Chapter 7

Evidence of Plantation Industrial Activity in Kinalmeaky

7.0 Introduction

The initial phase of exploitation of woodland in Kinalmeaky was initially associated with the Carnsew timber processing site at Downdaniel. The site was taken over c.1608/9 by the East India Company who established an ironworking industry along with a settlement named ‘Hope’. There are, of course, many complications when dealing with Kinalmeaky; settlements have been destroyed, depopulated and rebuilt, replanted and moved, by reason of wars, migration, economic circumstances and the natural forces of decay.

Figure 7.1 Downdaniel on the Bandon and Brinny Rivers (pictured Downdaniel castle; found on site: slag from a blast furnace & a stick of charcoal. Aerial photograph adapted from archaeology.ie
The industrial wood processing and ironworks sites established by New English settlers and commercial enterprises in Kinalmeaky identified from primary and secondary sources, provide information about the activities taking place around the castle of Downdaniel on the confluence of the Bandon and Brinny Rivers. This activity plotted within the townland and parish landscape is the initial part of a process towards uncovering the location of early new settler activity and settlement within the seignory. However, these sites which extant archaeological remains and fieldwork has helped to identify were examined using the following criteria:

1. Forest locations
2. Charcoal production locations and the production process
3. Weirs, and weir construction

In 1589 Robert Payne investigated sites for ironworking and woodland settlements within Kinalmeaky. He noted that a location had been identified in Munster which was suitable for the construction of ironwork forges. At this location what Lands are to be procured in the province of Munster to build forges upon.

Upon Sr Barnard Grenfeilds signiory and Mr. Beechers signiory three forges may be built. And ther wilbe wood enough certinnally to maintane them. The river of the Bandon runneth by them. It ebbs and flowes within a flight shott of some part of Grenfeiles Signiory. And from thence the river of the Bandon may be made [man]igable to Beechers Signiory wth? a small charge as I have bene enformed by those wth some skill in waterworke (SP 63/196 f.145).

This record describes the type of settlement and river works which were to be constructed. It also identifies the possible location of Payne’s proposed ironworks to an area in the southeastern section of the seignory, on the northern banks of the Bandon River and bordering the barony of Kinelea and the McCarta (MacCarthy) Rough territories of Carbery. This is the only section of Grenville’s seignory that fronted the Bandon River, and the only section of the Bandon River that was navigable within the plantation seignory at that time. However, these proposed ironworks were not constructed (see Figure 7.1 for possible site location).
7.1 Forest locations

However, in 1608 the documentary sources record the former site of Payne’s proposes ironworks, specifically, at the New English woodland industrial site established by the Carnsews from Bokelly, Cornwall. Soon after the end of the Nine Year’s War the MacCarthy leased land around the river and castle at Downdaniel to a syndicate based out of Cornwall. This syndicate established a New English woodland settlement, probably in Kilpatrick, to engage in cutting, processing and exporting timber. This venture was managed at Downdaniel by a William Carnsew.

Through a juxtaposition of the primary sources and the archaeological evidence of the contemporary landscape of Kinalmeaky, can be used to identify Carnsew’s potential industrial woodland settlements. One such location was Downdaniel Castle, County Cork. On 15th February, 1609, in a letter to William Carnsew, Degorye Wills identified one of their Munster industrial settlements as, ‘Dundaneer Castle, Cork’. He
states that at ‘Dundaneer’ timber was processed and saved cut in nearby woods. He dispatched one Joseph Harris to ‘Dundaneer’ with money to pay the workmen (SP 46/72 f.75). On the 28th Feburary, 1609, William Carnsew wrote to Mathew Carnsew from Fermoy, county Cork informing him of the work taking place at ‘Dundaneer’ (SP 46/72 f.80). He was in control of the castle at Downdaniel; which he repaired and built a weir on the River (Bandon or Brinny).

I am reforming my deformed Dundaneer before I goe hence and making up the weare [it is ruined] or [if it rained] (SP 46/72 f.80).

According to the records sometime before 1613 Degarye Wills, writing to Mathew Carnsew, states, that he will go to Ireland to see to their timber stocks (SP 46: fo: Supplementary. Vol. 73: Carnsew papers III, 1621-1630). It appeared met some of their timber was extracted from parsonage lands known as ‘Templequillan’ this may be present day Templamartin? The lease stated the land of ‘Templequillan’ was situated within a parsonage and glebelands. There was a reference in the lease to

reedifing that part of the said temple or church belonging to the said parsonadg if it be [theironto] required and att his own costs and charge (NLI Lismore Estate Correspondence MS 6139; Figure 7.2).

