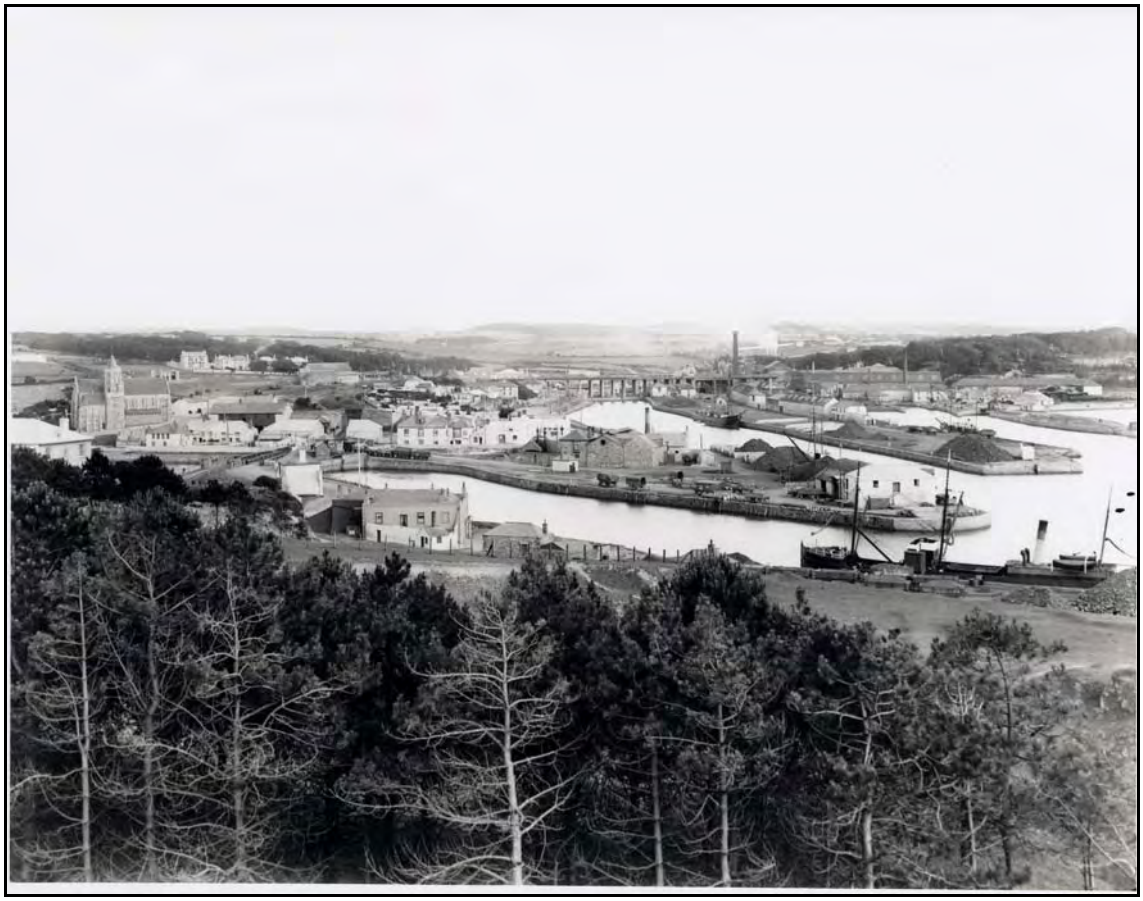
Hayle Historical Assessment
Cornwall

Main Report



Cornwall Archaeological Unit

A Report for English Heritage

Hayle Historical Assessment
Cornwall

Nick Cahill BA, IHBC
(Conservation Consultant)
with
Cornwall Archaeological Unit

July 2000

CORNWALL ARCHAEOLOGICAL UNIT
A service of the Environment Section of the Planning Directorate, Cornwall County Council
Kennall Building, Old County Hall, Station Road, Truro, Cornwall, TR1 3AY
tel (01872) 323603 fax (01872) 323811 E-mail cau@planning.cornwall.gov.uk

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Within Cornwall Archaeological Unit, Jeanette Ratcliffe was the Project Manager, Bryn Perry Tapper collated historical data and created the Hayle GIS maps and SMR database, and Andrew Young identified sites visible on air photographs (as part of English Heritage's National Mapping Programme).

Nick Cahill (freelance consultant working for CAU) carried out historical research and fieldwork and prepared the report text. The report maps were produced by Bryn Perry Tapper and the Technical Services Section of CCC Planning Directorate from roughs provided by Nick Cahill.

Cover illustration

Hayle harbour in 1895, viewed from the Towans, above the later power station. North Quay is in the foreground, East Quay in the centre, and South Quay, Carnsew Dock, the railway viaduct and Harvey's Foundry are in the background. The newly built St Elwyn's church stands as a prominent feature on the left of the photograph. Note the essentially open character of all three quays (RIC photograph collection)

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Abbreviations

CA	Conservation area
CAU	Cornwall Archaeological Unit, Cornwall County Council
CCC	Cornwall County Council
CCCo	The Cornish Copper Company (also known in the 19th century as Sandys Carne and Vivian)
CRO	Cornwall Record Office
GIS	Geographical Information System (ArcView 3.2)
HTP	Hosken, Trevithick and Polkinghorne Ltd., millers, general grocers and distributors, successors in Hayle to both J. H. Trevithick and Sons and William Hosken and Sons.
LB	Listed Building
NGR	National Grid Reference
NMP	National Mapping Programme (English Heritage project for the identification of sites from air photographs)
OS	Ordnance Survey
PRN	Primary Record Number (in Cornwall and Scilly SMR)
RAF	Royal Air Force
RIC	Royal Institution of Cornwall

RSPB	Royal Society for the Protection of Birds
SM	Scheduled Monument
SMR	Cornwall and Scilly Sites and Monuments Record (housed at CAU)
SSSI	Sites of Special Scientific Interest
[20]	Cross-reference in main report to inventory item listed in Appendix 3 and depicted in Figures 15a-h and 16a-h

1. The town of Hayle, an historic industrial port set within a beautiful natural estuary, with farmland beyond (CAU 717/2/555 375, 1989).

1 Summary

During the autumn and winter of 1999/2000 an historical assessment was carried out in order to inform proposals for the regeneration of Hayle. Historically one of Cornwall's most important industrial towns, it is internationally significant for producing the world's largest steam engines, designed by some of the most famous steam engine engineers, and for exporting the greatest number of mine engines to the world's orefields. As a key element of the exploitation of the Cornubian Orefield, an integrated mining landscape unique in England, it is part of the Cornish Mining World Heritage Site bid.

Located on the north Cornish coast (Fig 1), within the beautiful natural setting of the Hayle Estuary, this has been a focus for settlement and maritime trade since prehistoric times. From at least the mid 18th century it developed into one of the County's main industrial ports, serving surrounding mines and becoming home to the Cornish Copper Company and two of Cornwall's three largest iron foundries. Internationally renowned for the scale of their work and the breadth of their engineering expertise, these rival companies (Copperhouse Foundry and Harvey's Foundry) were largely responsible for the expansion of Hayle during the 19th century, when the twin settlements of Copperhouse and Foundry developed side by side.

Despite both having ceased operation by 1903, Hayle continued to be a thriving port until the Second World War, when it served as a base for building ships and guns and producing bromide for aviation fuel. Though experiencing decline in the post war years it was active until the 1960s, but commercial shipping ceased in 1977, and the harbour now only supports a small fishing fleet. Some small-scale industrial activities continue, but the town is no longer an important industrial centre.

Nevertheless, despite the demolition of much of Copperhouse Foundry and key elements of Harvey's, as an historic industrial town and port, Hayle is still largely intact. Much of its harbour infrastructure survives, together with key industrial and public buildings, and a good range of workers' housing, villas and early shop fronts. There is also considerable potential for the survival of buried archaeological remains.

Most of Hayle's historical assets are not covered by existing statutory designations, and there is considerable scope for extending the protection these afford and for enhancing the existing character of the town. The latter is distinguished by the contrasting characters of Copperhouse and Foundry, the physical link provided by the extensive quays, the estuarine setting, which affords numerous views in, out of and within the town, and architectural features that are peculiar to Hayle - the use of scoria (copper waste) blocks and a distinct 'Hayle Style' of render.

What emerges from the Hayle Historical Assessment is a settlement of unique character and great historical significance, contained within a landscape of equal merit. The historic environment is already serving as the catalyst for major investment in Hayle and should continue to underpin initiatives for the regeneration of the town.

2. Looking east across Hayle Harbour and Town, with the open expanse of Carnsew Pool in the foreground, the salt marshes of Copperhouse Creek beyond, and The Towans and Gwithian Beach top left (CAU 729/61/553 372, 1990).

2 Introduction

2.1 Project background and aims

Proposals for the regeneration of two key areas in Hayle - Harvey's Foundry and Hayle Harbour - have highlighted the need for a detailed historical assessment of these and other parts of the town. The aim of this project is to provide a comprehensive account of the standing historic fabric and its contribution to present settlement character, and to assess the potential for buried archaeological remains. As well as increasing understanding of the historical development and significance of Hayle, it has allowed general recommendations to be made for the future management of its historical assets, and provides the data necessary to assess the impact of current and future development proposals and to inform schemes aimed at enhancing the historic character of the town. This report is intended to be used in conjunction with the Penwith Draft Local Plan, the County Council Structure Plan, the Hayle Action Plan prepared by the Civic Trust, and the Harvey's Foundry Action Plan (see Section 11 and Appendices 1 and 2).

2.2 Project methods

The Hayle Historical Assessment has involved four main phases of work: historical research; database consolidation; fieldwork; and report preparation.

2.2.1 Historical research

Throughout the project the emphasis was on gaining a comprehensive overview of the archaeological sites and historic structures which exist or previously existed within the town, rather than obtaining exhaustive information about each individual site. In the light of this, the historical research focused on the County SMR and Listed Building databases, easily available early maps and air and ground photographs, as well as published histories and some unpublished documents (see Section 11 for a full list of sources consulted).

2.2.2 Database consolidation

Sites identified during the historical research and during the subsequent fieldwork were plotted on the OS 1:2500 Landline map base, which forms part of CAU's GIS (ArcView 3.2) mapping system. For most sites a polygon or line was drawn to show actual extent - sites where extent was unknown were plotted as symbols. For each plotted site a brief SMR record was created. The inventory of sites in Appendix 3 has been generated from these SMR records, and Figs 12 to 16 are derived from the GIS mapping.

2.2.3 Fieldwork

The fieldwork was aimed at: identifying additional sites to those discovered during the historical research; establishing the extent to which the sites survived; and obtaining information on the character and condition of standing structures and their present day setting. It also allowed for a general visual assessment of the town, taking into account its historic character, landscape setting, views and open spaces, and the impact of modern development and alterations.

2.2.4 Organisation of this report

This report begins by summarising the historic and present day significance of Hayle (Section 3), identifying the qualities and characteristics that make it unique, in both a local and national context. Sections 4-6 describe the landscape setting and history of Hayle and the influence these have had on the physical development of the town, not only since it

began developing into an industrial port (from at least the mid 1750s), but also in terms of the area's pre-industrial settlement pattern, which stretched back to prehistoric times.

The town's surviving historic components (in terms of both standing fabric and buried archaeology) are described in Section 7, with Section 9 indicating the extent to which these structures, sites and areas are covered by statutory and non-statutory designations. An appraisal of present settlement character is provided in Section 8, with key factors and issues currently affecting the town, and general recommendations for the protection and enhancement of its historical assets are provided in Section 10. At the back of the main text Appendices 1 & 2 contain background information on previous archaeological recording in Hayle, and current and future initiatives that have a bearing on this study. These are followed by maps relating to the main report text (Figs 1-13).

An inventory of the 694 archaeological sites and historic structures identified during the assessment is provided in Appendix 3, which is bound as a separate document. As well as providing a brief description of each item, together with its PRN and NGR, the inventory records whether it is scheduled or listed and, if so, provides its SM or LB number. This allows cross referencing with English Heritage's SM records and LB descriptions, which contain additional information about these items.

The numbered items in Appendix 3 correspond to sites plotted in Figures 15 a-h (standing historic structures) or Figures 16a-h (demolished buried and artefact sites), which are located at the back of the inventory. Inventory items are cross-referred to in the main text (particularly in Section 7, Surviving historic components).

3 The significance of Hayle

The importance of Hayle can be recognised in different ways.

- International level.
- National significance.
- Regional importance (within the south west mining district).
- Local importance - character, morphology and setting.

