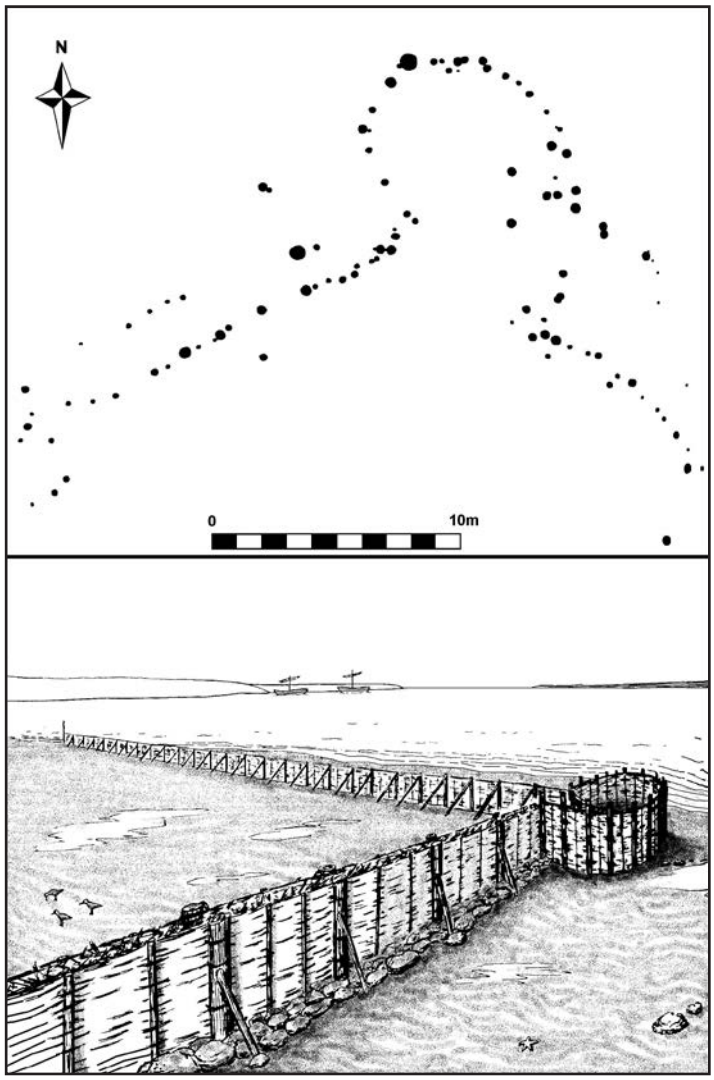


Figure 7.
Plan and reconstruction of the Late Saxon fish weir B48/110 on Binstead Beach

'*In the arm of the sea at Wodynton*'
At the mouth of Wootton Haven (now Wootton Creek) a 'fishpond *'in the arm of the sea*' is cited in an early charter of Quarr Abbey (Hockey, 1970, 50). This written description befits a pond- like hollow that can still be traced at very low tide immediately east of Young's boathouse and slipway at Fishbourne Beach (fig. 8). A wood sample obtained for a hurdle revetment on the seaward side of this pond has produced a date of *cal.* AD 680-1020 (GU-5053). If, as the charter suggests, the Cistercian monks of Quarr were using this pond after their arrival in 1131, this was perhaps an adoption of a Late Saxon structure.