There are the remains of a font in the graveyard of Templamartin Church of Ireland chapel and according to tradition it is from the ancient church which was in ruin in 1615 (Appendix), This may be the same church referred to in MS 6139 above. It is possible, but not definite, that ‘Templequillan’ was part of Templamartin. In the Lismore lease book MS 6139, Thomas Hill leased land in ‘Castlenelaght’, in 1628 and John Turner (in the fifteenth year of King James) rented land in ‘Killbarry’ both properties were within the parish land of what was know as ‘Templemartin’ in the 1655 Down survey map of Kinalmeaky (Figure 7.3).

Their leases are noted on the same page as William Carnsew/Joseph Harris ‘Templequillan’* lease and these leases, from Boyle’s rent book MS 6139 were set down and recorded according to certain regions. On the other hand, it could also be present day Little Silver which is squeezed in between ‘Castlenelaght’, ‘Killbarry’,
‘Templemartin’, Kilpatrick, Kilmore, Mishells, and Callatrim. However, we are also informed from chapter six of this thesis that W. Lyon, Bp. of Cork, Cloyne, and Ross, claims Meshill, two ploughlands, in Kynalmeky, county Cork, in right of the bishoprick of Cork. One Phane Beecher has entered the said land’ (SP 65/13 f.1: Sep. 2 1588), this is an area bordering present day Little Silver.

7.1.1 ‘the tymber is markt for ye kin’

On the 8th of October, 1611, Roger Braban wrote to William Carnsew, requesting instructions on payment for timber at Kynalmeky, ‘the Tymber of Kynalmeeky is all markt’ for [this] or [his] Kings [....] ’ (SP 46/72 f.93).

However, between the 4th of August 1611 and the 10th of September, timber trees on the ‘Youghal and Kinsale’ [Blackwater, Bride and Bandon Rivers] were identified in

**The Barony of Kinalmeaky**

![Map of the Barony of Kinalmeaky](image)

**Figure 7.3 The Barony of Kinalmeaky extract from the Down survey (c.1655 NLI)**
the counties of Cork and Waterford for His Majesty's shipping, by John Povey, ship carpenter. Those selected along the Bride and Blackwater were:

In Gerald Fitz James's woods, 1,500 trees. In George Shirlock's, of Littrome, 2,700. In Richard Condon's, of Cormore, 500. In Morris Condon's, of Cormore, 700. In David Condon's, &c, &c. In all for the river of Youghall, 7,500 trees (Brewer and Bullen (eds.) 1873, 194; Carew Papers, vol. 629, 165).

These sites were within the Mogeely, Curryglass, Carrigeen, Tallow, Cappiquin and Lismore region. Those selected along the Bandon River can be divided into Gaelic and New English Settlement; for instance in the (New English) Kinalmeaky area: ‘In Mr. Burrell's, of the Michell's, 200. In Callithrome [Callatrim] 550. In the Fermye, 500. In Kilemore, 400. Making, in the whole, 1,650 trees’ (Brewer and Bullen 1873, 194; Carew Papers, vol. 629, 165; Figure 7.5).

Those selected along the Bandon River within and bordering on (Gaelic) Kinalmeaky were:

In Garrett Barrie's, of Iniskene, 500. In Moyle More [Mulmore] O'Mahowne's, of Killowne [Killowen], 800. In M'Carty Reaghe's wood, 300. In all for the river of Kinsale, 3,250 trees. The whole number in all these woods [Youghal and Kinsale], 10,750 trees (Brewer and Bullen (eds.) 1873, 194; Carew Papers, vol. 629, 165; Figure 7.4).
What is important from an archaeological point of view, aside from the quantity and location of timber being taken for shipping, is the inclusion of Roger Braban numerous references to ‘the tymber is markt for ye king’ (SP 46/72 f.93), when corresponding with Carnsew. The timeline is in sync with timber being marked in counties Cork and Waterford for His Majesty’s shipping, by John Povey. This suggests the Carnsews had timber interests in all or some of the following: ‘Callithrome [Callatrim], the Fermye’ and ‘in Kilemore’, and the reference to ‘Mr. Burrell of the Michells’ (Brewer and Bullen 1873, 194; Carew Papers, vol. 629, 165) locates exactly the area where William Burrell of the East India Company was extracting timber in Kinalmeaky for charcoal, pipestaves, planks and ship’s timbers.
7.1.2 ‘In Mr. Burrell's, of the Michell's’

The primary sources identify these woods on Burrell’s lands were in the possession of the East India Company. On November 23rd 1611 the Merchants of London to the East Indies complained that while, intending to make a trial of building in Ireland ships fit for their trade, some of their timber was seized for the King’s Navy from the woods belonging to them [East India Company] which were known by the name of Burrell's woods. They further demanded that

he [the King or John Povey] is therefore to release all such woods as may belong to the said merchants, particularly as they received some encouragement from hence to make trial of building said ships there [Downdaniel?] (Russell and Prendergast 1877, 170).