3.1 Checklist of significance

3.1.1 International

- Home to two of the three largest early 19th century mine engine (steam) foundries in the world (Harvey's 1779-1903 and Copperhouse 1820-1869) - Harvey's helped produce the largest steam engines ever built anywhere.
- The workplace and meeting place of some of the most famous steam engine engineers: Richard Trevithick, Arthur Woolf.
- Port of departure for more mine engines to the world's orefields than anywhere else - Hayle was synonymous with innovation, quality and reliability from Wallatoo (S. Australia) to Real del Monte (Mexico) and the Lake Superior Copperbelt (USA). Harvey engines survive in Mexico as do many of the Cornish engine houses throughout the hard rock mining world, particularly in Southern Australia, Virgin Isles, Mexico, USA, and Ireland.
- Hayle is part of the Cornish Mining World Heritage Site bid.

3.1.2 National

- The only industrial port to cater equally for the export of non-ferrous minerals as well as engineering products. Copper was exported, from an early date, for smelting in South Wales after the smelter at Copperhouse closed. Other mineral ports such as Amlych (Anglesey) and Whitehaven are also early but are single industry ports. Most other significant mineral ports outside Cornwall have developed beyond their original function and are no longer so clearly defined as Hayle.
- The port was part of a unique vertical company network whereby very often the same families and individuals owned the mines, the mineral railways, the ports and the South Wales Copper smelters and in some cases the ships and coalfields as well.
- Hayle has to be seen as part of the general exploitation of the Cornubian Orefield. For example:

  Hayle served the Camborne-Redruth Mining District.

  St Michael's Mount served the Tregonning-Godolphin District.

  Porthleven served the Wendron/Godolphin Tregonning District.

  Portreath served the Camborne-Redruth Mining District as well as the St Day-Gwennap District.

  Devoran served the St Day-Gwennap District.

  St Agnes served the St Agnes District.

Charlestown served the St Austell District.

Looe served the Caradon Mines.

Morwelham and Calstock served the Tamar Valley mines.

Each port is part of an integrated complex of mines, railways and ports that served each mining district; take out part of the complex and the whole is diminished. Hayle is part of an integrated mining landscape unique in England.

- Large parts of the historic railway system survive as does substantial numbers of mine sites in the Camborne-Redruth area - in other words the mining hinterland of the port survives (ie those mines which the port served as a point for the export of copper and import of coal for the engines and timber for the mines).

3.1.3 Regional

- Cornwall had and still has an extraordinary number of mineral ports, largely for the export of copper, granite and china clay (eg Hayle, Portreath, St Agnes, Wadebridge, Porthleven, Devoran, Charlestown, Pentewan, Par, Looe, Calstock, St Michael's Mount, Penryn, Newquay). Each of these had a customs house and other port infrastructure, several were defended (Portreath, Charlestown), many were purpose built mineral ports (Hayle, Porthleven, Calstock, Morwelham in Devon, Portreath, Charlestown, Pentewan, Par, Devoran), and others were adapted/expanded older ports. Hayle was by far the most complex, having more quays, more activities (mineral export and import, engineering, major shipbuilding, fishing and copper smelting) and urban/borough infrastructure with a wide range of associated industries.

- Before the advent of steam dredgers, the problems of sluicing the quays to clear silt was a very complex and expensive operation involving sluicing pools. These water reservoirs stored fresh or salt water that was released periodically to flush out the quays and harbour. Sluicing pools survive at Charlestown, Devoran and Pentewan and in particular Hayle. At the former three harbours the ponds were filed by fresh water leats. At Hayle the Harvey's and Copperhouse quays were flushed by the salt water Carnsew and Copperhouse pools respectively. The upper pool at Copperhouse was also used for a tide mill. These very unusual harbour arrangements are a unique exemplar of the bi-polar commercial character of the settlement.

- The range of other industries is unusual in such a relatively small town - large scale milling, baking, brewing, ropemaking, chemical manufacture, explosives (one of the 3 largest explosives works in Britain before the First World War).

- The town of Hayle displays the commercial and, consequently, legal struggle between two great rival concerns - Harvey's at Penpol and Carnsew and first the copper company and then the Copperhouse foundry at Copperhouse. The morphology and character of the town today is effectively the result of this often bitter rivalry. The distribution of properties using copper slag blocks (scoria blocks) effectively identifies the Copperhouse properties.

3.1.4 Local

- The location of the two ports (Hayle and Copperhouse) on the two arms of the expansive Hayle estuary. All the other purpose built mineral ports (with the exception of Devoran and Morwelham which are on the banks of rivers) are confined within narrow river valleys and were built from small fishing coves.

- Each of these settlements has a distinctive character: Copperhouse, historically the main commercial and residential centre, has a good range of early shop fronts and workers' housing; Foundry is characterised by the remains of the Foundry complex, large villas built for the Harvey family and directors, and a small range of commercial/public buildings.
- A middle ground between the two settlements (around East Quay and the east side of Penpol Creek) is dominated by Seddings late 19th century church of St Elwyn and characterised by better quality terraced housing built for profession workers.
- Providing a physical link between the different areas is the extensive waterfront, where the historic quays, canals, sluice pools and other maritime infrastructure survives largely intact.
- Key industrial buildings survive within the town – the largest being the remaining buildings of Harvey's Foundry and Loggan's Mill, forming a prominent landmark at the eastern entrance to the town.
- Architectural features exist which are peculiar to Hayle: the use of distinctive red-brown scoria blocks (comprised of waste from the Copperhouse copper smelter) in quay and building construction; and a 'Hayle Style' of rendering (typified by roughcast, with quoins, door surrounds and other details in rusticated or sometimes vermiculated stucco).
- Hayle's setting within a twin-armed estuary provides a wealth of views into and out of the town, with many of its parts being inter-visible from each other (the main view being the interrelationship between the three churches of Lelant, St Elwyn and Phillack).

3.2 General discussion

Never based on a single industry, or a true 'company town', 300 years of industrial and commercial history has created in Hayle a robust, complex settlement. This complexity distinguishes it from other, simpler industrial ports in Cornwall, such as Charlestown, Devoran, Par, Portreath or Porthleven, or Morwhellam Quay in Devon. This nationally important, and probably unique, group of mineral ports, are by and large smaller and designed to service a single industry. Hayle takes on greater significance because of its early development, its scale, and the range of activities carried out there.

In addition, it was not just a port and takes on much of the significance of the great manufacturing and industrial centres like Camborne and Redruth that lie at the heart of the mining area being considered for World Heritage status. Hayle would be important in this context if for no other reason that the largest steam engines in the world were produced here, but more than this, the town is in a sense a microcosm of the industrial history of Cornwall, especially for that brief period in the early 19th century when Cornwall was in the very forefront of technological and commercial development in the World. As a manufacturing centre for the mining industry, a smelting centre for both tin and copper, the main port of entry for coal, timber, leather, grain, iron and all the other goods needed for the mines, the major home port for the fleet that carried the goods, and the major shipbuilding centre in Cornwall, Hayle was in a very real sense the power house of Cornish industry.

This complexity of activity still underlies the character and appearance of Hayle, as well as some of its current problems. The extensive series of quays, now much more than is required for current operational needs, was probably always rather more than was required,

but reflects the great rivalry between the two major concerns in Hayle, Harvey's and the Cornish Copper Company. Here was the real business of Hayle, despite the much greater attention paid then, as now, to the showpiece business of making steam engines – it was over access to the quays that the two companies fought pitched battles on the sands in 1819, not over access to markets for foundry products or steam engines.

The rivalry is still reflected in the two surviving centres, until 1934 two separately administered towns, and the presence of a third neutral area around St Elwyn's Church. This was the earliest area of industrial activity, but was a later settlement area than either Copperhouse or Foundry, and yet there seems to have been an effort in the later 19th century to make this the focus of the town, with the building of a church, drill hall, police station, and institute. This area (Penpol or Hayle proper) only really makes sense in its present disjointed state when set against its late emergence as a focus for the town.

This is also the best place to see today the deliberate relationship of much of the housing in Hayle to the industrial activities in the town - Penpol Terrace and Clifton Terrace are proudly sited to look out over and be seen from the prosperous quays and wharves. Herein lies the true character of Hayle –it relies less on the quality of individual buildings or set-pieces urban landscapes as on the understanding that a complex set of relationships created the town – in effect a series of systems. Just as the quays are an integrated system of tidal and dredging management, with a complex interrelated pattern of uses on the wharves themselves, so the houses around the quays should be seen as part of this interrelated complex.

In the same way, the rows of industrial housing around Copperhouse only make sense if the industrial history of the area is understood – and that makes the few remnants of the industrial complex at Copperhouse even more precious in themselves. The failure to understand this history and this complex relationship is best seen in Market Street in Copperhouse, where probably the oldest and most important industrial housing in Hayle barely survives in an area of re-development, now set in squalid and isolated surroundings. Market Square itself is now a poor urban space, yet it has tremendous potential when set against the surviving wharves around Copperhouse Dock and canal, surely one of the most unusual and most important maritime and industrial complexes in Cornwall, and yet another example of a system or complex of structures.

Even the less-obviously industrial elements of Hayle are intimately linked to its industrial past - the wonderful group of stuccoed villas and mansions around Foundry for instance – all built for members of the Harvey/Wets/Trevithick family that ran the Foundry, and culminating in Downes - the only Registered urban garden in Cornwall. Previous histories have described the owner of Downes, W J Rawlings, as an antiquary. Only when it becomes understood that he was actually the company secretary of Harvey's does the location and scale of his house and garden become truly significant. Further afield, the farm complex at Riviere on the north side of Copperhouse Creek is very much out of scale with traditional farms in the area. The huge, industrial scale buildings of the farmyard, built with moulded copper slag, today stand isolated in the fields and have been the subject of development proposals in the past. They appear anomalous in this landscape, unless it is understood that they provided the heavy horse transport for the Copperhouse industries, and are to be seen as part of the industrial complex in Hayle itself.

Under these circumstances it becomes invidious to single out areas of greater or lesser important in Hayle, since the significance of the whole adds up to so much more than the sum of the individual parts. When the true relationship of one element, no matter how humble or seemingly derelict, to the others is not understood, then the whole complex can be damaged – 'tidying up' a run-down area could have the knock-on effect of destroying

meaning in a whole range of other sites. A better approach than to look at individual structures or monuments would be in the first instance to view proposed policies, developments or enhancement in terms of their impact on the complex of relationships within the town, and of the parts to the whole.

3. Hayle Harbour viewed from the estuary mouth, with (from left to right) North Quay, Cockle Bank and Middle Weir in the foreground, and in the middle of the picture Copperhouse Creek, East Quay, South Quay and Carnsew Pool. Foundry lies behind the railway viaduct and Copperhouse extends off the left of the picture. The prominent building (top left) overlooking the entrance of Copperhouse Creek is St Elwyn's Church. (CAU 729/68/555 377, 1990).

4. Looking north over Foundry Square and South Quay, with Harvey's Foundry on the left hand side of the picture (this side of the viaduct), where the largest steam engines in the world were built. This photo was taken in 1986 after the Coliseum was demolished, but before the Guinness Housing Trust redeveloped the site. Note also the now-demolished buildings on South Quay. (CAU 76/42/559 372, 1986).

4 Location and setting of Hayle (Figs 1-3)

4.1 Geographical and administrative location

The town of Hayle is situated on the north coast of Cornwall (Fig 1). It lies four miles to the east of St Ives, on the east side of the Hayle estuary. It is eight miles from Penzance and five from Camborne and the great industrial heartland of 19th century Cornwall. Until 1934 Hayle was governed by two authorities, Hayle Urban District Council and Phillack Urban District Council. From 1934 to 1974 it was a parish council within West Penwith Rural District Council. Currently the Town Council has the status of a Parish Council within Penwith District. The town was traditionally divided between the parishes of Phillack (to the north and east) and St Erth (to the south and west). A third historic parish and church, Lelant, stands on the west side of the Hayle Estuary. A new parish of St Elwyn was created in 1870 from Phillack, and a church built in 1888. The three churches of Lelant, St Elwyn and Phillack are today the most potent symbols of the late origin of the town within its varied geographic and historic setting.

Hayle is situated at the point where the Hayle River, the Penpol River and the Angarrack stream join and enter the sea: Hayle River, Penpol River and the Angarrack stream. The name 'Hayle' itself is derived from the Cornish *heyl* meaning 'estuary' (cf Helford). The shallow, broad estuary narrows considerably as it approaches the sea, where it cuts through the Towans, a high expanse of sand dunes which borders the coast from Hayle to Gwithian, before opening out into St Ives Bay. The estuary and creeks have silted up and become much shallower since the medieval period, largely as a result of tin-streaming and mining inland (St Erth on the Hayle River was a medieval port accessible to sea-going merchant ships until the 16th century).

4.2 Landscape setting

The Hayle Estuary and Towans provide a setting of rare natural beauty for the settlements of Lelant on the western shore, Phillack on the north, and the town of Hayle on the southern shore.

The natural environment of Hayle is one of great variety, a unique blend of natural and man-made environments - farmland, marshes, sand dunes, river, mudflats, beach, bay, low lying moor - the importance of which is reflected in a series of statutory and local designations designed to protect and manage this landscape.