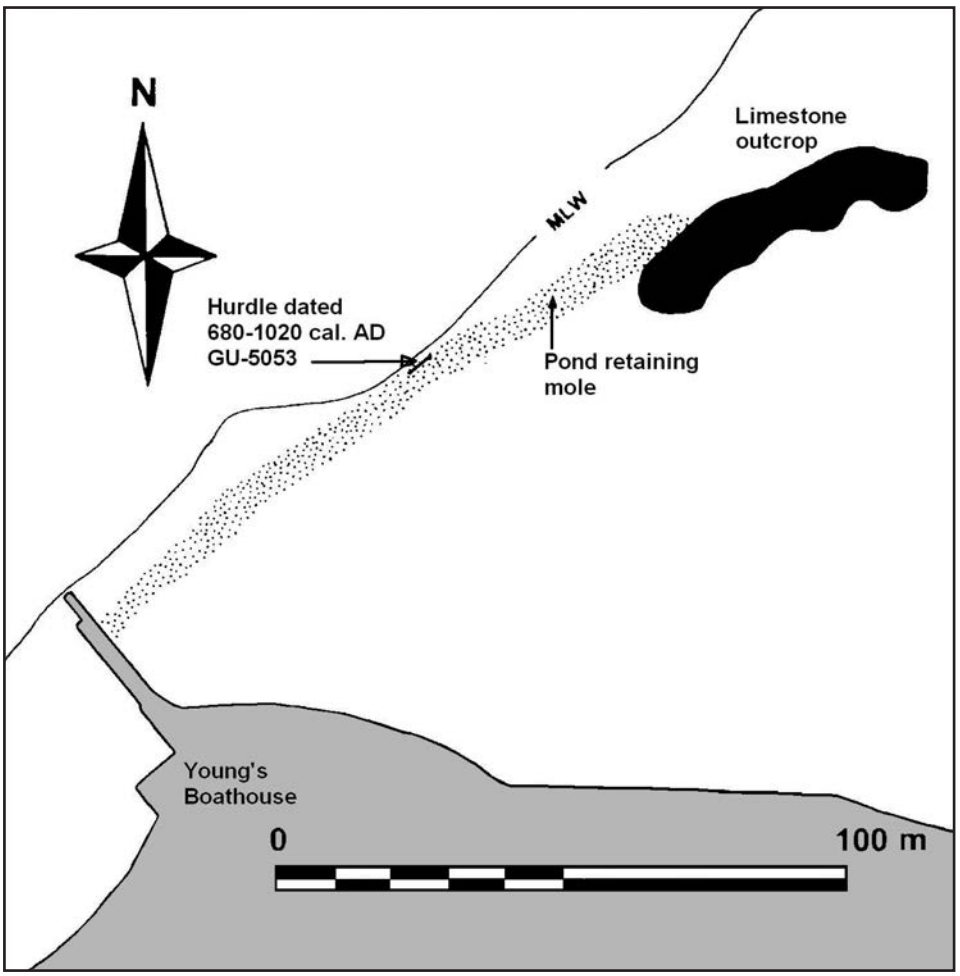


Figure 8.
The pond 'in the arm of the sea at Wodynton'.

In addition to the quarrying of Quarr limestone for Saxon building purposes, a further enterprise is evident. In post-Conquest times, this was pursued near an outcrop of Bembridge Limestone on Fishbourne Beach, where stone mortars were apparently being produced. This activity is attested by an unfinished mortar found broken at this spot (fig. 9). Some 3km offshore, a complete example comes from the shoal at Ryde Middle Bank (fig. 9). Exported examples of these mortars are known in the medieval cities of Southampton and Winchester. They have also been found in the North Sea ports of Kings Lynn and Great Yarmouth. At the latter port, the monks of Quarr abbey held waterfront property during the early fourteenth century (Hockey, 1991, 132-3, charter no. 533).

The Saxon and Viking haven

In the early centuries of the post-Roman period there is little evidence of maritime activity, although a few sherds of Middle and Late Saxon cooking pots are recorded at Wootton Haven. An exceptional item, dating from Late Saxon times, is a handsome hinged Viking cloak pin, a beachhead loss of the tenth or the eleventh century (fig. 10). Analogies for this pin lie in far-off Dublin, Isle of Man, Skye, Orkney and Iceland.

Medieval imports and exports

As landings and loadings in Wootton Haven increase in Norman times, the breakage and loss of imported pottery steadily rises. The report by Robert Thompson and Duncan Brown shows that in the period AD 1100- 1250 imported wares account for 20% of the sherds scattered on the beach. With the Cistercian monks of Savigny taking possession of the neighbouring land at Quarr in 1131, it is no surprise that this pottery includes North French white wares, Normandy gritty wares and products from Rouen. Some West Country sherds found on the shore of the haven may reflect sailing to and from Seaton Bay where the monks had been gifted lands in the Colyton area. Other pots, tempered with particles of Cornish granite, suggest more distant coastal contacts in the South-West Peninsular.

During the high medieval period (AD 1250-1350) French imports into the haven include Saintonge white wares from Aquitaine(fig.11).