Figure 7.5 The Timber taken for the Navy on the Bandon River [Kinsale River] in Kinalmeaky between August and September 1611 (Brewer & Bullen (ed.) 1873, 194; Carew Papers, vol.629, 165).
Those woods were situated within Kinalmeaky close to the Carnsew’s timber works at Downdaniel (Figure 7.6; 7.8 & 7.9). In 1610 Burrell and his business partner Thomas Ball leased three ploughlands within Kinalmeaky this lease also included property in ‘townland of ffaran Thomas (near Newcestown) assigneed to Stephen Conv[w]ey and Anthony Ffint[c]h’ (MS 6139; Figure 7.8).

This is important as Burrell’s, the East India Company and the Carnsew’s timeline and economic interests overlap. It was at this stage that the Carnsew timber site at Downdaniel transfers over to Burrell, Ball and the East India Company, where they then establish a settlement called Hope an ironworks. The settlement infrastructure may have been in-situ as the Carnsew’s, were part of the first wave of New English settlement on that section of the Bandon and Brinny River. They might well have engaged in a transaction with Burrell to purchase the works near Downdaniel castle. The Carnsew family still retained wood rights in the Downdaniel area when the East Indiamen moved in.

Whatever the process involved in the transfer of ownership, a change occurred at Downdaniel when East India Company set up an ironworks here. Once the East India Company established its presence alongside the Carnsews, the extraction of timber was their primary activity. It appears that the early New English commercial and settlement interests in Kinalmeaky, after the Nine Year’s War were concentrated on the extraction of timber from the now extinct woods of that Seignory. By June, 1613, we are informed that a new plantation begun by the Company of the East India Merchants in the maritime parts of Munster,’ [Kinalmeaky], had, ‘within these few years erected three towns and peopled them with English. They mention how excellent use the timber of that kingdom was for building of ships (PC 2/27 f.34 Date: 30 June 1613).

Thus, within three years of Burrell’s 1610 lease with Grenville, new settlements had been established in the form of three new towns associated with the timber, shipbuilding and iron industry. These towns were the settlements of Thomas, Hope
and Bantam (Russell and Prendergast 1877, 302; 370). Interestingly, Newcestown was established next to the woodlands of Farranthomas; situated in northwest Kinalmeaky. The woods in Farranthomas may have been leased to Burrell, the navy were extracting timber from O'Mahowne's of Killowen and Mulmore situated south of Farranthomas. All three townlands were on the western border of Kinalmeaky. Thus, Newcestown may have been established as a woodland settlement to facilitate and accommodate the timber cutting, processing and associated activity taking place on the western fringes of Kinalmeaky.

**Newcestown and woodlands in the townland of Farranthomas**

*Figure 7.6* The townland of Farranthomas (the green dots represent the possible location of the early seventeenth century woodlands); adapted from archaeology.ie and the OSI
Evidence of the East India Company’s industrial activity within the Bandon River valley in 1616

A letter to the Lordes Justices of the realme of Irelaunde

Whereas wee have made severall addresses to the late Deputie in the behalf of manie English plaunted and imployed by the Companie of East India merchaunts and their assignes, about an iron worke, buildinge of shippes, and such like other good workes, neere to the castle of Dondanire in that kingdome, and particularly touchinge the interrest of the said castle and three plough laundeg, for which the said Companie were humble suitors, in regarde it lyeth soe neere their worke, that their whole plantation dependeth thereupon; and forasmuch as wee understaunde by an humble peticion exhibited unto us by the East India marchauntes and their assignes, Sir James Lancaster, and Will Burrell, that the late Deputie, after manie hearinges of the cause, did in June last order and decree that the peticioners should enjoy the said castle and launde, upon certaine conditions and provisoes, for satisfaccion of such as had interrest therein, as by the order itself doth at large appeare: which they for their partes havinge in all pointes performed, doe nevertheles finde some opposition (specially since the remove of the late Deputie) in enjoyinge the benefitt of that order. Wee have therefore ben moved hereby to pray and require your lordships to take notice of the foresaid order, of the 21 of June last, and to see the same duly and fully performed in all respects, without further troble, hindrance, or molestation to the petitioners in maintayneinge and continueinge soe good and commendable workes. And whereas the peticioners complaine that their servaunts, their weares, and workes are indicted at the generall Assizes for sleight or noe causes at all, by unknowne persons, that never shewe themselves afterwardes in the suite, and soe drawe the peticioners to an excessive great charge, to cleere themselves of those indictmenes, only for molestacion and troble sake, and to weary them out of the countrey; wee thinke it very expedient and accordingly doe hereby require your lordships to give order that the peticioners may bee freed from all such unjust vexation or needeles troble. And soc, etc.