The Towans is the second largest area of sand dunes in Cornwall and is prominent when viewed from across the bay. They are prone to erosion and damage from overuse - in the summer season tourists flock to the miles of sandy beaches bordering the dunes.

One of the special features of Hayle is its large open harbour which, while huge in itself, is still dwarfed by the scale of the estuary. The estuary and the various pools beyond the harbour, comprising mudflats and saltmarshes, provide a habitat for a wide variety of birds and plants. Copperhouse Pool is an important feature within Hayle which is visually dominant when viewed from the east and also provides a constant reminder of the proximity of the estuary from within the built up area of the town.

Agricultural land provides a contrasting landscape south west of the town up the Hayle River valley and on the northern side of the estuary around Riviere, with areas of Grade 2 agricultural land actually within the town (eg at Phillack).

Hayle is in an amphitheatre, with important views ranging across the arms of the estuary and over the enclosing slopes. While not heavily planted with trees, certain groups (around Phillack Rectory, Bodriggy House and St. Michael's Hospital for instance) are of great importance, and the ridge lines of all the surrounding slopes are dominant landscape elements.

While the broad expanse of estuary, glimpses of open seascapes, areas of dunes and moorland and agricultural vistas give an impression of great space, in reality the landscape is small in scale with a limited capacity to absorb development.

5. The landscape setting of Hayle - a sweeping view across Hayle Estuary and St Ives Bay, with Hayle Harbour and Town on the right of the picture and the medieval churchtown of Lelant on the left hand shore (CAU 729/60/550 370, 1990).

5 Outline history of Hayle

This section is divided into three sub-sections, the first covering the period up to 1710 when permanent industrial and commercial developments can first be traced on the Hayle estuary, the second dealing with the main period of industrial development in the 18th and 19th centuries, while the third traces the decline of the town's industrial base in the 20th century. The history of the industrial period is further sub-divided to explore the different areas of industrial and commercial activity in Hayle.

5.1 Hayle in prehistoric, medieval and Tudor Times (Figs 2 & 3)

Since prehistory the estuary has provided a safe harbour and a focus for settlement, trade and shipping. The Iron Age hillfort at Carnsew was sited to overlook the estuary, and the graveyard of Lelant parish church may preserve the rectangular outline of a Roman fort well placed to control access to the estuary. There are also a number of Iron Age/Romano-British enclosed farming settlements (rounds) recorded in the area.

6. The medieval churchtown of Phillack on the northern shore of Copperhouse Creek (CAU 718/1/565 384, 1989).

In the early medieval period the estuary continued to be an important trading centre, especially in the 5th to 7th centuries. Finds of imported pottery of this date reflect international trade (tin perhaps traded for wine, oil, and pottery), which probably facilitated the early development of Christianity. Phillack Church has an important group of early Christian memorial stones and, as a settlement, may date from the Iron Age, with evidence of pre-Christian graves and with a long continuity of use as an ecclesiastical centre. The settlement (and surrounding estate) was first recorded in 1130, as 'Egloshayle' meaning the church (eglos) on the estuary. The present name (Phillack) is of unknown origin, and may actually have given rise to the secondary dedication of the church to St Felicitas, the original dedication being to Piala. At Carnsew Fort the nearby 5th century memorial stone,

together with the discovery of a Roman coin hoard, may suggest that the fort continued to be an important centre long after the Iron Age.

Both physical and documentary evidence survives of trade and a network of quays around the estuary by the medieval period, with quays at Lelant, a ferry across the estuary mouth, roads leading to the waterside and causeways across the mudflats. By 1495 Chapel Angier on the Lelant shoreline (outside the study area) had been built by the guild of St Anta (of Lelant church) as a guide for boats entering the estuary mouth. Leland's well-known description of St Erth in the 1530s adds to the picture - 'Ther cam to this place ons, the haven being onbarrid, and syns chokid with tynne workes, good talle shippes' (quoted in Acton 1992, 40). His remarks illustrate that tin streaming had become a major industry with huge amounts of waste sand and silts beginning to clog up the estuary, resulting in the development of a new port at the estuary mouth; St. Ives, a daughter settlement of Lelant. The small hards and quays around Lelant, however, continued in use throughout the period. This was an area of hamlets and scattered farmsteads, with medieval estate centres, like the churchtowns at Phillack and Lelant, situated slightly back from the waterfront on higher ground. Many of these farming settlements bordering the estuary appear in documents for the first time in the 13th century, but most are likely to be much older.

5.2 18th to 20th century industrial history of Hayle (Fig 4)

Detailed accounts of the two main industrial concerns in Hayle - Harvey's and the Cornish Copper Company, as well as those of some of the other major industries in Hayle, can be found in published histories, the more important of which are listed in Section 11.

The early industrial development of Hayle was driven by the need to supply and service the local mining industry. Until diversification and the establishment of new industries in about 1900, Hayle continued to be dependant upon the prosperity of mining, both in the immediate hinterland of the estuary, and further to the south and east around Godolphin and Wendron. While the manufacturing and trading businesses that concentrated around the estuary have a significant history of their own, the fundamental importance of tin and copper mining cannot be overemphasised. The business of mine merchant which first led to the growth of the town remained its main economic activity throughout the 18th and 19th centuries, giving rise to the first quays in the 1740s, and the great wealth of John 'Merchant' Curnow who died in 1780. In the 19th century, both Harvey's and CCCo were shareholders (and indeed active as managers and promoters) in many local mines and, most importantly, were the biggest shareholders in the great Wheal Vor mine. Hayle's involvement in the mining industry around Helston was so great that eventually in 1833 it replaced Helston as the local coinage town. It is clear, moreover, that many more of the inhabitants of Hayle were directly employed in the local mines than has hitherto been assumed, forming a sizeable proportion of the population.

5.2.1 Mining

Hayle's position so close to the mines, and its location on the north coast made it ideal as a port to service the mining industry, since it was well placed to trade with the great coal and smelting areas of South Wales and the great trading centre at Bristol. The St Erth valley was an ancient and well-established tin-mining area with many long-established stamping mills. The area turned largely to copper from 1798-1850, and ancient tin-steaming works in St Erth were active throughout the 19th century, using steam engines by 1873, while the waste was still being re-worked during the Second World War.

Real growth came in the early 18th century, with the expansion of tin mining in the Angarrack area, east of Hayle, but especially with the development of copper mining. Both tin and copper were exploited on a greater scale and at much greater depths, which led to a

growth in the use of steam engines. The Hayle mining area was one of the first areas in Cornwall to exploit its copper reserves on a large scale (from about 1750) - the area of Mellanear Mine was already being worked in 1750, and was then known as Leah Copper Work.

The greatest expansion in local mining began in the 1790s with the opening of Wheal Alfred in 1793, based on the amalgamation of older workings. This mine really took off in about 1805, going through several phases of closure and re-opening between 1816 and 1864. By the early 19th century the mine employed some 1500 people, and was described in 1814 as the 3rd largest copper mine in Cornwall. Other local mines included several on the same lodes and in the same area as Wheal Alfred, with some large sales of copper in the 1790s, but generally little produced after about 1800.

There was some mining actually within the area of the present town of Hayle in the late 18th century. An adit was driven from Copperhouse Creek southwards under the lands owned by the CCCo, which was also involved in the development of North Wheal Alfred, whose dumps, together with some surviving buildings, are still visible south of Trevassack. Harvey's owned or leased the land Mellanear mine was on and had some degree of involvement in its expansion.

The last major phase of working at all these local mines was between 1846-62, with some initial success at Wheal Alfred that led to a number of other local mines being re-opened after about 1850, only to close by 1862.

Another series of local mines around Hayle was concentrated on and around the edges of the Towans to the north of Copperhouse Creek. Wheal Dream (Loggans or Phillack Towans Mine) had been in existence in the 1770s, and was opened again in the 1850s with little success. Boiling Well Mine had been working before 1815, was worked again 1821-56 (closed 1862), with both the Harvey and Hockin families involved (as was the great designer William Morris, a director from 1856 - he was also a promoter of the British Mining and Smelting Co active in Cornwall from 1865 and liquidated 1874). Never a great payer, the mine gave rise to the local expression 'On Boiling Well pay-day', meaning 'never' (Hamilton Jenkin 1962, 44). There had been some ancient tin workings on the Towans, mostly worked out by the 19th century, but in 1872, the Reverend William Hockin, Rector of Phillack, formed a new company on acquiring the Riviere estate and spent vast sums on equipping a new mine (Wheal Lucy) employing 60 men. It never paid and closed in 1874, with an unsuccessful attempt at re-working in the 1890s.

Further away in the Godolphin/Wendron mining area were a series of famous and ancient tin mines, which were of very great importance to Hayle, especially Wheal Vor, one of most celebrated tin mines of all. This was the first mining area to turn to steam power in the early 18th century, one of the main stimulants to the expansion of coal importing and the development of the quays in Hayle. By about 1800, Harvey's and CCCo were the biggest shareholders in Wheal Vor; Harvey's provided steam engines for it, and set up a tin smelter at Foundry for its produce in 1816 (the mine adventurers also used the old Copper smelter at Copperhouse for a while in the 1820s). Fabulously rich in the 19th century, Wheal Vor not only paid handsome dividends to both companies, but Harvey's in particular made huge sums of money supplying about two thirds of all goods to the mine, eventually creating a new harbour at Porthleven in the 1860s to handle the trade associated with this and other mines in the Helston area. The eventual closure of Wheal Vor in 1860 was the biggest single financial loss in Cornish mining history (£207,000).

5.2.2 Mine-related industries

The first industrial venture at Hayle was a small copper smelter set up near the lower end of Penpol Creek in 1710. It was located here to take advantage of local supplies of ore, and to eliminate the cost of road transport of coal (the biggest single potential expense in any copper smelting enterprise in Cornwall, and the reason why all but a small fraction of ore was exported to and smelted in South Wales throughout the 18th century and 19th century). Although profitable, the smelter was closed by 1735, the original partners having died or retired.

7. The mouth of Penpol Creek, by the Royal Standard Inn - the site of the first commercial and industrial development in Hayle.

From 1740, the increasing demands by local mines and traders for imported coal, rope, bricks and other essentials led to quays being built in the narrows at the mouth of the 'East Loe' (Copperhouse Creek) - known as 'Merchant' Curnow's quays - and at Carnsew. Dr William Borlase, the great Cornish Antiquary, wrote in 1758 that between 500 and 1000 mules and pack horses were usually to be seen at Hayle each day, transporting supplies inland and returning laden with copper ore (quoted in Noall 1984, 114).

In 1758 the CCCo moved here from Carn Entral, Camborne and set up a copper smelter on the foreshore waste of Ventonleague on the southern shore of the Phillack estuary (Copperhouse Creek). By the 1780s the company had become extremely successful, a canal had been dug from the mouth of Penpol Creek up to Ventonleague to bring vessels right up to the works; additional land for industrial use and housing was purchased on both sides of the creek, and two old quays (North Quay and Carnsew Quay) had been acquired by 1789.

John Harvey (1730-1803) was a blacksmith at Carnhell Green who set up a small foundry and engineering works at Hayle in 1779 to supply the local mining industry; by 1800 50 men were employed by Harvey. The foundry expanded from 1803; family and professional partnerships with great engineers such as Richard Trevithick, William West and (from

1816) Arthur Woolf gave the firm a level of expertise unmatched by other engineering works in Cornwall.

Throughout the 18th and 19th centuries the main activity, business and profits of both Harvey's and the CCCo remained the considerable seaborne trade between Hayle, South Wales and Bristol - the import and sale of coal, timber and building materials. Although most of the shipping in the harbour was used to supply the mining industry of Cornwall, with copper ore and tin metal returning to South Wales, there was also an important and long-lived passenger trade between Hayle and Bristol.

As fierce competitors, the CCCo and the Harvey family became locked in a bitter and drawn out dispute over rights to the waterfront at Carnsew and Penpol. This is one of the central episodes in Hayle's history, which affected the development of the harbour and quays in a way which is still evident today, and contributed to the distinctive, and different, identities of Copperhouse and Foundry.

In 1819 the CCCo ceased to smelt copper ore; it needed to diversify, and a new works was constructed which became the Copperhouse Foundry and engineering works. In later years this iron foundry was known as Sandys, Carne and Vivian, or simply "Copperhouse". The foundry became one of the "big three" in Cornwall, ranking alongside Harvey's and Perran Foundry (at Perranarworthal, between Truro and Falmouth) for the quality of their work and engineering expertise.

