

Chapter 6

Making connections

The archaeological investigations carried out in the last decade or so by Oxford Archaeology across the DP World London Gateway development area have painted a remarkable picture of life on the edge of the Thames Estuary from early prehistory to the 20th century. Given the character of the investigation – monitoring, targeted trenching and limited ‘strip, map and sample’ excavations, rather than large-scale open-area excavation – and the thick layer of alluvium deposited throughout the intertidal zone, few of the individual sites within the development area have exposed extensive archaeological remains (Fig. 6.1). The potential for such remains to exist, however, was demonstrated by the fieldwork at Stanford Wharf Nature Reserve (Biddulph *et al.* 2012a). Here, the reduction in the level of the site required to create the ecological habitat was of sufficient depth to reach Roman and earlier horizons and expose relatively complex evidence of past activity. Residual finds and past observations of features, such as salt-related red

hills, suggest that the sort of evidence recorded at Stanford Wharf Nature Reserve extended further east along the foreshore but today remains preserved *in situ* under the alluvium and modern construction. The investigations at London Gateway have been by no means devoid of archaeological features, however, with interventions on the gravel terrace and head deposits showing an expected preference in the past for more elevated locations for settlement. While the results of individual interventions have been limited, taken together the archaeological discoveries, recorded within starkly contrasting landscapes, both reveal profound change over time in the use of the environment and highlight broad continuity.

Trade and communication have been part of the London Gateway site since prehistoric times. Today, the site is home to DP World London Gateway Port and Logistics Park, an integrated logistics hub that combines deep-water berths for the world’s largest



Figure 6.1 An archaeological evaluation trench, with the oil refinery in the background

container vessels with logistics services and warehousing, connecting suppliers to markets in Britain and beyond via road, rail and sea. In prehistoric times, the trading hub was a short distance to the west at the Mucking ringworks, but the former inhabitants of London Gateway development area played their part. As discussed in Chapter 3, there is good reason to suggest that two circular ditched enclosures – the North and South Rings – some 2–3km west of London Gateway at Mucking served as gathering places for the bringing together, exchange and redistribution of food and commodities. Given their position on the Boyn Hill Terrace overlooking the Thames Estuary, the rings also may have had a role in controlling riverine trade or exchange. Grain, animal products, salt and flax may have been some of the commodities produced at London Gateway that were brought to the rings during the late Bronze Age as part of this organised network.

Later at Stanford Wharf Nature Reserve, in the Roman period, a boathouse on the edge of a former tidal channel that flowed into the Thames served as a base for the trade of salt or other commodities or coastal activities such as fishing (Stansbie *et al.* 2012, 85–7). The much expanded salt-making operations at the site during the later Roman period are likely to have been in response to demand from urban or military markets, and we can imagine that salt and associated products, such as salted fish and beef products, were sent up the Thames to London or into the outer estuary and then round the Kent or Essex coast. Road networks were just as important in the Roman world as they are today. No Roman road is attested with certainty at London Gateway, but a possible road, connecting the London Gateway site with Little Burstead, 12km to the north-west, near Basildon, has emerged from an alignment of field boundaries and tracks shown on early Ordnance Survey mapping (Rippon *et al.* 2015, 154). The southern end of the road appears to be preserved as Rainbow Lane on the western edge of the London Gateway site. This road was certainly in existence by the medieval period, but it could well be earlier in origin. The High Road, which extended perpendicular to Rainbow Lane, may follow the line of another Roman routeway, although there was no evidence of Roman-period deposits in sections cut through the road or among the archaeological remains that lined the north side of the road.

We gain a good sense of the trade networks to which the people of London Gateway in the Roman period belonged from the pottery recovered from across the development area. Pottery from north Kent – production is attested on the Hoo Peninsula and on the Upchurch Marshes in the Medway Estuary (Monaghan 1987) – recovered from the Rail Corridor and Stanford Wharf Nature Reserve (Biddulph and Stansbie 2012b) attests to cross-river trade. Pottery from south Essex also found a place in Kent. While no pottery that is certain to have been made at, say, Mucking, was found at Salt Fleet Flats, pottery from that production site or others in the area – chiefly the lid-seated shelly jar – is known at Springhead in the Ebbsfleet Valley (Seager

Smith *et al.* 2011, 55). Pottery also reached London Gateway from other regional producers in Britain, such as Oxford, Much Hadham and the Nene Valley, as well as the Continent (Biddulph and Stansbie 2012b), and it is plausible that much of this arrived by means of maritime and coastal trade. London Gateway remained part of long-distance trade networks in the medieval period or at least benefitted from its position down-river from London. Pottery recovered principally from the Access Road and Salt Fleet Flats includes Scarborough Ware from Yorkshire and Saintonge ware from in south-west France, pointing to trade along the North Sea and Atlantic coasts. The pottery was high status and presumably appeared on the dining tables of Old Garlands and other wealthy estates.