Lord Archbishop, Lord Treasurer, Lord Admirall, Lord Bishop of Winchester, Lord Zouch, Mr.Vice-Chamberlen, Mr. Secretary Winwoode, Mr. Secretary Lake, Master of the Roles.

Figure 7.7 (PC 2/28 f.229 Date: Aprill 17 1616)
The lease of the ironworks (three ploughlands) to William Burrell and Thomas Ball and the possible assignement of Farranthomas to Conway and Finch c.1610

Kinalmeaky c.1616 with townland divisions and inclusions of New English and Gaelic activity

Figure 7.8 (Above) Lismore Correspondence NLI MS 6139 A lease of lands to William Burrell & Thomas Ball where the ironworks are placed within Kinalmeaky 1610. (Below) An adaptation of the Down map of Kinalmeaky [c.1655] with townland divisions and inclusions of New English and Gaelic activity/settlement in the early decades of the seventeenth century; adapted from the Faints, the State Papers and the Calendar of Carew.
Burrell, the East India Company and Carnsew leased forests and woodlands mainly within a section of Kinalmeaky that was close to a navigable part of the Bandon River and situated within Grenville’s section of the seignory. This allowed timber to be extracted and processed with as little overland carriage and expense as possible. However, timber was transferred overland to Downdaniel (timber was also extracted from Downdaniel) from those woodlands (within the O’Mahowne territory) on the western fringes of Kinalmeaky. This timber was processed within zones of New English influence, giving Burrell and the Carnsew greater control over their timber resources. Figure 7.9 maps the location of these forests on the eastern section of the seignory at the beginning of the seventeenth century. This area was within the Kinalmeaky territory north of the Bandon River in the townlands and parishes mentioned above. It can be suggested that these were the general location of Carnsew’s (excluding Templemartin?) and Burrell’s Kinalmeaky forests.

The location of Burrell’s and the East India Company woodlands situated on the eastern side of Kinalmeaky

Figure 7.9 Burrell’s and the East India Company woods (green dots) plotted on the present day landscape of Kinalmeaky. Adapted from the OSi archaeology.ie.
7.2 The Archaeological Record

Between 1970 and 2009 some 58 archaeological investigations were undertaken in Kinalmeaky and five in townland of Kilmacsimon in Kinalea (Appendix). Of the 58 archaeological investigations ten produced results. Eight of these were in the context of New English town walls of Bandon-Bridge (Figure 7.10; Appendix). The remaining two uncovered two burnt mounds, one of those mounds was situated in the townland of Shinagh (Sinagh c.1655) it appeared to be a burnt mound or spread not a fulacht fiadh (Figure 7.10; Appendix). The second in the townland of Derrycool (Derricoole c.1655) was a fulacht fiadh (Figure 7.10; Appendix). The evidence from burnt mounds is relevant as we shall see below in the section 7.4 ‘Charcoal production’.

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<thead>
<tr>
<th>Place of Archaeological Investigation</th>
<th>Archaeological Investigation</th>
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</tr>
<tr>
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<td>Bandon: Archaeological</td>
<td>8</td>
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<td>Clogheenavodig</td>
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<td>Laravoolta &amp; Kilnacranagh East</td>
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<td>Kinagnady</td>
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<td>Lissycrimeen &amp; Lislevane</td>
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<td>Kilbarry</td>
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<td>Mawbeg</td>
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<td>Killowen</td>
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Table 7.1 Archaeological investigations in Kinalmeaky between 1970 and 2009
Excavations undertaken and excavation locations with known archaeology within Kinalmeaky

Archaeological Investigations in Kinalmeaky 1970 to 2008

Figure 7.10 Archaeological investigations in Kinalmeaky between 1970 and 2009
7.3 Charcoal Production

Charcoal-making was an integral part of the iron-working and the blast furnace process, without which the temperatures necessary for iron smelting and smithing could not have been achieved and, indeed, in other high temperature processes, such as glass-working at Mogeely-Curryglass. Charcoal was an important domestic fuel and was probably widely used for cooking. Once produced it was a clean and virtually smokeless fuel source, excellent for an open or porous hearth within confined habitation space. O’Sullivan and Harney (2007, 198) have recently observed that charcoal producing pits are one of the most understudied areas in Irish medieval and post-medieval archaeology.

Some charcoal production sites identified within the study area may be misclassified as fulachta fiadh or reclassified under the now generic burnt mound/spread category, unless they are excavated it is almost impossible from surface examination to distinguish between a burnt mound/spread and a charcoal production mound/spread. However, over the last fifteen years, hundreds of charcoal production pits have been identified on excavations. Prudence is necessary as every charcoal pit or spread should not be interpreting as a production site. According to Niall Kenny (2010, 108) charcoal production should not become a opportune dumping ground for all unclassified charcoal features that turn up on excavation. On many road scheme excavations the majority of information relating to charcoal production were found to date from the early to late medieval periods (ibid.).