Tin smelting continued to be an important industry to Hayle even after the closure of the Copper Smelter. Harvey's erected a tin smelter in 1816 specifically to smelt the product of Wheal Vor in which they had a major shareholding. Although this closed in 1820, tin smelting continued in Foundry, with Trelissick Smelter operating between 1820 and 1855 on the site of the present Post Office in Foundry Square. The firm of Williams Harvey (no relation to the Harveys of Hayle) set up Mellanear Tin Smelter in 1837, and, with their other smelters (at Truro) dominated smelting in Cornwall through the 19th century - although the biggest single smelter in Cornwall was Bolitho's at Angarrack. Mellanear continued throughout the 19th century, smelting imported Australian tin ore and most of the ore from the great Dolcoath mine at Camborne. Harvey's acquired an interest in the business in 1888, and moved the main operation to Bootle in 1908, but kept the buildings at Mellanear, which were re-opened 1915-22. In 1845 there were estimated to be 9000 people in tin mining and processing in Cornwall, and 22000 in Copper, but only 60 in smelting in whole County, so smelting probably had little effect on the size of the settlement at Hayle. However, the wealth it generated was out of all proportion to the scale of the plant required or the numbers employed, and it certainly contributed to the overall prosperity of the town during the 19th century.

Harvey's influence and prosperity peaked from around 1820 to 1870, with 460 employed in the Foundry in 1841, and another 400 engaged in the wharves, and the building and coal trades.

By 1880 both Harvey's main competitors (the Copperhouse Foundry at Hayle and the Perran Foundry at Perran Wharf) had ceased operating, victims of the decline in Cornish mining. By the 1860s Copperhouse had few orders and was struggling to survive. Closure came in 1869; there was no buyer for the foundry itself (although the quays and other property were quickly acquired by Harvey's) until 1876, when Harvey's purchased the works at a very low price. The machinery was then scrapped or removed.

Both main foundry companies in Hayle were building ships from the early 19th century, at first quite small timber-built lighters and coasting schooners. Harvey's in particular expanded its shipyard into one of the principal elements of its business. The shipbuilding

yard was expanded in 1888 with new slipways, boilerworks and machine shops, intended to compete on a national level with other yards, building in 1891 the SS Ramleh, at 4000 tons the largest ship ever built in Cornwall. In this year Harvey's employed 1200 men. The shipyard, closely followed by the quay-based trades, became the main employer, in effect compensating for the foundry business which declined in importance and profitability in the later 19th century.

Having acquired the CCCo wharves and trading capacity, and with the closure of the heavy manufacturing elements of the foundry (1903) and the shipyard (the last ship built was 1893), Harvey's continued in business as merchants and traders in bulk goods. The harbour continued to import general cargoes, especially coal for Hayle power station, and grain for the various milling enterprises; fuel oil was also important in the 1950s and 1960s.

5.2.3 Milling

With medieval origins, milling was one of the major industries in Hayle from the early 19th century. It developed at first as a sideline, with the big industrial concerns needing to supply their own horses and men with feed. It expanded into a major commercial concern, with flour production and export, baking and retailing all becoming more important throughout the 19th century and well into the mid 20th century. Large grist mills were part of Harvey's business from the 1780s; sited by the Millpond, they were extended 1878-9; milling ceased in the 1890s, when a mint humbug factory took over part of the building.

In 1842 CCCo built the tidal mill (Paddy's Mill) at Copperhouse, which continued in use until 1930, then being run by Hosken, Trevithick and Polkinghorne, who traded as HTP. This was the successor firm (from 1890) to J H Trevithick, formerly part of the Harvey's group, and William Hosken and Sons of Loggans' Mill. Loggans Mill was their main base in Hayle. First recorded in 1688, it was rebuilt along modern lines following a fire in 1852, and again reorganised in 1884. HTP had other premises around Hayle, and in 1913 owned a large farm, 50 horses, 3 traction engines, lorries and steamers, were still bringing wheat to Copperhouse wharf for the mills, and were also the largest wholesale grocers west of Bristol. HTP removed all their operations from Hayle in about 1930.

5.3 The 20th century

For most of the 20th century, Hayle continued to be an important industrial centre, and the harbour remained one of the busiest in Cornwall. Decline only really set in in the 1960s, with a marked period of collapse in the 1970s. Hayle remains an industrial town, but there have been recent factory closures, and the proportion of the population employed in industry continues to fall, the 1980s and 1990s having seen much decline.

Large-scale heavy engineering in Hayle was all but over by the end of the 19th century. Both foundries had closed (1867, 1903) and shipbuilding had largely finished by 1893. Only the metalworking business of J & F Pool, founded in 1862, survived in Copperhouse. The harbour, however, continued to be very busy; the wharves were extensively used for general cargo, especially coal, timber and grain, while the passenger service to Bristol lasted until 1917. In the 1950s and early 1960s an average of 400 ships a year still used the harbour.

New industries arrived in Hayle in the early 20th century, such as the National Explosives works on Hayle Towans (1888 - 1919), which employed 700 by 1906 and over 1500 during the First World War, becoming the largest single employer Hayle has ever had.

Other industries were located here specifically because of the harbour: the Electricity Power Station built 1910, closed 1977; a glass factory 1917-25 on the site of the old calcining works, making extensive use of the sand from the Towans and imported china

clay waste from St Austell; a magnesium and bromine plant (opened by ICI in 1940) using sea-water; and an oil depot operated by Esso before, during and after the Second World War. All these were sited on the North Quays.

Although ship building ended in 1893, the Carnsew shipyards were used until after the Second World War for ship-breaking, as was Lelant Quay, which having been used in the 19th century for the berthing of ships carrying gunpowder for the Bickford-Smith Fuse Factory in Tuckingmill, was repaired and extended for use by the Royal Navy during the War.

The firm of Harvey & Co. continued to act as builders' merchants, and merged with UBM in 1969. In the 1980's Harvey-UBM sold the site of the foundry to a firm of developers which demolished many of the structures. At Copperhouse J & F Pool continued to expand, and in 1978 the remains of the foundry buildings were demolished for their expanding factory; although the firm has contracted in more recent years, it remains a major employer in Hayle.

The harbour closed to commercial shipping in 1977, but has in recent years (1990s) been re-opened. Hayle continues to be a fishing port of some local importance.

5.3.1 Hayle - Second World War

Hayle was an important place during the Second World War for the following reasons.

- Harbour facilities and ship building.
- Engineering works producing guns and other war materials.
- Hayle Power Station was the only one in Cornwall.
- Octel works producing bromide for aviation fuel.
- The very large beaches on either side of the estuary were potential invasion beaches.

The anti-invasion defences consisted of machine gun pillboxes at the entrance to the estuary and along the beaches on either side with a minefield on Harvey's Towans. A regular series of posts were erected along the long beach towards Gwithian to prevent aircraft landing at low tide. Coastal batteries were built on Godrevy, Porthminster Point and St Ives to defend the bay.

The harbour, power station, bromide works and engineering works were defended by a ring of anti- aircraft guns; heavy guns (3.7 inch) at Wheal Alfred (Gwinear) and Trevarrack (Carbis Bay) and eight light anti-aircraft (Bofors) batteries closely straddling the estuary. As a further precaution a decoy (codename Temporary Starfish) was constructed on Phillack Towans which when lit gave the impression of a town.

Various houses and buildings were requisitioned and air raid shelters, emergency water tanks, first aid posts and road blocks were built but virtually all have gone now. Shipbuilding during the war mainly involved building of small ancillary naval vessels for the D-Day landing (slipways constructed on Middle Weir were associated with this operation).

Only the pillboxes, a few traces of the various gun batteries, some of the bromide plant buildings and the remains of an Italian prisoner of war camp at St Erth survive to indicate the strategic significance of Hayle at that time.

6 Physical Development of the town (Figs 4-7)

The physical development of the town is mapped in Figures 4-7. Figure 4 provides an overview of the whole of Hayle, with all six historic phases (up to the present day) shown on the same map. A series of larger scale maps show development in the three key historic areas of the town - Hayle harbour (Figs 5a-d), Copperhouse (Figs 6a-d) and Foundry (Figs 7a-d) - with separate maps used to show the extent at the end of each of the four main phases of industrial expansion (1810, 1842, 1877, 1907). All place-names mentioned in the text of Section 6 are marked on Fig 4 unless Figs 5-7 are specifically referred to.

6.1 Overview (Fig 4)

The physical development of Hayle is inextricably linked with its industrial history as outlined in Section 5. This development, however, took place over a pre-existing pattern of landholding, which influenced the way the industries spread, developed their wharves, and the land that was available to them to build housing and other facilities. These estate and parish boundaries have as much to do with the way in which Copperhouse and Foundry developed as the industrial enterprises themselves, and are a key to understanding the disputes between Harvey's and the CCCo. Although it is not possible to explore many of these themes in detail in a study like this, they are important to understanding the settlement, as are other influences, most notably the power of the Hockin family, Rectors of Phillack from 1763 to 1922. The Hockins were financially linked to the CCCo, but were also industrialists and developers in their own right (Wheal Lucy, Penmare Hotel), and provided bridges, schools and churches for their community, and could be seen as the third great force in the development of Hayle after the two major industrial concerns.

While the physical development of Hayle can be easily described, the division between the two towns produced a psychology of rivalry that lasted long after the trade disputes between Harvey's and the CCCo had finished. When administration of the settlements had developed beyond the capability of the parish vestries of Phillack and St. Erth, two separate local government boards were set up in 1866, followed by two separate Urban District Councils in 1894, which lasted until 1934, each with their own offices in Copperhouse and Foundry. The area shown on 19th century maps as Hayle, around the site of St Elwyn's church, seems to have occupied a sort of middle ground where the professional classes and shopkeepers, those not directly employed by either company, mingled with members of both factions. This, as so often in Hayle, may be a result of landownership, since after the death of R O Millet in 1830, this land passed to his heirs, who were clearly not so antagonistic to the Harvey interest as he (a director of the CCCo) had been. The position and the dominating form of St. Elwyn's church at the meeting point of the two towns has not only great architectural and landscape significance, but also great symbolic significance, because it is in Phillack parish, but was supported by and funded in large measure by the directors of Harvey's, who lived, worked and were prominent in the adjoining parish of St. Erth. .

The development history of Hayle described below is divided into six periods. While these reflect in broad terms identifiably different phases of development, the actual dates used have been determined by the availability of accurate maps and aerial photographs. Thus, although some parts of the area had been mapped 1791-6 (RIC MMP/51), the first usable map evidence for the whole area is the OS field notes of 1807, from which the first edition 1 inch map was produced for the area in 1813, so that 1810 is given as a convenient summary point between these two dates. This was a time when both Harvey's and the CCCo were well established in Hayle, but neither had yet become nationally, or even

regionally, important industrial or commercial concerns. Both St Erth and Phillack parish Tithe Maps were produced in 1842, and the period between 1810 and the 1840s saw the transformation of both Harvey's and the CCCo into major manufacturing concerns, and the emergence of Hayle as a recognisable township in its own right. The OS edition of 1877 more or less coincides with the collapse of the CCCo in 1870, and the comparison with the edition of 1907 allows the relative stability in the late 19th century to be explored, together with the effects of the ending of heavy engineering around 1900. This was just before new industries and the World Wars caused a major shift in economic activity and focus in the town, so that the period 1910-1946 was recognisably different to what went before and what came after. The RAF aerial photographs of 1946 provide the last date before present, a date that marks not only a change in the economic fortunes of Hayle, but a very real change in the style, fabric and nature of the buildings and infrastructure in the town.

6.2 Development up to 1810

6.2.1 Settlement pattern and buildings

The pre-industrial pattern of settlement around the Hayle estuary was of scattered estate centres, churchtowns, hamlets and farmsteads, as described in Section 5.1. To some extent this pattern continued relatively unaffected by the growth of the new town, since this took place by and large on the waste grounds and common lands along the shoreline of the estuary.

Eighteenth century economic activity in Hayle, while it was conducted on a large scale, is difficult to relate to actual settlement development. With no cartographic evidence earlier than the 1791 map of Hayle (RIC MMP/51), it is impossible to tell how many non-industrial or commercial buildings may have stood next to Penpol Smelter, or Merchant Curnow's cellars and warehouses. The majority of workers almost certainly lived in the farming and manorial settlements, especially to the south and east, where the St Erth valley and Angarrack were already densely settled and were the location of tin working and both tin stamping and corn mills. In addition, the smallholdings around Mellanear, High Lanes and Guildford probably provided workers for both the estuarine activities and local mines. The earliest recorded residential properties directly associated with Hayle's industries were built at Carnsew in 1758 as part of the development of the quays there.

Alongside their expanding works, and the Copperhouse Dock (1769), CCCo were building residential properties in Copperhouse by 1779, including some along what had been the Bodriggy foreshore, which was built out with scoria and is now Fore Street. By 1785 there was enough of a community there to warrant a Methodist meeting house (demolished 1820), with a Sunday school by 1798. Riviere House and cottages were built in 1791, but were to remain isolated and not really part of the main settlement until the late 20th century. The earliest cottages at Ventonleague date from this period, especially those with large plots of enclosed land (more akin to the smallholding pattern of settlement typical of 18th century mining areas).The only other certain development of the late 18th century is the houses at Glebe Row, part of the hamlet of Undercliff, which were built in 1784 by a group of independent artisans and tradesmen using scoria blocks bought from the CCCo.