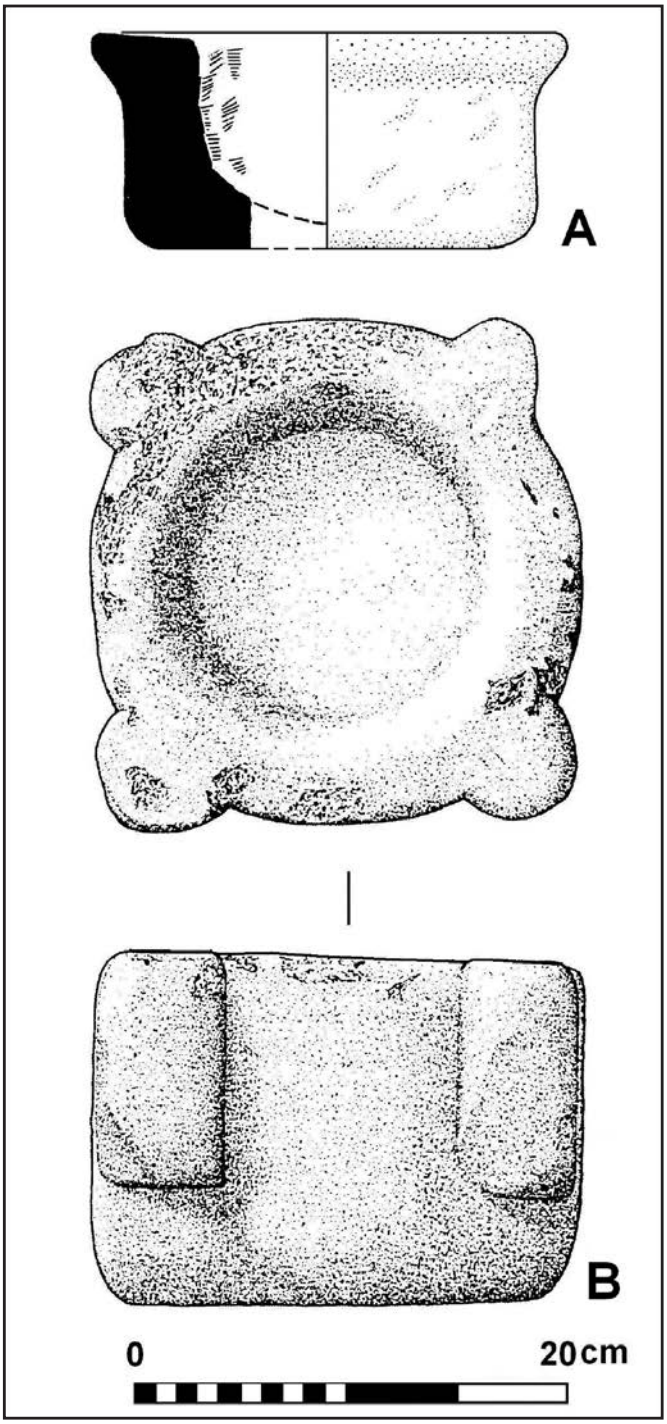


Figure 9,
Medieval mortars of Bembridge Limestone, recovered from (a) Fishbourne Beach and (b) Ryde Middle Bank

early stoneware from the Contentin peninsular; green-glazed earthenwares from the potteries of Beauvais and wares of Martincamp-type, shipped in from Picardy. A trickle of goods along the Atlantic seaboard is marked by the arrival of Andalusian lustreware and some south Breton pottery from region of Redon.

With the advent of the Hundred Years War, in 1377, French imports decline in favour of a growing trade with the Low Countries and the Rhineland. This change of realpolitik is reflected in the pottery at the Wootton Haven and Ryde Middle Bank where early Rhenish stonewares and jugs of Aardenburg type make their appearance.

During the fourteenth century the monks of Quarr are known to have been operating several ships from the haven. *La Mariote*, *la Seinte Marie, la Anne*, *la Marthe, la Katerine and le Nicholas* are all mentioned in the abbey's documents (Hockey, 1970 & 1991). Where destinations and cargoes are mentioned we learn of the fetching of French wine from Gascony and the retention of abbey property in the port of Barfleur. We also hear of a voyage to Sluys on the Danish island of Zealand. When a cargo of grain is delivered to Scotland in 1303, the voyage in made in *la Seinte Marie,* a single-masted cogge in the possession of the abbot of Quarr (Hockey, 1970. 232-3).

The nature of Stathe and the fugel floete

Upstream from the haven, John Margham examines the Saxon boundaries and place-names that attend Wootton Creek and the Chilling Brook. Using a tenth century charter of *Æthelred* he cites valuable evidence concerning the boundaries of a one-hide estate at *Stathe*. Here is an informative Anglo-Saxon name that can mean shore or river-bank but it is most commonly employed to identify a particular landing-place (Gelling & Cole, 2000, 91-2).