7.3.1 Methods of Charcoal production

Charcoal was made by heating or scorching timber, under conditions where a limited air supply prevents the complete incineration of that timber. There were two types of universal earth kilns (Aaron 1980; Kenny 2010, 100); a mound and pit kiln (Figure 7.11 & 7.12). The Italian technologist Biringuccio in his sixteenth-century treatise pirotechnia on metallurgy documents the two methods of charcoal production (Smith and Gnudi 1990, 173-180; Pleiner 2000, 119; Kenny 2010, 100). One method consisted of earth-dug pits filled with timber, which were set alight and covered (Figure 7.11).
The second method consisted of clay, sod, straw or reed covered piles of stacked timber (Figure 7.12). The kilns may have been constructed within or close to the forests fringe to avoid the costly and difficult transportation, of freshly cut heavy green timber trimmings, to a storage seasoning site and from there to a production processing site. The production sites selected would have been within open clearings usually on level ground or on the surface of sloping ground levelled. Advantage would also be taken of natural shelter from strong winds. Where shelter was not available temporary shelter of trellises or bracken would be erected and settlement structures would be constructed to monitor production on a 24-hour basis.

Some sites in Kinalmeaky may have needed an element of security (chapter eight). Timber for charcoal production was usually cut into pieces 3 of 4 feet long; heavy pieces would be split into thinner sections and all left to season for about 6 months or so (O’Sullivan 1988). The charcoal production process involved many different and laborious activities, logging, timber processing, pit/mound construction and maintenance, storage of the raw material (timber) and the finished product (charcoal and tar).

7.3.2 Charcoal production pits
A charcoal production pit consists of pits of varying shapes and size cut into the ground. The pit was filled with timber which was stacked horizontally to allow air flow through out the kiln. The timber cuts may have been arranged around a central post, which was removed before the timber was fired. The pit of timber was lit using charcoal and kindling. When the timber was smouldering the pit was covered with a layer of sod and soil. A number of openings were struck into the earthen layers in order to regulate the flow of air through the pit to assist the carbonisation process. During this process the volume of timber was reduced, resulting in fissures in the soil and sod covering on the pit; these cracks had to be repaired instantly, if not, the timber would burn, resulting in the loss of timber, charcoal and potential economic gain.

The charcoal-burners had to maintain the pit(s) on a 24-hour basis. 100 ton of timber would usually be converted to 25 ton of charcoal as the water contained in the timber evaporated. When the temperature in the kiln reached about 270 degrees Celsius, gasses, tars and oils were released from the wood (Rynne 2006, 112-114).
Tar was a useful by-product of the kiln which collected in the bottom of the hearth and was subsequently used for caulking planks. An experienced charcoal producer would know by the colour of the smoke how the charcoal burn was progressing (O’Sullivan 1988; Kenny 2010). As when all the impurities were released from the timber the smoke became thin and turned blue or transparent indicating that wood was now charcoal. When the temperature had reached the point where the timber had been converted to charcoal, the airflow to the pit was then cut off by sealing the pit with more soil and allowing the charcoal to cool. Depending on the size of the kiln and the quantity of timber being converted the process could take over a week. Once the charcoal was extracted, the pit would possibly have been cleaned out for reuse. The production process may have been seasonal as the intrusion of too much water into a pit could spoil the charcoal. As stated above many of the excavated charcoal pits in Ireland over the past fifteen years were date from the medieval record. These differ in size (smaller) from post-medieval charcoal pits/spreads as it is suggested that the quantity of timber converted to charcoal in one burning for post-medieval production was greater, as in the case of the industrial settlement site within Kinalmeaky.
A charcoal production mound consists of stacks of timber laid on the ground surface. Like the pit kilns they vary in shape and size. In circular and oval mound kilns the timber was stacked vertically in several layers like half an onion around a central post, in a rectangular mounds kiln the wood was usually piled horizontally. The stacked timber was covered by a layer of sod and soil and the central post was removed and
the mound was fired by inserting ash and charcoal down the exposed shaft. In preparation for the burn timber was usually stacked to resemble a beehive or haystack shape. It was first covered with a combination of hay or straw, with bracken and thinned branches. The whole mound was then covered with turves and earth leaving a hole on top to start the fire burning. When the fire became established then sod would be used to plug the hole on top and poke a series of new holes around the stack at the judgment of the burner. Once ignited, the collier or burner tended it for about five days and nights (Rynne 2006, 112).

The carbonisation process was exactly the same as that mentioned above in relation to the pit kiln. There was less labour involved in the construction and operation of mound kilns (Crossley 1985). There was no need to dig and clean out ground pits and the mound could be broken down and accesses much easier than a pit mound.