The 1791 map shows a few buildings along the south shore of Copperhouse Creek at Harvey's Point, Bodriggy Quays and near Tremearne's Quay (Fig 5a). Recorded in 1754, these were probably a mixture of commercial and residential properties.

Development around Harvey's Foundry was naturally slower and smaller in scale given the fact that it had only started here in 1779. The original foundry, offices, farm, millpond and hammer mills were on a relatively small scale, employing only 50 men by 1800 and most of

them probably lived in St Erth. By 1791, there were only two large houses and a handful of cottages here.

6.2.2 Transport infrastructure

In 1758 500 to 1000 mules and packhorses were usually to be seen at Hayle each day, transporting supplies inland and returning laden with copper ore. The animals were virtually all hired in from the surrounding countryside, so that stabling facilities at both Harvey's and the CCCo were at this stage very limited. The old main route to the estuary from the east was along High Lanes from Angarrack, through Guildford, and down into Penpol (early milestones survive along the route). The shoreline on the south side of Copperhouse Creek was not yet improved. The main routes from the west were still the ancient causeways across the sands from Lelant, or the roads to the south and the bridge at St Erth. At least one quay was built at Grigg's Quay, this saved on the cost of road transport for a considerable distance along the western side of the estuary. The cost and inefficiency of packhorse transport grew more burdensome with the expansion of both the major companies, leading to proposals for a number of improvement schemes, such as a canal from Hayle to Angarrack and beyond in 1801, a tramway from Hayle to Helston in 1819, and a series of proposals for turnpike improvements from 1798 - 1814.

6.3 1810-1842

6.3.1 Settlement pattern and buildings

The major development of both Foundry and Copperhouse took place in the second two decades of the 19th century, 1810-1830, and to a lesser extent the 1840s. This coincided with the great period of expansion of both Harvey's and the CCCo, their often violent opposition to each other, and the development of the extensive system of quays and flushing pools at Hayle. It also saw great improvements in communications. Changes in land ownership and leaseholds enabled both companies to expand, and to an extent determined the form that expansion took.

At Copperhouse, the CCCo acquired leases on part of the Bodriggy Estate and laid out a grid of streets. As was the normal practice in Cornwall, while there was clearly a single surveyor laying out the plot allocations for the Company, individual tenants built their own houses, or sometimes small groups of houses, allowing for variation in size, material and detailing. At the same time, there was some expansion in the older areas of development, especially Ventonleague. Within Copperhouse, the area south of the Quays was developing as a fully fledged town centre, with a market house by 1814, replaced with a larger purpose built market in 1839(Fig 6b). The increasing pressure for shops and housing led to the demolition of the old Methodist Chapel, and the building of a new larger Chapel just to the south of the main centre. Many of the CCCo houses were built not for its own employees, who numbered only about 300 in the 1820s, but for the local miners. Slater's Trade Directory for 1852 makes this point: 'The population has more than doubled itself from 1821 from the vicinity of the extensive mines and manufactories'. The smallholdings and hamlets around the periphery of Hayle saw modest expansion at the same time, particularly on the south side of the area.

A major phase of development for CCCo came after the acquisition of the freehold of Lord Arundel's lands around Copperhouse Creek. This enabled the company to shift their principal offices and warehouses to Penpol/Merchant Curnow's quays, extend North Quays, and improve the sluicing capacity of Copperhouse Pool at the same time. Partly in response to Harvey's new quay being built at Penpol, but also no doubt to consolidate this shift in focus westwards from Copperhouse, the CCCo built the New or East Quay in 1819, and Penpol Terrace was laid out on reclaimed land. This was in some ways a new

element in the town, since it was clearly not intended for humble workers, but was lived in generally by shopkeepers, school teachers, sea-captains, professional men and retired spinsters of moderate means.

Also as a result of acquiring the freehold of the Riviere Estate in 1811, the CCCo developed more housing in Phillack, with a number of rows on the west side of Phillack Hill (in an area known as Parc an Dix). Phillack remained a relatively small settlement, however, although the expansion of the churchyard in 1805-6 and again in 1825-6 is an indication of the pressure of the expanding town at Copperhouse (Foundry was in the parish of St Erth).

The scattered plots and quays along the southern shore of the Copperhouse Canal were acquired by CCCo in the 1820s, and the old shoreline began to see more housing similar to the middle-class houses of Penpol Terrace - Hayle Terrace in particular was clearly in the process of construction at the time of the 1842 Tithe Map.

At Foundry, the expansion of Harvey's works, and the development of new quays in 1819, saw a corresponding increase in the small settlement in the valley - in the case of Drover's Row (Fig 7b), the decision to expand the foundry Stables and keep large numbers of draught horses on site led to the need for a row of cottages for the drovers. However, with fluctuating numbers of workers (230 in 1825, 150 in 1826), Harvey's had little incentive to provide workers housing. They also had little opportunity to acquire land on the scale that the CCCo had done in the 18th century (also thereby providing several large houses for their directors and managers), and had two major conflicting requirements for the land they did acquire, firstly as farmland to supply their horses, but mostly in order to build large houses for the extensive family and directors of the firm.

The settlement around Foundry therefore, had already by 1842 taken on a very different character to that at Copperhouse; it was full of large houses in spacious grounds, with only three or four rows of worker cottages. Harvey's were constrained on the east side of the area by Penpol manor, owned by R O Millet, one of the Directors of the CCCo, and inimicable to the Harvey interest. He died in 1830, and the two rows that stand on what was his land - Tremeadow Terrace (formerly Mill Row) and nos. 1-10 Penpol Road - probably date from after his death and reflect a more open attitude towards Harvey's by the new landowners. If, as has been suggested, Harvey's employed nearly 800 people at their works and in their wharves in 1841, it is clear that only a tiny proportion of these numbers lived at Foundry. Such facilities as had been provided at Foundry were very much for the benefit of the company; hotels to entertain their business visitors, a school for their workers, shops and emporiums for the employees run by the firm itself.

In the early 19th century period, the increasing size and population of Hayle can be traced in Trade Directories, as a recognisable town took shape. The descriptions used in the directories are very revealing of the growing status of the new settlement. In 1823-4 Hayle is described under St Ives, to which it was a subordinate port: 'Hayle is a port....carries extensive trade in iron, limestone etc., - 'lately very considerable improvements in erecting commodious wharves for shipping', notably ore out to South Wales and Coal back (Pigot's Directory 1824-5). By 1830 Hayle has grown sufficiently enough to be described on equal footing with St. Ives: 'on the shores are very extensive quays and considerable mercantile establishments, with iron-foundries which furnish for the use of the mines the most powerful and splendid steam-engines in the world; the construction of these, which may always be inspected, is worthy the observation of the stranger.' (Pigot's Directory 1830). By 1840, Hayle has its own entry, although only after 1852 it is described separately as a matter of course. 'The different works for roasting and smelting ores in this town and neighbourhood, have arrived at great perfection, and are inferior to few besides in the

kingdom.' (Robson's Commercial directory, c 1844). In another directory of 1844 (Pigot's), Hayle is described as a 'small market town'.

6.3.2 Transport infrastructure

Considerable road improvements took place in this period, enabling the use of large wagons, which led to the sort of expansion in provision of wagons and horses already seen at Harvey's. The creation of the Causeway (1824-6) from Foundry to Grigg's Quay was the major development of the period. This turnpike route was extended westwards to Ludgvan in 1836-8.

Prior to the creation of the Hayle-Redruth turnpike in 1837-8, which created the current main road along the south side of Copperhouse Creek, the CCCo provided for better road communications between their works and their principal quays by the construction (probably around 1811) of Sea Lane and the Black Road, which ran across the Copperhouse creek and along its north side.

The scale of the transport requirements problem, and their intimate link with the mining industry, is reflected in the early establishment of a railway in Hayle. The Act for the Hayle Railway was passed in 1834, and the line was opened in 1837, with its terminus at Foundry Square. The route was from Hayle to Redruth, with branches to Portreath, Crofty Mine, North Roskear Mine and Tresavean. In 1843 the first regular passenger service was begun between Hayle and Redruth.

8. Clifton Terrace and East Quay. This row was built 1840-49 and named after a major contract for the Clifton Suspension Bridge. The officers of the Cornwall Copper Co. looked down proudly on the company's quays and wharves. Important 19th century industrial buildings survive on the quay itself.

6.4 1842-1877

6.4.1 Settlement pattern and buildings

The 1840s saw the completion of the middle class rows along the southern side of Copperhouse Creek, and the building of Clifton Terrace (1840-49), named in honour of the Clifton Suspension Bridge contract won by the CCCo (1840). The 1840s were disastrous for most of Cornwall, and certainly saw some retrenchment in Hayle which depended on supplying goods to the stricken mining industry. The two companies survived, however, on the strength of a number of large contracts for water pumps and other engineering projects. Apart from Clifton Suspension Bridge, both foundries shared in a massive order for pumping engines for Holland. At Foundry, the landscaping of Carnsew Hillfort that occupied Henry Harvey's retirement years in the 1840s was also seen as a celebration of the successful completion of the Dutch contract, commemorated by the building of the triumphal arches on the hillside.

Apart from the almost continuous alteration and redevelopment of the central area of shops and commercial premises in Copperhouse, the major housing development there was Mount Pleasant. Development along the north side of Commercial Road started in this period, probably for the most part post-dating the acquisition of the CCCo's waterside properties by Harvey's in 1868.

Urban development at Foundry was slower than at Copperhouse, because it started later, the works employed fewer people until the mid 19th century, and because Harvey's provided their own shops, Working Men's Institute and School. However, the development of workers housing on Penpol land seen in the 1820s was followed by the development around 1845 of better quality housing, probably always with shops, in Chapel Terrace. Harvey's meanwhile continued to build the great range of large family villas that characterise Foundry, on both the east and west slopes of the valley, culminating in Downes. These houses, in ever larger grounds, were situated further away from the grime and toil of the foundry and quays than had been the case in the earlier 19th century, and were suburban rather than urban in character.

The stagnation of the mining industry is revealed by the lack of growth in the groups of smallholdings to the south of Copperhouse, although they were not yet being abandoned as they were by 1908. Meanwhile, the growth of mining and industry in the Towans (Wheal Lucy 1872, British Arsenic Co. 1868) was reflected in a number of cottages being built at Mexico for instance.

The most important event in Hayle in the mid-late 19th century was the closure of the CCCo. It is difficult to gauge the effect of this on the pattern of settlement, however, since the wharves and quays were acquired by Harvey's, and all kept working, even Copperhouse Dock. The gasworks and tidal mill around the Dock continued in use, part of the site of the CCCo works was used by Harvey's as a grain store, other parts used by the expanding business of J & F Pool, and the population, although declining slightly during this period, found alternative work in the expanding works at Foundry, Pools, and the local mining industry which experienced something of boom in both the 1850s and 1870s.

6.4.2 Transport infrastructure

Throughout the 1840s, the limitations of the Hayle Railway were all too apparent, especially the use of fixed steam engines to rope-haul carriages up inclined planes and the light rails and granite setts, which although well suited to horses (used in Hayle itself), precluded the use of any but the smallest and lightest steam locomotives. In 1846 the West Cornwall Railway was authorised to purchase the Hayle Railway and lay new track from

Penzance to Hayle, Redruth and Truro, bypassing the Angarrack and Penponds inclines and passing through Hayle high above the town on a new viaduct over Foundry Square. The new line was opened in 1852. A branch was built from the new Hayle Station to the quays, joining part of the old Hayle Railway to the new line. After 1866, the Hayle line was fully integrated into the County and National networks. The wooden viaduct at Foundry was rebuilt in 1886 (Fig 7c).

In 1877, the St Ives branch railway was built, the last broad-gauge line built in Britain, with a spur to a much enlarged Lelant quay. This was the last major expansion of harbour facilities in the estuary.

6.5 1877-1907

Despite the apparent decay in industrial activity, and a drop in population, as Kelly's 1897 Directory stated 'The most important manufacturers in Cornwall are located here', Hayle continued to be a major trading and industrial centre. Facilities still appeared in and around Copperhouse, which continued to be the main shopping centre in Hayle, but increasingly so in the area between the two centres, with St Elwyn's, the Passmore Edwards Institute, and a new drill Hall. It was as if the neutral ground was becoming a new centre. There was very little housing added during this period to either Foundry or Copperhouse, however - a single Terrace was built about 1901 on the old Copperhouse ropewalk site - but there were more houses being added to the three main groups of late villas at Bodriggy, Station Road, and Trelissick Road, an indication that some wealth was still being generated in the town.