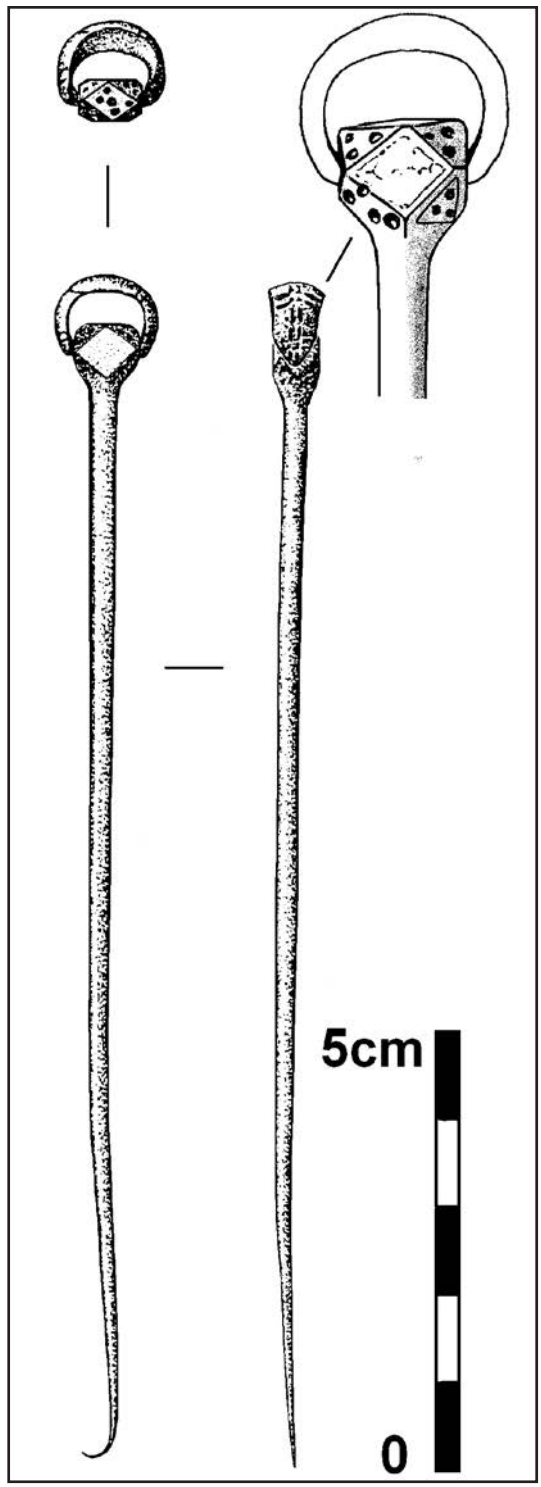


Figure 10. Viking pin from Wootton Haven

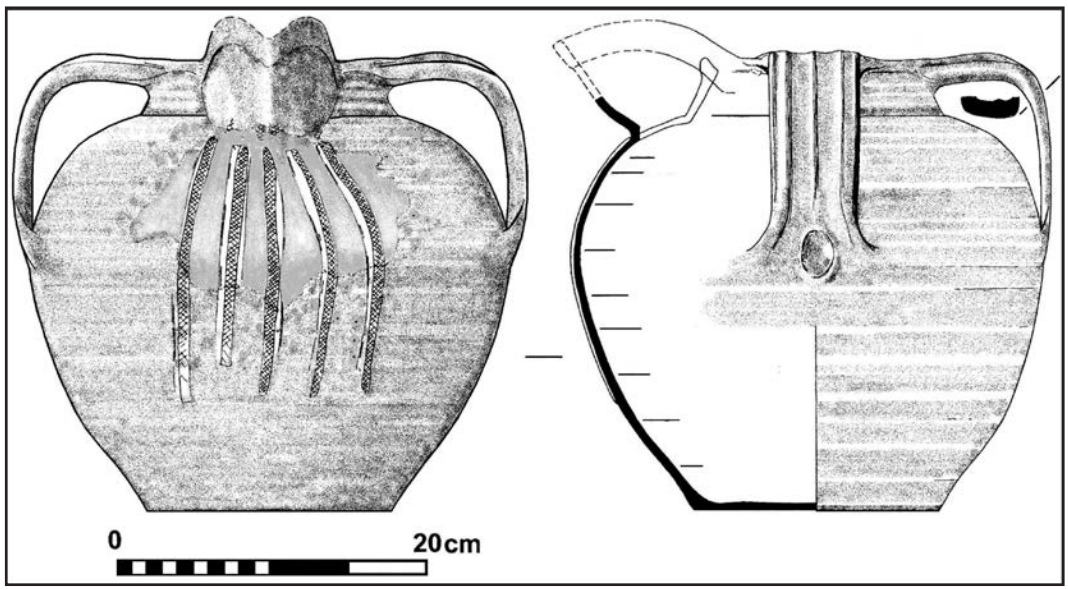


Figure 11.
Imported flagon of splash-glazed Saintonge white ware. Restored from fragments recovered from the beach at Wootton Haven by Alan Brading.