![An excavation of a burnt spread/mound](image)

**Figure 6.13** Excavation of a burnt spread/mound Gortafricka 1, county Clare (Nunan et al. 2012)
Mound kilns have not survived in great numbers, unlike pit kilns due to their destruction by farming practices. However, a number of features excavated on Ed Danaher’s sites of Kilcotton 1 and Kilcotton 2, county Laois (A015/077, E2187; A015/078, E2188; Danaher et al. 2008a; 2008b), may represent the remains of mound kilns (Kenny, 2010, 105). These features consisted of oval, circular and rectangular spreads with no definable cuts. They exhibited evidence of concentrated in-situ burning and contained moderate to frequent charcoal inclusions (Danaher et al. 2008a; 2008b). Mound kilns were more common in the sixteenth and seventeenth century in England for charcoal production associated with large-scale blast furnace activities (Ardron and Rotherham 1999). Thus, it is possible that the mound was the type of charcoal production process favoured by the New English within the Kinalmeaky area.

7.4 Landscape Context

Charcoal production pits were located on gently sloping situation, often fronting onto wetter low-lying areas as this type of landscape facilitates surface water runoff. Both production pits and mounds can occur singularly or in clusters. As mentioned above, a large cluster of charcoal pits were excavated at Kilcotton 1 (A015/077, E2187; Danaher et al. 2008a; 2008b; Kenny, 2010, 110), and consisted of 49 principal charcoal-production pits spread over a 200m by 30m area and also included a number of smaller ancillary pits. Many were sited in clusters of two-to-three: 17 pits were excavated at Kilcotton 2 (A015/078, E2188 Danaher et al. 2008a; 2008b; Kenny 2010, 110).

These pits varied from circular to oval in shape, and the majority displayed evidence of in-situ burning; they had a high charcoal content within their fill. The pits were surrounded by charcoal and oxidised clay. Some contained linear cuts extending from their sides which consisted of a spread of burnt stones within a matrix of charcoal-enriched silt-clay. The radio carbon dates suggest that these pits were used and reused on numerous occasions during the early to late medieval period (ibid.). Kilcotton like most charcoal production sites would have been situated close to its raw material source: woodland. As well as charcoal mounds Kilcotton 2 contained the remains of a ploughed-out fulacht fiadh consisting of a small spread of burnt-mound
material, a subrectangular trough, a hearth and numerous pits (A015/078, E2188 Danaher et al. 2008a; 2008b).

The surrounding landscape was conducive to fulacht fiadh construction and also charcoal mound production. The burnt spread pictured above in Figure 7.13 was discovered in Gortafrika townland in North County Clare (Nunan et al. 2012) It was located close to two large fulacht fiadhls. This site lies at 33.35meters OD and was situated on the edge of wetland with a steep slope to the north and west. This landscape is similar to that within Kinalmeaky where isolated, grouped and some clusterings of known burnt mounds, spreads and fulacht fiadh were identified (Figures 7.8 & 7.10).

In similar areas within the seignory of Kinalmeaky during the present research two potential charcoal production sites associated with New English interests came to light. These may well represent New English charcoal production which was carried out by the Carnsews of Bokelly, Burrell and/or the East India Company. One of those sites is situated within the townland of Kilpatrick southwest of present day Kilpatrick crossroad within the northern section of the townland abutting the current townlands of Mishells and Callatrim and directly south of the townland of Little Silver (Figure 7.14). This area in the early seventeenth century bordered on the known forests belonging to and leased by Burrell, the East India Company and the Carnsews. The site lies at thirty to forty meters OD and was situated on the edge of wetland with gentle slopes to the east and west. This field is currently under pasture. It contains a clustering of six known burnt spreads all aligned in a northwesterly-southeasterly direction.
A potential location of the East India Company’s charcoal production site in Kinalmeaky abutting the townland of Mishells and within the townland of Kilpatrick.

Figure 7.14 Possible location of Charcoal production site.
The second site is situated directly north of the townlands Templemartin and Castlenalact, south of present day Garranes and southeast of the crossroads of Moskeagh (Figure 7.15). This was a landscape that in the early seventeenth century bordered on known forests. Yet, it is not clear if those forests belonged to, or were leased to, the Carnsows of Bokelly. This may have been the site of ‘Templequillan’; again there is no direct proof of this. However, there is a church and graveyard site directly south of the location of the burnt spread cluster (Figure 7.15). ‘Templequillan’ formed part of the churchlands and there was a church within the lands leased to Carnsew and Harris (MS 6139). The site lies 130-100m OD and was situated on the edge of wetland, near to the south of the site with gentle slopes to the east and west. This field is currently under pasture. It contains a clustering of nine known burnt spreads aligned in an east west direction.