6.6 1907- 46

The National Explosives factory on the Towans, started 1888, was at its peak during the First World War when it employed 1500. Two more terraces were built on the old ropewalk site at Copperhouse, where the tenants were well placed to find work in the expanding Pool works, the large HTP organisation based at Loggans Mill, and the National Explosives works.

Major developments along North Quays from 1910 to the Second World War (the Power Station, the Chemical Plant, and later the oil depot), do not seem to have had much impact on the expansion of the town, as they merely absorbed an existing pool of labour coming from the older, declining industries.

Apart from a few bungalows at High Lanes, Loggans Mill and Bodriggy, there was little new housing between the wars - the large estate at Bodriggy seems to have been an immediate post Second World War build and may have been the last example of industrial housing in the town, since Hayle, never really developing as a holiday town, still looked to its quays and waterside industries for work.

6.7 1946 to present

The building of the by-pass around the southern side of Hayle in the 1980s has had a significant impact on the shape of the town, and the way it is perceived by visitors, particularly at the eastern end by Loggans Moor. The roundabout and interchange has taken a significant area of open land that was part of the setting of the town, and recent commercial and industrial developments have spread the built up area significantly beyond its historic limits for the first time in over 100 years. Another major area of non-residential development has been the creation of the Guildford Road Industrial Estate. These developments have in effect shifted the economic focus of the town to its eastern fringes. To the west, along the Causeway, an existing small garage/industrial use had been replaced by a large group of industrial buildings (the Kier and Tempest buildings) on land built

upon and enclosed from the mudflats with prominent retaining walls of caisson construction.

There has been a significant increase in housing throughout the town since 1946, with large estates of both bungalows and more traditional housing types. While they have to some extent spread the built-up area of the town, they have been mainly confined to infill within the area bordered by the railway line, or by the historic outlying hamlets, particularly at High Lanes or Loggans. The major area of spread into the countryside has been in the south-west part of the town along Trelissick Road and Mellanear Road, where development has reached the by-pass.

While new housing and new industrial development has been taking place, the most significant alteration to the character of Hayle has been the demolition of a huge area of the industrial remains at Foundry and Copperhouse, and on the Carnsew and South Quays. Fewer buildings have been demolished on North Quays, but these were no less significant historically. These demolitions have also included some early cottage rows at Carnsew, the car park in Foundry and North Quay. The most significant loss of cottage rows, however, has been in Copperhouse, where the three earliest rows in the town have been demolished in the heart of the central area (Market Street/New Row/Trevassack Row). Modern housing schemes have partly replaced the demolished buildings in Copperhouse and Foundry, the rest of the areas remain as cleared sites.

9. Bodriggy, a pre-industrial estate centre. The house, already impressively re-fronted in 1718, was further enhanced by succeeding occupiers made rich by their industrial connections, including John 'Merchant' Curnow, the founder of much of Hayle's commercial importance.

7 Surviving Historic Components

The following analysis deals first with the surviving pre-industrial remains in the study area, then addresses the key settlement areas of Hayle Harbour, Copperhouse and Foundry. Each area is analysed in terms of surviving fabric and archaeological potential. There follows a general survey of the rest of the industrial settlement area and the major industrial components and features which cut across all areas. Reference should be made to the Inventory in Appendix 3 and the associated maps (Figs 15a-h and 16a-h) for the descriptions and locations of individual historic structures and archaeological sites (NB: consult the inventory first to identify which figures to refer to).

7.1 Overview (Fig 8)

The industrial settlement of Hayle is generally intact, with a good survival of the major settlement components, historic fabric and structures. The main areas where there has been substantial loss of historic fabric are unfortunately in the main areas of late 18th/early 19th century industrial development - especially at the Copperhouse Foundry complex, the shipyards and other buildings on Carnsew/South Quays, and some of the key elements of Harvey's Foundry. Even in these areas, however, there is good potential for archaeological investigation of buried remains, especially on the quays and at Harvey's.

There has been no detailed attempt to summarise buried archaeological potential outside of the three key areas, but there are some areas where there appears to be a concentration of possible sites of various eras (see Figs 12 and 16). These include the area around Phillack and Mexico, where there are a number of prehistoric and early Christian monuments, and place-names and finds suggesting early settlement [263] [302] [313] and burial sites [262] [312] [314]. At Mexico, a manorial pound [288] is marked on the 1877 OS map and a scatter of large stones may prove to be of considerable antiquity. The other large category of sites which have great potential for further study are the mining remains on the Towans and to the south of Hayle, where, apart from the remains discussed in section 7.7.5, there are a number of sites recorded from aerial photographs, together with surviving shafts burrows, dumps, leats and ponds.

7.2 Pre-industrial components (Figs 2 & 8)

Although there are a number of recorded prehistoric and pre-Christian finds, and some suggestive place-names (see Fig 2), no certain above ground remains survive, apart from the very much altered Carnsew Hillfort [345], and the possible Roman fortlet [627] at Lelant Church [626]. A very important group of medieval crosses and early Christian memorial stones is located at Phillack Church, one of which, a chi-rho stone of the 5th century, is the earliest evidence for Christianity in the county [254 - 256], [258]. There are recorded sites and some remains of other crosses and stones in the study area. Best known is the Cunaide stone [30], an inscribed stone, perhaps of the 4th or 5th century, associated with a cist grave discovered in 1843, in Foundry Lane at the foot of Carnsew Hillfort, on the slopes of which the stone now stands.

There are other inscribed stones from Mexico [264] and Bodriggy, the latter incorporated in the gable of the former St John's Church [278]. The height, shape and tapering form of a boundary stone [561] marking the bounds of Phillack Towans and Kernick Towans suggest a pre-industrial origin, although perhaps no earlier than the 18th century.

The principal remains of the medieval period are the two parish churches at Phillack and Lelant. In the case of Phillack [238] only the tower remains from the 15th century, with some other earlier fragments and most of the church dates from William White's

rebuilding in 1856. Lelant Church [626] is mostly Norman with 15th century and later additions and alterations.

The ancient estate/farming centres all maintain a separate identity, with good 17th or 18th century houses at Bodriggy [166], Trelissick (outside the study area) and Penpol [269], [270]. The ancient estate of Egloshayle was represented by Phillack Rectory [240] (early 19th century) and, for a brief period, by Riviere House [266] of 1791. Even Trevassack survives as a distinct settlement, despite the loss since 1994 of the medieval/early 18th century manor house [282].

Apart from these large houses, other villages and hamlets are still identifiable, even though partly encroached upon by the spread of development. Eighteenth and early 19th century cottages, houses and other buildings survive at: Lethlean [243], [538], [540] [543], [544]; Phillack [237], [458 - 460]; Ventonleague [488], [490], [501 - 503], [505], [608]; Trevassack [590]; and Guildford [598], [601]. It is difficult to be certain what elements of these are non-industrial; probably all have a direct or indirect relationship to Hayle's industrial past, especially its mining history. The scattered houses and smallholdings still found on the south side of the town, many of which are certainly early 19th century in origin, and perhaps 18th century, probably have little to do with the manufacturing industries, and relate to mining as much (or more) than agriculture [373 - 376], [593, 594], [628, 629].

Although there were few recorded pre-industrial buildings in the area of the later industrial settlement of Hayle, the Royal Standard [123] should perhaps be considered here, as it stood on the shoreline of the estuary at the point where the causeways across the sands to Hayle began, and is probably an ancient site, even if the present building is late 18th century/early 19th century.

7.3 Hayle Harbour

7.3.1 Standing historic fabric (Figs 8, 9 & 15)

Physical evidence of pre-industrial landing places and quays may survive built into later quays at Lelant [329], [623], [624]. The partially surviving causeway [625] to Lelant and the marker stones [435] in the mudflats towards Grigg's Quay are remnants of the old fords and crossings of the estuary.

More evidence survives of the earliest stages of industrial growth in Hayle than has previously been thought. At Penpol [130] and Riviere [142] alongside and behind the later 18th century facing of scoria blocks and timber screening, are John 'Merchant' Curnow's quays of 1740, while the stone quay walls of Carnsew Quay [48] built in 1758 are still visible, partly buried in 20th century fill. The quay was not completely rebuilt in 1834 with the formation of Carnsew Pool - the earlier northernmost section still survives incorporated into the later work, and has been cut through and partly altered by the sluices [51], [55], [547] constructed to control the Pool.

The waterside complex built by the CCCo in 1768/9 survives in large measure on land reclaimed or enclosed by using slag (scoria) from the smelter. The group includes the dock [179], with some surviving traces of its wooden sluice gates [180], with the wharves [222], [224] and a canal to deep water [151]. The canal is still marked by rough cinder banks with some mooring posts [533], while the dock is a well constructed structure of moulded scoria blocks.

Quays also survive in the wider estuary - Lelant Station Hill Quay [623], Lelant Green Lane Quay [624] and Lelant Quay [329]. Grigg's Quay, with some associated buildings [616 -618], [620], [622], shows 2 phases of construction, [619] and [615], the latter built entirely of moulded scoria blocks from the CCCo copper smelter (closed 1819). At least one quay,

and perhaps both, existed before the construction of the Hayle causeway [89] in 1824-5, and may be linked to the setting up by the CCCo of rolling mills for copper sheeting in St Erth in the 1780s.

Acquisition of Merchant Curnow's properties by the CCCo in 1779/80 meant they could build the surviving causeway [588] (Customs House Quay) linking Penpol and Riviere quays [(1789-90) and the outer sluice [129], which allowed ponding of the whole of the East Loe (Copperhouse Creek) and sluicing of the outer harbour. Much of the stone structure of this, together with the weir built to direct the flow of water, still survives, despite the sequence of 19th century bridges at this point [128], and the flood barrier inserted in the 1980s.

A second set of sluices [292] stands at the north end of the embankment, together with the remains of bridges over the channel [135]. These were built as a result of the 1811 acquisition of the freehold of Riviere lands on north side of creek by the CCCo, which allowed them to continue North Quays to their present extent [142], more than three times as long as the original Riviere Quay. Also surviving from this date are Sea Lane [441] and Bridge [234] and Black Road [233], built by the CCCo to link the quays to Copperhouse and standing as prominent features in Copperhouse Pool. As part of this development, the CCCo shifted their main office and yard to Penpol by 1814, and some of the outbuildings in this area [430] may survive from this period.

Penpol Quay [50], also known as Foundry Quay and South Quay, was built 1817-19 by Henry Harvey, and is an important survival since it is the first quay built by the firm - before acquiring Carnsew Quay in 1817, Harvey's had been forced to use the bare foreshore for trading and boat building. East Quay [127] was begun by the CCCo almost immediately after and in rivalry with Penpol Quay; both quays survive almost unaltered from their finished states, with good series of granite bollards and flights of steps. Carnsew Pool [46] is perhaps the largest single surviving structure in the harbour. Constructed by Harvey's in 1834 after the CCCo's new quay [127] caused silting of deep water channels to Harvey's quays, it sluiced out the Carnsew Channel. Surviving with it are the associated quays [52], sluices [55] and lock gates [547], and the central spit or 'New Pier' [56], which may have had 18th century origins, but was built up and extended to its present length as part of the works completed in 1834.

The only major wharf construction in the estuary after the 1830s was at Lelant, where the large quay [329] standing below the church was an enlargement of an existing quay by the GWR, served by a branch of their new St Ives Line (1877). This was used throughout its life largely for the export of dynamite and explosives.

Few of the buildings which historically stood on the quays survive today. The largest group is on East Quay, and includes the quay house [428], built before 1842, perhaps a former office and one of the most important survivals; the store at the north end of the quay [427], also built before 1842, together with the rare and early (late 19th century) corrugated iron - roofed warehouse attached to it [579], and the town gasworks [126] built in 1888 (located here on what was basically a coal wharf).

More diverse remains stand on Customs House Quay, including the Customs House itself [136], now an office (Hayle operated throughout the 18th century and early 19th century as a dependant port of St Ives, and from 1860 of Penzance, but was finally made a Customs Port in 1866, although a Customs House had already been built in 1862). The nearby stable/office ruins [139] are variously described as wharf offices or stables for the now-demolished Britannia Inn.

On Carnsew Quay only the fragments of the drawing office [576] and the timber store [45] survive from the once extensive buildings of the shipyard, boiler works and timber mills that Harvey's built up here.

Some evidence of the extensive network of rails and tramlines on the quays survives, especially on North Quay [121] and East Quay [431], and perhaps some areas of paving on South Quay [642].

Of the once huge later industrial buildings located on the edge of North Quay and the Towans not many remains of value survive compared to the scale of the original enterprises - the Electricity Power Station [141] built 1910, was closed and demolished in 1977, although the large transformer blocks still stand and are massive structures in themselves. Only the stack remain of the old Calcining works [143], which had become the site of a glass factory 1917-25. ICI opened a magnesium and bromine plant (1940) using sea-water, and some administration/secondary structures associated with this still stand [140].