John Margham's field examination and his interpretation of the topographic features named on the *Stathe* boundaries re-assures us that this landing-place is situated on the east bank of Wootton Creek. Here its curtilage leads up from the sea (*sae*) and is largely bounded by hedge- banks (*mearce*) until it meets with the Chilling Brook (*Ceolling burnan*) near Havenstreet. For our purpose, perhaps the most pertinent evidence in this charter is the naming of a 'landing- place' at the location we know as Fishbourne Beach.

A further name in the *Stathe* charter is *fugel floete.* This is the 'bird lake' that has since gained the name of Wootton Creek. This ancient description of a lone creek teeming with birds prompts us to consider the means by which Mesolithic and later prehistoric communities had once been attracted to this inlet, long before its use as an anchorage and haven.

The flying larder

In a closing section of the report the incidence and the behaviour of edible fowl is reviewed. With some 22,000 Brent geese annually visiting Solent waters, this represents some 17% of the entire European population. While over-wintering between October and March, these birds offer little short of a flying larder when homing in on the Island's northern creeks. The ornithological records of our Society still show some 300 annually landing at Quarr.

Other large migratory fowl similarly suited to the hearth and spit are the White-fronted goose, Greylag goose, Bean goose, Barnacle goose and Pink-footed goose. In creeks such as the *fugel floete*, these might be readily supplemented by meals gained from Mallard, Gadwall, Shelduck, Widgeon, Teal and Pintail. In all, the report identifies forty-seven birds that might provide a significant food resource in the prehistoric environs of Wootton Haven and its sister creeks. In an examination of bird consumption at Mesolithic sites in Denmark, Caroline Grigson concludes that coastal habitation may have been sited with particular attention to the migratory habits and feeding patterns of species of large birds.

Assessing and countering heritage-loss in the inter-tidal zone

In the conclusion to this study, attention is turned to 'heritage-loss' on the Island's northern coast. David Motkin's study of inter-tidal erosion in the 'East Shore Zone' at Fishbourne Beach opportunely measures the net and movement of the beach surface when surveyed at two-yearly periods. While this reveals progressive loss, its magnitude is skewed by a cataclysmic event of navigational dredging in 1989. Further destructive processes discussed in this report are commercial bait-digging, trawling, concentrated ship-wash, outfalls, effluent pollution and damage by all-terrain-vehicles.

More reassuring is Paul Simpson's study of chemical and bacteriological conditions affecting the preservation of wooden archaeological items in the inter-tidal zone. Here, full water-logging and the exclusion of oxygen is demonstrably beneficial, yet the seabed environment will also nurture marine organisms that are highly adept at boring and destroying. Despite this threat, and those posed by biodeterioration and chemical change, Dr Simpson's field experiments and burial of test pieces in Quarr Beach demonstrate that it is physical processes of erosion that pose principal threat to waterlogged artefacts in the inter-tidal zone.

Guidelines for the future

For members of the Isle of Wight Natural History and Archaeological Society, this report offers an engaging integration of archaeology, coastal geomorphology and habitat studies. All have been focused on a particularly informative sector of the Island's coast. The research contributions made by members of our society have certainly ensured the enrichment of this report, the prehistoric lithics having been first noted in these Proceedings before World War II (Poole, 1929, 654-657). Having recognised that 'heritage-loss' in the coastal zone remains a lacuna in planning law, in shoreline management plans and in Schedule 1 of *Statutory Instrument 1988, 1199*, it is clear that one of the few remaining options for mitigation will be individual observation and recording.

Since the completion of this coastal survey in 1994, the advent of cheap hand-held GPS and the use of the digital camera has transformed our abilities to the scan and record in the short window of opportunity offered by neap low tides. With this BAR publication fully digested, yet still firmly in hand, perhaps we may yet find a means of mitigating the inexorable cultural loss we are witnessing in the dynamic environment of our coastal zone.

Footnote

This overview of a recent publication is a subjective account and should not be perceived to be a conventional book review: for no critique is conveyed. It has been specifically assembled to provide members with summary of a large body of work, the detail of which can be explored in the full publication.

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Author: D. J. Tomalin, Rookley IOW. PO38 3L

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