Investigation centred on these two sites as areas of high potential for New English charcoal production as, the site at Kilpatrick is situated on the eastern boarder of known New English forests, where vast quantities of timber were extracted for commercial and industrial use. One of those industries was iron production, located at the castle land of Downdaniel, southeast of the burnt spread cluster. An additional industry taking place close to Kinalmeaky was shipbuilding. The shipbuilding site was located on the navigable part of the Bandon River within the landscape of Downdaniel. Charcoal was required for the operation of a blast furnace, while pitch, tar and oil, all by-products of charcoal production were used as caulking and sealants for ships timbers.

The second site was selected because of the location of a large cluster of nine burnt spreads sited close to the church and graveyard (Church of Ireland) of Templemartin. This site location was combined with the information extracted the lease of land to William Carnsew and Joseph Harris in ‘Templequillan’ (MS 6139; Figure 7.15). Of course, there is a caveat, the lands of ‘Templequillan’ may not be situated in Templemartin, but, might in fact be one and the same as the six burnt spreads within Kilpatrick abutting Little Silver, Mishells and Callatrim.
A potential location of a charcoal production that may be associated with the East India Company’s industrial activity in Kinalmeaky.

Figure 7.15 A potential location for a charcoal production site associated with the East India Company c.1610.
Specialist analysis on numerous medieval and post-medieval charcoal production sites in Ireland over the past fifteen years, has established that many different wood species such as, oak, alder, hazel, ash, elm, and willow were being burnt. However, oak appears to have been the dominant timber used (Kenny 2010, 108). Finally, Kenny (ibid.,) suggests an eight point draft criteria as a useful guide to aid archaeologist in the process of identifying charcoal production within a potential charcoal production archaeological landscape (see Kenny).

If these types of pits were used in Kinalmeaky, it is possible they may have been used by the Gaelic Irish who may have supplied the East India Company with additional charcoal to supplement their own production needs, though there is no evidence to support this suggestion. There is, of course, a reference by the East India Company that suggests they were giving direct or indirect employment to the local Irish population. This most likely encompassed all elements of their business interests from timber cutting, timber extraction, charcoal production, ship building and so forth. This information is known as a result of the harassment of the East India interests by Walter Coppinger and his entourage possibly at the behest of Richard Boyle.

….what indirect and malicious courses are held by Coppinger and other Irish to overthrow that new plantation begun by the Company of the East India Merchants…….. Considering the benefit they [East India Company] give by employment, the people ought to afford them [East India Company] a better welcome (PC 2/27 f.34).

7.5 ‘I goe hence and making up the weare’
7.5.1 Timber weirs

On the Bandon and Brinny Rivers weirs and dams were built by both the Carnsews and the East India Company to control and direct the flow of water and assist the industrial activity taking place within Downdanieal. Throughout 1608, the Carnsews were operating a timber works that harnessed water from the Bandon or the Brinny through a weir system. Later, the East India Company were operating an iron works on the same site and were using weirs and dams to control and direct the flow of water from both the Bandon and Brinny Rivers to run their blast furnaces bellows, forge hammers and slitting mills.
The most basic types of weir and dam were designed to initially raise the water level and then divert it into ditches, leats or mill-races. This was achieved either by using
stones or by means of wooden piles and stones (Figure 7.17). In either case, the basic materials were bound together with branches, earth, sod, grass and weeds. Weirs built with timber were described in detail in a sixteenth-century *Codex of Juanelo Turriano* and referred to as *azud de selva* or forest weir. Forest weirs were constructed where there was an abundance of timber. Such weir configurations were not intended to last but had to be rebuilt whenever they were carried away by floods and severe weather. It was recommended in the *Codex* that forest weirs should be constructed at a slanted rather than a right angle to the river's course because this reduced the height of the overflowing water and in turn that reduced the stress on the weir (Garcia-Diego 1976, 218).

![A Forest Weir: similar type weirs may have been built by the East India Company on their sites within Kinalmeaky](image)

Figure 7.17 A forest weir; adapted from an illustration by Garcia-Diego, 1976.
At Downdaniel there are visible remains of a number of weirs on the Bandon and on the Brinny Rivers. The remains of two weirs clearly stand out in the author’s opinion because they directed water from the rivers into a leat and a mill-race. The remains on the Bandon River appear to be those of a straight weir positioned at a slight angle to the river’s course. This weir appears to have directed water off the river into the remains of a mill-race; evidence that the weir on the Bandon River may be coeval with the site and the period under review. The mill-race ran two thirds the length of the Downdaniel site to an area where the blast furnace, belonging to Burrell and the East India Company, once stood. This mill-race possibly fed a breastshot (undershot) or overshot wheel. When comparing channels *d* and *c* in Figure 7.17 above, channel *c* is the more suitable, since it would suffer less sedimentation and would be less prone to erosion. However, at Downdaniel it appeared from the location of a broken weir on the Bandon River and the remains of a millrace on the site of Downdaniel that a channel *c* and *d* scenario was in operation. As a result, an initial mill race may have suffered sedimentation while in use and a new channel then opened.