The remains of the timber wharf uncovered at the Proposed Development at Great Garlands Farm on the edge of Carter's Creek represent a rare discovery of a structure that almost symbolises the late medieval waterfront settlement of Feake's Hithe. Indeed, it could be said that the investigation revealed the very 'hithe' from which the settlement derived its name. The structure, dated to the late 15th–early 17th-century, though probably built in the 16th century (Goodburn, Specialist Report 11), is likely to have accommodated small boats and barges that carried goods loaded at the wharf-side down Carter's Creek and along the Thames or to larger, seagoing vessels anchored in the Thames. In return, goods would have been off-loaded at the wharf and, after being subject to the requisite duties, sent to local markets. A barn-like structure recorded next to the wharf by Essex County Council Field Archaeology Unit may have served as a warehouse for goods awaiting shipment or onward distribution (Peachey and Dale 2005). The structure was in plan typical of a granary and it is possible that grain destined for exportation was stored here. The grain and other agricultural produce are likely to have been grown locally in the various farms that had been established on the gravel terrace bordering the marsh during medieval times. One of these, Old Garlands, was during the late 16th century owned by the Elizabethan seaman and naval administrator Sir John Hawkins. While he may have used the wharf to trade produce grown on his farm, his high-ranking position and the discovery in association with the wharf of defective ship's 'knees', wooden brackets used in ship construction, suggest that he had another interest in acquiring the estate: to manufacture and distribute component parts – 'Sawpit Field', recorded on later tithe maps, was situated behind the wharf – for assembly by shipbuilders at Deptford and elsewhere (Goodburn, Specialist Report 11).

While the wharf appears to have fallen out of use during the 17th century, it was by no means the end of riverine trade at London Gateway. Stanford Wharf, situated on the east bank of Mucking Creek immediately outside the London Gateway development area, is attested on late 18th century mapping and remained in use into the 20th century, when it received or exported grain, coal and hay and was also used for the repair of

barges (Jenkins 1995, 16). For a more fitting antecedent to the DP World London Gateway Port and Logistics Park, however, we must look to the deep-water dock and complex of stores and warehouses built in the 19th century at Shellhaven Creek, which were connected to markets in London by the Thames Haven branch of the London, Tilbury and Southend Railway. In time, the site would be transformed into an oil refinery, but in the current port and logistics park, the business of import and export and warehousing has returned to the site.

The former Shell Haven oil refinery represents only the most recent phase of industry at London Gateway. There were, in the late 19th century, explosives factories, but in fact London Gateway's industrial legacy extends much further back. We know from the fieldwork at Stanford Wharf Nature Reserve that the area in antiquity was a place of salt-making. Excavations there uncovered middle Iron Age red hills, the mounds of dumped debris characteristic of long-term salt production, and the remains of Roman-period salterns or working areas comprising features typical of the industry, such as brine pits, hearths and ditches designed to trap seawater. Briquetage, a coarse ceramic used for evaporation vessels, salt containers and hearth furniture, was collected in quantity from features of both periods (Biddulph *et al.* 2012a). The results of the investigation at Stanford Wharf Nature Reserve were highly significant. Before the fieldwork, there was little evidence that red hills, recorded all along the Essex coast (Fawn *et al.* 1990), pre-dated the late Iron Age; through a combination of artefactual and scientific dating, it was shown that the red hills at Stanford Wharf Nature Reserve are among the earliest in the county. The investigation also revealed that salt-making continued beyond the early Roman period, conventionally regarded as the floruit of the industry (*ibid.*), as far as the later 4th century and that the activity was sufficiently well organised and large-scale to permit diversification, with evidence of fish sauce production and meat preservation, hinting at imperial involvement. Further evidence of salt-working was uncovered at the Pipeline Diversion; a tile-lined structure seen in Site A may be a brine-evaporation hearth or, given the location of the hearth on the gravel terrace out of reach of tidal flooding, a place of secondary processing, such as drying salt. Dating evidence from the feature pointed to a late 3rd or 4th century date, suggesting that the feature belongs to the phase of expansion of the salt industry evident at Stanford Wharf Nature Reserve during the late Roman period (Biddulph and Stansbie 2012a).