10. Carnsew Quay (to the left), preserving some of the earliest (18th century) quays in Hayle, with the 18th/19th century North Quay beyond and Penpol Quay of 1819 to the right. The dumped material covers Harvey's shipyard and Carnsew Dock. This photograph encompasses some of the quay areas with greatest archaeological potential.

7.3.2 Buried archaeological potential (Figs 12 & 16)

There may be a surprising amount of archaeological potential beneath some of the existing 19th century quays. Many of the surviving quays and cinder banks overlay natural or semi-natural banks that have a long history of use as beach landings and storage areas. The exposed parts of the quays walls where they have collapsed on Penpol (Foundry) Quay [50] show stratification, with layers of coal dust and ore dust, which may be a construction method, but which also suggests an earlier date than the given construction date of 1819, when a pre-existing bank used to unload ships since at least the 17th/early 18th century may have been encased in stone.

Similarly, areas of mud and tidal shingle were used as docks before stone quays were built to replace them. Below East Quay, just to the west of the Copperhouse sluice and north of the Gas Showroom was Bristolmen's Dock [662], in use in the 18th century, and incorporated into the new East Quay in 1818, shown on the 1842 Tithe Map, but infilled by 1877. Similarly, Norwayman's Dock [614] at Lelant, where Baltic timber was unloaded from ships too large to enter the harbour area, was marked on the 1842 Tithe Map somewhere to the north of the northern end of Lelant Quay where there is today some form of retaining sheeting and timbering holding the dunes back from the beach. The small quays in Lelant [623], [624] are relatively recent (19th century) consolidations of ancient sites, and they and their surroundings may offer the earliest evidence of activity, both in surviving fabric, and more especially buried potential.

Earlier evidence of the causeway and tracks across the mud, such as that still surviving [625] along the line of the principal route past the Royal Standard, may exist beneath the embankments and quays. For instance the tunnel through Foundry Quay which took this ancient road to Lelant is still marked by metal sheeting on the east wall of the quay, where the masonry has collapsed, and by a clear area of stone rebuilding on the west face [663].

The landward edge of Carnsew may be important for both the 18th and early 19th century evidence of use as a foreshore beaching area, with the old Penpol beach now lying below Foundry Square. It may be relatively undisturbed by any subsequent building operation. Moreover, there may be even earlier habitation/shoreline archaeology - although the ground on which the Foundry and Foundry Lane were built is clearly excavated down from the ancient level, the areas immediately south and north of Carnsew Road probably retain their original levels undisturbed, and have seen relatively little building work. This is the area at the foot of Carnsew Hillfort where the early Christian Cunaide stone [30] and associated burial were found.

The actual structures of the quays are for the most part still surviving, even if, as at Carnsew [48], partly buried in later tipped material, but the stages of development, and in some cases the extent of some of the early quays has yet to be fully established, and at Carnsew, Riviere Quay [142], Merchant Curnow's Quay [130], Tremearne's Quay [468] and Copperhouse wharves [222], [224], the evidence is likely to survive.

A series of quays was located along the south side of Copperhouse creek, with landing stages and hards being progressively built out further into the creek as the southern shoreline was reclaimed. Some sites, such as Bodriggy quay [348], are now below the built up ground on which Commercial Road stands, while remains of others stand on the edge of the present shoreline, or behind recent embankment improvements, such as the wharf at Harvey's Point [643]. Together with the small quays in Lelant and Grigg's Quay there is the potential here to locate and understand some of the lesser known quays which operated around the estuary from the Middle Ages right into the early 20th century and thus add to the complete understanding of the character and history of the town.

As regards the archaeology of the built structures on the quays from the mid 18th century onwards, there are potentially large quantities of below ground deposits. Most buildings on the quays were cleared in the mid-late 20th century, and there has been little use of the quays since then, so foundations should survive relatively well. At Carnsew, the buildings demolished at this time include the 18th century limekiln [94] and cottages [99], as well the 19th century remains of Harvey's sawmills [341]. Most of Harvey's shipyard buildings were on Penpol Quay [98], [340], [341], as well as a whole series of other buildings of various uses [100], [101], [338], [339], [342], [343]. They are recorded on the 1842 Tithe map, mid 19th century plans of Harvey's and later OS maps, and on ground and aerial photographs right up to the 1970s, so that their position and form can for the most part be accurately

plotted, and the sequence of buildings and any changes can be adequately mapped to relate to any surviving remains. The shipyard at Carnsew is of particular importance, not only for the buildings, but also for the slips and docks [49], all of which are buried under subsequent tipped material, a lot of it contaminated. The potential value of the buried deposits is in identifying the uses and length of use these various building were put to, and in uncovering, for instance, the process of change from building timber ships to iron ships which took pace at Carnsew in the 1860s.

Most other quays in Hayle had few buildings on them - the site of the Britannia Inn [138] on Riviere Quay may lie undisturbed below later concrete platforms, and there are groups of buildings of unknown use shown at the western end of North Quay on the 1842 Tithe Map and 1877 OS map [665]. At Copperhouse there may be undisturbed remains of the limekilns built in 1822 on the north side of the dock [346], and of the tidal mill built about 1842 [225].

One of the main types of structure on the quays were the ore and coal hutches, secure walled enclosures open to the quayside, and shown on North Quay [664], [666], East Quay [661] and South Quay [344], the actual shapes and sizes of the groups of hutches varying through the 19th and 20th centuries as shown on OS maps and both ground and aerial photographs.

Elements of the rail/tram system partly survives on all the quays [121], [642], [431], and again can be relatively easily and accurately plotted. On North Quay granite setts and iron rails survive on the quay surface, and here and elsewhere there may additional remains surviving under the immediate tarmac/rubble surfacing.

The area around the Royal Standard [123], [124] and the garage at Hayle (the former Penpol Cellars) has most potential for investigation for building complexes associated with but not on the quays. Here was the earliest industrial enterprise in Hayle - the Penpol Smelter [309], and Merchant Curnow's cellars [131]- the first quays were here [131] (surviving but refaced c.1800) - and the CCCo offices and warehousing was here from 1814 [430].

In all these cases, the potential value lies not just in locating buildings, which could be accurately plotted from maps, but in understanding the uses and relationship between the buildings, the quays and the town which map evidence alone will not provide. While written descriptions do exist of Harvey's Foundry, for instance, this was in a sense a show-case industrial site, and there has been much less attention paid to the more workaday activities of the quays, yards and warehouse, and even to the shipyards, drawing offices and boilerworks situated on the quays.

7.4 Copperhouse

7.4.1 **Standing historic fabric** (Figs 10 & 15)

7.4.1.1 The Industrial Complex

Although substantial structures stood until 1978 (Phoenix Works), virtually nothing now survives of the buildings of the Copperhouse industrial complex, although the boundary walls and yards still define the layout of the site.

What does survive is a fragment [181] of the 18th century copper smelting complex. Built of scoria and granite, it is now a car park wall and is perhaps the only standing part of any of the buildings of the Copperhouse complex - the ropewalk wall [187], may actually be an enclosure wall rather than part of a building.

Much more substantial remains do survive of the boundary walls of various other parts of the Copperhouse sites. The massive northern boundary wall [187] and gateway of the early 19th century iron works [193] are constructed of scoria; the southern wall [495], less massively constructed, is of killas - the difference may be because the northern wall is actually part of the 18th century Ropewalk, although it is more likely that the southern wall shows later 19th century expansion of the site. Another massive wall of scoria [566] acts as a retaining wall to the older site - it is difficult to establish its exact period of build, parts (at the west end) may be 18th century, most of it may post-date the 1842 Tithe Map, even though it uses so much scoria. It acts as a retaining wall for Prospect Place to a very deep excavation of the hillside which clearly marks an expansion from the original smelter site on the foreshore, and may be part of the first phase of the iron works of the 1820s. At the west end is a walled path with steps leading down to the former CCCo offices [183]. The wall [567] on the south side of Prospect Place, which is also of scoria and retains the upper slope of the hill, is clearly shown on the 1842 Tithe Map, and suggests that the terracing of this hill was done by CCCo, with the intention of houses being built here - although only one [529] had been built by 1842, and not much more even by 1877, suggesting this activity may all date from the 1840s, when things had begun to slow down in Copperhouse.

The former millpond [185] is shown on the 1842 Tithe Map. It provided power for the boring mill at Copperhouse foundry. Now it is largely overgrown and has partly been reused as a blockworks. The now dry leat [188] that served it can also still be traced as a topographical feature.

Ancillary buildings associated with the CCCo survive better - there are two buildings said to have been the 18th century offices of the CCCo ([183] and [186]). Item [183] was probably the manager's house built in 1779, together with the buildings of unknown use attached to the rear [214] and the short row of houses ([182] and [536]) attached to the main house (presumably built for senior officers of the company). If item [183] was the Manager's House, then the standing buildings in Pond lane [186] probably were the company offices, or else may actually only date from the construction to the east of the new iron works [193] in 1820.

The most important structure or group to survive is undoubtedly the Copperhouse Dock [179] with the remains of the sluice gates [180] - there may be more substantial evidence of the wharf and yards [222] [224] attached to the dock under the current overgrown surfaces. The cinder bank that formed the northern side of the Copperhouse canal (1769) also survives, and on the more solid part west of the entrance to the Dock, warping/mooring stones survive [533]. Nothing standing remains of the limekiln [346], tidal mill [225] and gasworks [223] that were also associated with the wharves in the 19th (and 20th) centuries.

Just to the north of the reclaimed land around the dock on which the mill and limekilns stood is Sea Lane, or Black Road [233], together with the bridge [234], the most prominent and well-known of the scoria built structures in Hayle, which survives in good condition (with some maintenance required).This is part of the industrial history of Copperhouse, since it was built circa 1811 specifically to link the main manufacturing base with the principal deepwater wharves owned by CCCo at North Quays.

On the Copperhouse wharves, there are a number of warehouses and other buildings that may be directly related to the CCCo [531], [174], although their history is unclear and they may have been owned by independent operators - none is shown on the 1842 Tithe Map, and they may only date from after the sale of the CCCo waterside properties to Harvey's, who seem to have been more keen to see this north side of Fore Street developed than CCCo had been. At least one building here [531] is, however, early 19th century in detail,

and indeed stands on the site of wharf buildings shown on the 1791 map, so might be the same date as the dock itself (1769).

11. Copperhouse Dock. Built in 1769 of moulded blocks of copper slag (scoria), this unique feature has been too often disregarded in considering the special importance of industrial remains in Hayle. A supermarket intrudes both on the old wharves and into the open landscape of Copperhouse Creek.

7.4.1.2 Public and Commercial Buildings

Also standing on the wharves is Phillack Church Hall [175]. Although it was refronted in 1911, and carries a dated inscription to that effect, it is in fact 18th century, the main body of the building is a single large, scoria built hall, and was used in 1798 as the Sunday School for the first Methodist Meeting House that stood south of market Square - from about 1860 until the building of the new Drill Hall [148] in 1911 it was used as a drill hall.

Apart from the old school/Phillack Church Hall, the principal public building to survive at Copperhouse is the New Market House built by the CCCo in 1839 [177]. Although shorn of its clocktower, extended in the late 20th century, and in different use since the 1870s, this listed building is the most obvious symbol of the CCCo (and Copperhouse's) peak period during the 1830s. The site of the old market place is at the former St George's Hall/Cinema [176], which, although with an early 20th century terracotta frontage, may incorporate some of the earlier fabric - much scoria is use in the structure itself. The group of Church Hall [175], Market House [177] and Assembly Rooms/Public Hall/Cinema [176] form an important urban centrepiece, reinforced by the Copperhouse Inn of 1791 [173].

Copperhouse has a good sequence of 19th century shopfronts which form an important element of its character. By 1847 there were 89 businesses listed in Trade Directories in Hayle - 73 of these were in Copperhouse. Most were tradesmen and shopkeepers, and Copperhouse remains the main retail centre in Hayle. There are many fine surviving shopfronts. Some are certainly early 19th century, particularly those on the south side of

Fore Street [170]. Phillip's Butchers [535] occupies a prominent and important position in the street on the corner of Market Square and Fore Street. Later 19th century examples are associated with the new developments on the north side of Fore street [605] (1870s?), and the rebuilding of earlier buildings on the south side [606] - there is a markedly better survival on the south side of the road.

12. Shops in Copperhouse, always the more important retail centre in Hayle. The good quality shopfronts are still a major element of Copperhouse's special character.