![Diagram](image)

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The second weir was situated on the Brinny River a few hundred meters north of the Castle of Downdaniel. This weir appears to have been built at slight angle aiding with the diversion of water off the Brinny River into a leat that was orientated in a north south direction. This leat was cut into the subsoil of a small island situated in the Brinny River and this leat ran the islands entire length. It now exits out the south end of the island back into the Brinny (Figure 7.18; Appendix).

Apart from the basic weir materials bound together, the forest weirs and small dams were anchored to the ground by means of a series of sharp pointed or metal-tipped stakes. Since the main beams, those at the base and those running from the weir or dam top to the ground were exceedingly long, they may have been made of several pieces, if so there were a number of ways of joining them together. Horizontally, the weir could be straight, arched, or have two straight parts set at an angle to one another. The latter two designs are preferable as they produce stronger and better performing weirs (Garcia-Diego 1976, 220-221). However, it would appear those in the rivers at and near to Downdaniel appear to be of straight and/or crescent weir construction. They may have been constructed to rise and divert the water or only to divert the river water onto the site (Figure 7.19 and 7.21)

![Diagram of basic types of forest weirs](image)
There are more complex examples of wooden weirs; which were made watertight by covering both faces with wooden panelling. This arrangement offered the advantage of allowing the river to be crossed through the interior of the weir but also enabling leaks to be traced and the damaged part repaired immediately. Figure 7.21 below give an outline of the various and complex stone weir constructs from the seventeenth century adapted from the Codex of Juanelo Turriano and from Garcia-Diego (1976) essay on the Codex’s weirs. However, it is highly unlikely that this more multifaceted weir construction was used by the Carnsews, Burrell and the East India Company on the Bandon and Brinny Rivers. The forest weir was, in all likelihood, the type constructed on these rivers, they were easy and economical to constructed, and they could be quickly adapted to meet on site needs as required. There was a work force on site to repair and maintain this type of weir. Also, as noted above Coppinger was harassing the Company. He wanted them to remove the weirs and dams on the rivers; they hindered the movement of river transportation and fish. There was at the time a real difficulty of weirs interfering with river traffic and the commercial activity of others (Figure 7.20) and it was a problem that was not specific to, nor was it confined

Weirs (tymber wares?) on the Lee at Gill Abbey blocking the passage of boats and timber (tymber wares?) on the river

Figure 7.20 NLI Lismore Estate Correspondence MS 43,269/2
Other types of weir construction

To elevate the water and afterwards to divert it

- Wood
- Wood and stone
- Stone
  - Dry stonework
  - Masonry or rubble stonework
    - Inclined layers
    - Horizontal layers
    - Combination of arches
    - Wall and joined arches
  - Multiple arch
  - Gravity
  - Architectural

Figure 7.21
to Downdaniel. However, in 1615 Coppinger managed to get the Company to modify their dams on the Brinny River to facilitate the passage of fish. In 1619 the issue of dams and weirs on the Bandon and Brinny was renewed; Peregrine Bannister, the High Sheriff of Cork threatened to march on Downdaniel with one hundred men to take down the Company’s weirs and dams, As in the case of Coppinger before the East India Company petitioned London for restraint (SP 63/235 f.110; PC 2/27 f.34: 30 June 1613; SP 63/235 f.110). The Privy Council of London must have favoured their requests as the weirs were still on the Bandon River in 1630 and still provoking disputes (O’Sullivan 1988)

**Conclusion**

The industrial wood processing and related activities undertaken by New English settlers and their commercial interests within Kinalmeaky identified from the primary and secondary sources provide information on, and the probable reason why, some settlements were established within the seignory in the early decades of the seventeenth century. In landscapes conducive to known *fulacht fiadh* within Kinalmeaky are the potential locations of possible charcoal production sites associated with the Carnsews of Bokelly and the East India Company. Two possible charcoal production sites were identified as having the most potential association with the New English woodland, ironworks and shipbuilding settlements established within the seignory during the first and second decades of the seventeenth century. Other archaeological features associated with such sites were forest weirs. From the British and Irish State Papers we are informed that weirs on the Bandon and Brinny Rivers were upgraded, repaired and built by New English commercial interests (SP 46/72 f.80). They helped control and direct the flow of water off these rivers into the industrial production sites, this of course was at the expense of the local fishermen on the Bandon River as the weir prevented the salmon moving upstream (Appendix). It was most likely the weirs built were of a type known as forest weirs, constructed from stone and timber. These weirs were easy and inexpensive to build and could be quickly adapted to meet on site needs as required.

* Note: there is a Templequillan in Carbury (see Appendix)