Remarkably, the investigations across the rest of the London Gateway development area have pushed the chronology of salt-making at the site back even further. A small fragment of possible briquetage recovered from a pit at the Rail Corridor may date the earliest salt-making to the middle Bronze Age, although the tentative identification means that we cannot be certain about salt-making commencing so early here. Fieldwork at the Access Road and the Pipeline Diversion, however, retrieved an assemblage of briquetage of more certain

attribution. This material was dated to the late Bronze Age and comprised cup pedestals, props and supports and vessels (Poole, Specialist Report 5). These had been used in the evaporation of brine (if not seawater), which had been carried in a highly concentrated form in pottery or briquetage vessels from the intertidal zone. The briquetage can be paralleled to some extent by material from the North and South Rings and other areas of Mucking (Barford 1988; Evans *et al.* 2015), suggesting that the zone of Bronze Age salt-working in and around London Gateway was extensive. That said, the predominance of vessels, as opposed to hearth or evaporation furniture, at Mucking reinforces the idea that the ringworks were a place of redistribution rather than production. No evidence of late Bronze Age salt-working, or indeed Roman salt-working, was recovered from Salt Fleet Flats on the Cooling Marshes on the opposite side of the estuary, but the possibility of such evidence being present here beneath the thick alluvium cannot be ruled out. After all, briquetage of Bronze Age date has been recorded on the Hoo Peninsula at the Damhead Creek Power Station and Isle of Grain Gas Transmission Pipeline site (Crawt 2017; Clifford 2017, 235–6) and Roman salt-working sites are known at Cliffe, Cooling and High Halstow (Thornhill and Payne 1980; Miles 1968; Miles 2004).

The story of salt-making at London Gateway does not stop at the Roman period. While no evidence for prehistoric or Roman salt-making was uncovered at Salt Fleet Flats, trenches there exposed traces of possible medieval salt-making. Thin layers of reddened silty clay seen in three trenches may represent the remains of a mound of dumped waste generated through a process called 'sleeching', whereby salt-rich sand or mud from the shore was washed with seawater and filtered through peat or turf (itself salt-rich), resulting in a brine that was evaporated over hearths to obtain the salt. The waste – the fuel, sand and peat – was dumped (McAvoy 1994). It is by no means certain that the deposits belong to this process, but potentially they represent the end point, tentatively dated by pottery to between the late 12th and mid-14th centuries, of more than 2000 years of salt-making at London Gateway.

The rich resources offered by the River Thames, the creeks and channels that drain into it and the intertidal marshland have attracted people for millennia. Flint tools and knapping waste tell of mobile populations coming to the area during the Mesolithic and early Neolithic periods. Groups camped on the higher ground, where they would rest and prepare tools before descending into the marsh to hunt waterfowl and small mammals, collect seeds, fruits, shellfish and eggs and fish in the creeks and on the river. Returning to their camp, the hunter-gatherers processed and ate or preserved their haul before attempting further forays or moving on. We can only guess what resources the people sought, but among the worked flint was a putative microburin or end-truncated piece (Donnelly, Specialist Report 6), which may have been intended for use in a projectile, such as an arrow or harpoon, or was the waste product of making such a tool.

We can supplement our understanding of coastal exploitation in prehistory from the evidence of Stanford Wharf Nature Reserve. Fish bones from a red hill deposit dating to the middle Iron Age suggest that herring (*Clupea harengus*) was the principal species consumed during this time. Other species – goby (Gobiidae) and pogge (*Agonus cataphractus*) – were also recorded, though in much smaller quantity (Nicholson 2012). Neither species is a traditional food source and may represent accidental catches. Herring bones were also recovered in considerable quantity from late Roman samples, but here the bones were largely from juvenile fish and some were salt- or gypsum encrusted. Other species recorded included smelt, pipefish (*Syngnathus* spp.), gobies (Gobiidae), stickleback (Gasterostidae) and pogge, also in high number. While the fish are likely to have been caught locally in the Thames, the character and size of the assemblage suggests that the fish was not consumed locally, but instead used in the production of salted fish sauce or paste and exported, possibly to London (ibid.). More flatfish and herring were identified in a sample from a medieval dump deposit on Salt Fleet Flats (Nicholson, Specialist Report 15). However the fish were consumed, the snapshots obtained by samples indicate that there was little change in the principal species caught in the Thames from the middle Iron Age onwards.

Fishing was a seasonal activity, although the season varied depending on species. Herring, the main species represented at London Gateway, is found in the Thames Estuary between December and March, while gobies are most common between September and December (Wheeler 1979). The fish is likely to have been caught in the Thames Estuary using traps and nets. There is no firm evidence for weirs or kiddles at London Gateway, although such fish-traps may be represented by the remains of structures seen on the foreshore. The Thames Estuary was also an important source of shellfish. Oysters, mussels and other species, such as cockles, are represented within late medieval and post-medieval deposits at London Gateway and in Roman-period deposits at Stanford Wharf Nature Reserve and could be dredged or gathered from locations along the shoreline.

The evidence of farming regimes in prehistory is more limited, but we know from samples collected from the Rail Corridor and the Access Road that flax (*Linum usitatissimum*), wheat (*Triticum* sp.) and barley (*Hordeum vulgare*) were cultivated at various times, presumably on well-drained soils on the gravel terrace. Flax is a valuable resource; its fibres can be used for textiles, while the seeds can be eaten or processed to extract oil. Its high value appears to be reflected in how the flax was deposited in the middle Bronze Age on the Rail Corridor site: within a ceramic vessel in relatively large quantity. It is an uncommon discovery that had some significance to the people living on the land, possibly as a cache of seeds stored as a food resource or over the winter ready for the next season's sowing, or possibly as an offering related to funerary rites (Meen *et al.*, Specialist Report 16). Flax would return to the London Gateway area, though very much later: 19th-century Ordnance Survey mapping

shows Oil Mill Farm, where linseed oil was extracted, on the west bank of Shellhaven Creek. Plant remains from Roman samples were confined to salt marsh species, among them seablite (*Suaeda maritima*), sedge (*Carex* sp.) and rush (*Juncus* sp.), recovered from the Logistics Park Infrastructure site. Though very small, the assemblage was consistent with the picture obtained at Stanford Wharf Nature Reserve and confirmed the presence of a marshland environment here during the Roman period. Data from Stanford Wharf Nature Reserve indicated that cereals, including spelt, barley and oats, were grown on the higher ground, and crop-processing waste had been brought to the site for use as fodder and fuel (Hunter 2012). Salt marsh species and wheat and barley grains were also recorded in samples of medieval date collected from the Access Road (Meen *et al.*, Specialist Report 16).

The animal bone assemblage was similarly small and we can draw little from it beyond the fact that cattle, sheep and horses grazed the fields in and around the London Gateway development area during the medieval and post-medieval periods. The existence of sheep-related structures – sheep-dips, sheepfolds and the like – recorded on the ground and on historical mapping, as well as 'wick' place-names, referring to sheep dairies, indicate how important the reclaimed marshes on both the Kent and Essex sides of the Thames Estuary were to sheep farming (Fig. 6.2). There is a hint, though, when comparing the relative quantities of animal bones from the Access Road on the gravel terrace and the marshland environment of Salt Fleet Flats, that cattle dominated on the higher ground (Strid, Specialist Report 14), and indeed farms on the edge of the gravel terrace, such as Great Garlands Farm, retained cattle herds until very recent times (Flint 2010). Evidence from Roman horizons at Stanford Wharf Nature Reserve points to some continuity. There, the assemblage was dominated by cattle bones, followed by sheep and then pigs and horses (Strid 2012).

Excavations along the Access Road and within the Pipeline Diversion area revealed ditches that served as field and enclosure boundaries, some of the ditches matching boundaries depicted on historical mapping. More evidence of an agricultural landscape on the edge of the gravel terrace was seen in Area H on the southern end of the Access Road. Drainage ditches were cut parallel to the terrace edge and several ponds, which may have served as waterholes, were recorded. An arrangement of gullies may be the remains of a gateway through a fence that marked the border of the terrace and intertidal zone. Much of this evidence dates to the late medieval period or early post-medieval period.

The London Gateway development area contained little trace of permanent occupation. Ditches of middle and late Bronze Age date mark out large fields used in a mixed regime of arable farming and pastoralism, while pits offer evidence for craft and industry, rather than domestic activity. The Roman-period activity on the intertidal zone at Stanford Wharf Nature Reserve represents seasonal occupation by salters and other workers



Figure 6.2 Sheep have been grazing on the Cooling Marshes since at least the medieval period

and, being an area of regular inundation, the site is unlikely to have seen permanent habitation. Instead, settlement was located on the elevated ground of the gravel terraces, and indeed there are hints on the higher ground of Roman settlement south of Stanford-le-Hope in the form of scattered features characteristic of permanent settlement, such as a well and burials. One of the largest groups of burials, albeit unexcavated, was recorded at the Pipeline Diversion and may represent the remains of a larger cemetery or a family plot. Other burials are known near the Rail Corridor and the A13/A1014 road junction. A relatively large quantity of ceramic building material, denoting the presence of buildings, was recovered from the Pipeline Diversion, but had certainly been recycled, having been utilised within the brine-evaporation hearth and comprising an assemblage of pieces deliberately selected for the structure – tegulae from a roof and flue-tiles from a hypocaust (Poole, Specialist Report 4). While the location of the original building is uncertain, the material nevertheless points to a building of some pretension in the area, possibly a villa. Equally, the material could have derived from a building at Mucking, where extensive evidence for nucleated settlement is well known (Lucy and Evans 2017).

The pattern of settlement implied by the Roman evidence, defined to a large extent by geological and topographical constraints, continued into the medieval

period, and indeed well beyond. The clearest evidence for post-Roman settlement was recorded in the northern part of the Access Road, where excavations uncovered a series of plots dated between the late 13th and mid-14th or 15th century, which may have contained dwellings or cottages that extended along the High Road. Eve's Cottage, recorded on Ordnance Survey mapping, may originally have originally been one of the dwellings associated with this row of plots. The survival of the late medieval settlement and field pattern is demonstrated most readily by historical mapping. Two of the earliest maps that depict the London Gateway development area, Chapman and André's map of Essex 1771 and Mudge's map of Kent of 1801, show settlement extending up to the edge of the marshland, by that time reclaimed and used for pasture. The marshland on the Essex side is shown as being bordered by farms – among them Broadhope Farm and Fox Hive (formerly Feake's Hithe and subsequently Great Garlands Farm) – and the larger settlements of Corringham and Fobbing. On the Kent side, south of Salt Fleet Flats, the settlements of Cliffe and Cooling and farms sit on the edge of the Cooling and Halstow marshes. Comparison with modern mapping shows little change, at least until industrial development. The stability has resulted in an extraordinary continuity of field patterns. Boundaries and tracks recorded on the 1617 map of the Old Garlands' estate



Figure 6.3 View of Mucking Creek, looking south towards the River Thames

and uncovered in part as ditches by the investigations on the Access Road and the Pipeline Diversion are likely to be older still and survive to some extent today.

The London Gateway project has been about collaboration. From the start, archaeologists worked closely with DP World London Gateway to develop a staged, multidisciplinary approach to the investigations. A range of methods – desk-based assessment, deposit-modelling, geoarchaeological boreholes, geophysical and topographical surveys, evaluation, walkovers, excavation and monitoring – have been employed to assess and mitigate the impact of the development and build knowledge of the past. The mitigation was tailored to each site in accordance with the Archaeological Mitigation Framework; one size does not fit all, and it was important to devise methods appropriate to the diverse and extensive landscape and within the constraints of the development programme.

The value of the investigations at London Gateway lies not in any one site (although certainly some remarkable discoveries have been made), but in the cumulative evidence gathered from across the development area and its contribution to our understanding of landscape use and palaeoenvironmental change in the

Thames Estuary. The investigations in the field and subsequent analysis have identified a sequence of human activity spanning the middle Bronze Age to modern times, for some aspects, for example field patterns, revealing long-term continuity. The archaeological work has extended the story of salt-making at the site from the late Bronze Age (and possibly from the middle Bronze Age) to the medieval period. It has also revealed evidence of the lost settlement of Feake's Hithe, hitherto little known outside historical records, and has potentially connected the evidence with the notorious Tudor adventurer, Sir John Hawkins. The Thames Estuary has been a focus for human inhabitation and activity from the Palaeolithic period to the 20th century (Fig. 6.3). Throughout that time, changes in the environment and sea levels have profoundly affected patterns of settlement, exploitation of natural resources and the use of the river for transport and trade. The mitigation strategy sought to address the history of the dynamic relationship between the changing environment and human inhabitation in the Thames Estuary. Judging by the results of the archaeological work presented here, the project has achieved some considerable success in that objective.