The growing town required and attracted inns and public houses, which all survive. On the edges of the central area, the Penmare Hotel [226], although used for much of the later 19th century as a private house, was built as an Hotel in 1825 by the Rector of Phillack, William Hosken. The legal disputes between CCCo and Harvey's were settled at a court meeting there in 1832. The Copperhouse Inn, 1791 [173], had already been built to house and entertain visitors to the CCCo as much as to serve the growing town itself. The Cornubia tavern [172] was built 1867, also used as a public meeting place - the CCCo sale took place there in 1870. On the western edge of the town, a beer shop in a late 18th century building was uprated c. 1867-73 to an inn and named the Cornish Arms [160].

Also still standing is most of the brewery complex developed by Christopher Ellis from an existing enterprise set up in 1815. The brewery [158] was built between 1842 and 1877 and closed in 1934, but is still used as a drinks depot; the office building [159], probably from c. 1820, stands in poor condition and is in danger of being lost, and the maltings, probably *c*1815-20 [481] have been extended and converted to residential use, but the non-residential origin of the building is still recognisable in the main street elevation.

Nothing remains of the large and fine Methodist Copperhouse Chapel [277] and attached school, which was demolished in the late 1990s apart from the large boundary wall of scoria [525]. Surviving in St John's Street, however, is a building [278] which started life in 1845 as a Teetotal Methodist chapel, became the Anglican St John's Mission Church in

1850, used as a chapel to Phillack to serve the expanding town, became redundant after the building of St Elwyn's church [133] in 1888, was altered about 1895 and became a bandroom and Hall. The National School [671] of 1862 linked to it and built on the north side of the street was demolished late 20th century. The successor to most of the independent church schools was Bodriggy Junior and Infant Schools [487], built 1923, now the only educational establishment within the old central area of Copperhouse and surviving relatively unaltered.

Just outside the core area of the town, but serving the Copperhouse population, Ventonleague Methodist Free Church [279], dated 1875, is still in use and is an important landscape and streetscape feature.

7.4.1.3 Housing

The major surviving element of the industrial settlement at Copperhouse is the workers housing. Vernacular styles and building methods changed very little from the late 18th century to the mid 19th century. A rapid survey such as this cannot be deterministic about dating, but it should be possible to do a detailed survey, listing various design and constructional details, known dates of purchase by CCCo of specific plots of land, and known dates from map evidence in order to achieve an architectural analysis of the various elements of the town's surviving housing. This is attempted here only in the broadest outline.

13. Industrial housing in Copperhouse. A loose grid of tightly packed rows built straight onto the pavement (mainly before 1840) characterises Copperhouse, giving a more urban feel to the residential streets than at Foundry.

There was only one house in the area before 1758 - unfortunately it is not clear where this house stood, and therefore whether or not it survives, although it may have been Ventonleague Farmhouse, which has been demolished. Bodriggy House, with its attached

farmyard, does still stand on the edge of the urban area of Copperhouse [166]. One of the medieval manorial centres, it was acquired first by John 'Merchant' Curnow, then by the CCCo, and much of the new town was built on its land.

Probably the oldest houses provided by CCCo and certainly the earliest away from the foreshore, are in Ventonleague, the estate where CCCo first held leases and on the foreshore waste of which the copper smelter was built. Many of the cottages in Ventonleague Row are late 18th century/early 19th century - probably particularly those with scoria block construction, generally tending to be lower and longer than the typical 19th century cottage. The larger garden plots here are typical of earlier industrial housing in Cornwall, and indeed the few cottages that survive along Love Lane [500], [501], [503] are probably the earliest, set in small regular plots enclosed from an old field system, typical of early mining smallholding patterns that were more common south of Hayle near the Wheal Alfred Mines, and south-west of Foundry (where some examples still survive). A similar origin is probable for some of the cottages along Guildford Road which are certainly c.1800 [505], [608].

The CCCo had built their offices/managers house [183], [182] [536] in Copperhouse by 1800, and also what was known as the New Row [607] (now demolished). It first expanded housing to the west (upwind of the poisonous fumes of the copper smelter) along the foreshore of Trevassack and Bodriggy, where most of the row of relatively good quality houses along Fore Street had been built by 1800 [295]. Good surviving examples are listed [170] [171] [575]. The curious group of buildings at what was known as Harvey's Point, is actually 18th century in origin and they probably retain much of their early fabric [518], [519]; the same applies to the row [162] which ends with the Cornish Arms [160], which includes houses built of scoria.

The great period of expansion in housing was between 1801 and 1842. In 1801 CCCo began expanding into the Bodriggy and Trevassack estates (acquired 1796). By 1836, CCCo owned 200 houses. In Ventonleague, Ventonleague Row was completed at this time. There have been some demolitions at the east end of the row, and some alterations, but it is essentially intact. Also built at this time was Caroline Row [189], perhaps with some cottages dating from the earlier period. The less dense row on the west side of the hill has been more altered, but the street is a very picturesque example of its date.

At Copperhouse, the phased purchase dates of land in different adjoining estates, and the consequently phased development of that land for housing, has led to identifiable differences in the character of the surviving fabric. In Ventonleague, there are generous plots around single or paired cottages, often built of scoria, including the cottages at the east end of Prospect Place [529] [568]. In Trevassack, until recent demolitions, there was an informal series of streets terraced up the slopes above the Copper works with rows of cottages all facing north - New Row (site of) [607], Trevassack Row (site of) [609], Prospect Place [527], [565].

To the west of this was a more tightly planned and developed grid of streets on Bodriggy lands, based on Church Street [520-522], St John's Street [164] and Bodriggy Street [165], [587], which survives complete although with some extensive alterations to the details of the houses, especially in Church Street (curiously named since there is no church here - but views from it do focus on Phillack Church to the north). There are some differences in the quality of the housing, those on the south side of St John's Street and Bodriggy Street are generally of better size and quality than the rest, Bodriggy Street south side [587] in particular having the best of the whole grid, being the furthest away from the works, in the highest location (and therefore considered the healthiest), having the largest gardens and probably the latest to be built. It also has more of what can be called the Hayle style -

roughcast with rusticated stucco detail - typical of the better mid 19th century housing in Hayle.

Slightly later is the westward extension of St John's Street, shown as still being built in 1842 [564] [610], together with Cross Street [163]. St John's Church was built as a Methodist Chapel in 1845. The houses here are more regular, larger, more like terraces, and with more of the Hayle detailing than elsewhere in the grid, again an indication of their later date.

Commercial Road was turnpiked in 1839, and this may coincide with its development for housing, especially that west of the main Copperhouse area (all of which still stands). All of this still stands. Certainly the main Row along Commercial Road [479] was actually being built at the time of the 1842 Tithe Map, and although the maltings [481] and office [159] of Ellis's Brewery existed, the main site [158] had not yet been developed on the west side of the road. Sea Lane at that time marked the effective western boundary of the settlement, although the large block of workers housing at Mount Pleasant [157] was probably built shortly afterwards in the 1840s (the now demolished Chapel at its western end was built in 1843).

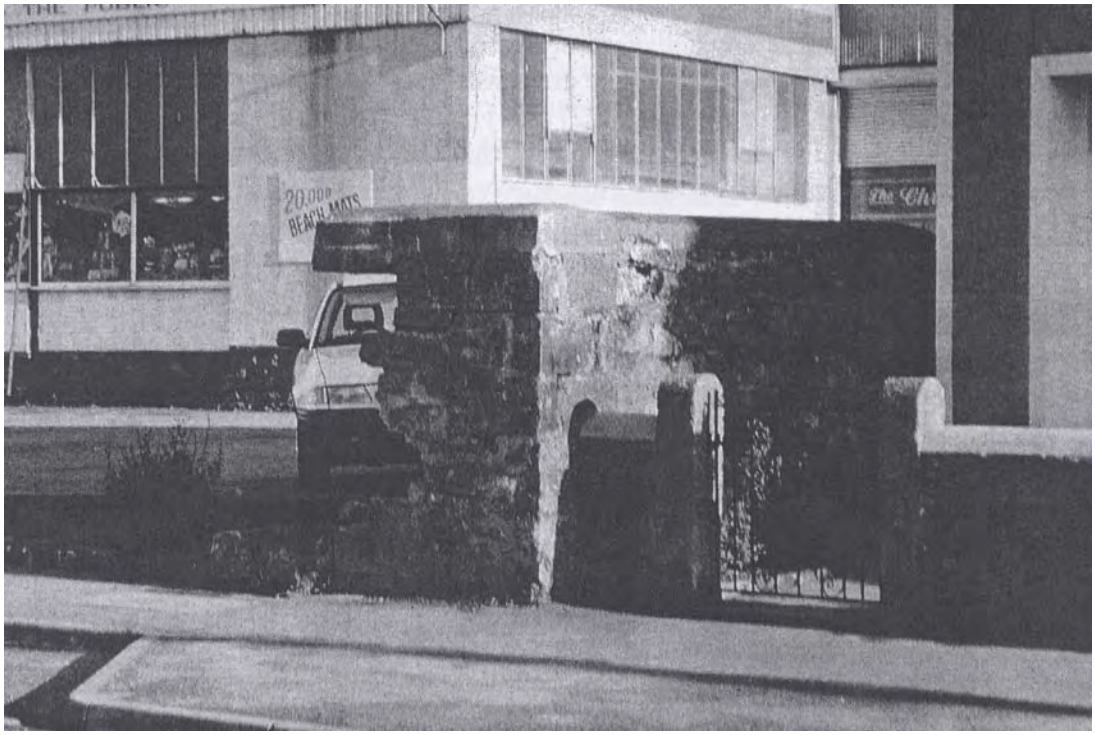
14. Early 20th century housing on the site of the old Copperhouse Ropewalk continues the tradition of long rows close to the roadside, but introduces the true terrace form not found elsewhere in Hayle.

After the large scale expansion in the 1840s, there was very little development within Copperhouse, although what there was is still largely standing today, including a few infill plots scattered through the town, the completion of St John's Street [564], and occasional cottages around the Foundry and in Ventonleague which for the most part survive [504] [506] [510]. Most new development was in Fore Street, where the north side of the street on the former waste and quaysides of Copperhouse dock was developed with the current range of commercial buildings [174], [605], which also had a residential element. At the same time, most of the buildings along the south side of Fore Street and Market Square were altered or rebuilt, and today they give a later appearance to the central area than to its peripheries.

The second wave of housing from 1901 onwards, which was starting on the former site of the Copper Foundry and the Ropewalk, has left a series of terraces which strongly define the present character and of this end of Copperhouse: Copper Terrace [178], Beatrice Terrace (c.1910) [331], Madison Terrace [498] (early 20th century), Hollow's Terrace [499].

7.4.2 Buried archaeological potential (Figs 12 & 16)

Most of the core industrial complex at Copperhouse lies under 20th century rebuilding. This has had two main consequences. The first is that foundations of buildings, even houses, built in this century are likely to be deeper and more destructive of underlying layers than 18th or 19th century developments. Secondly, such buildings are likely to have a long potential life ahead of them, so that the opportunity for archaeological investigation is unlikely over large areas of these sites in the foreseeable future. Much of the material from the demolished buildings was used in the construction of the housing, as the re-used blocks of scoria in the rear elevations show, indicating that demolition to ground level was probably fairly complete.



15. A fragment of the Copperhouse smelter. There is high potential for buried archaeological remains in the car park behind and below the large, open-plan industrial sheds that now occupy this historic site.

However, there are certain caveats to this analysis which suggest that there is still potential for buried archaeological remains. In the first place, many of the earliest buildings known from map evidence lie under the gardens of Copper Terrace or the access lane behind it, including part of the original copper smelter [191], [199], [200], as well as some later elements [204]. Much of the site of the 18th century ropewalk [190] lies below the forecourt of the garage in Beatrice Terrace, or in the gardens of the Terrace and the alleys behind. The surviving wall [187] of the J & F Pool works yard may be part of the ropewalk, while the early farmyard [196] [611] is in this same undeveloped strip. Secondly, even in those areas covered by 20th century industrial buildings, within the two yards of the iron works still enclosed by massive walls [187], [495] [566], the main buildings are huge sheds with very large open floor areas, where concrete slab floors are likely to have been laid over

fill and demolition material. Many of the structures demolished by the expanding Pool's works actually stood in the open yard around the main 20th century buildings.

For these reasons, it is likely that the footings and foundations of the 18th and 19th century buildings, and evidence of machinery fittings and casting floors and other industrial processes survive in some areas. If this is the case, then the potential exists to recover much information about almost all the major phases of the Copperhouse site from the early 19th century onwards when it turned to iron founding, and perhaps also of some elements of the earliest phase of copper smelting. The most likely opportunities will arise on the closure, rebuilding or redundancy of the existing large 20th century structures in the two walled yards.

To the south and east of these main sites, the millpond [185] and leat [188] survive as recognisable and so far undeveloped topographical features where there may be potential to recover evidence of the sluicing, damming and control systems (there is some pressure for development on the millpond site).

The area with the greatest potential for buried archaeology is that around Copperhouse Dock. The sites of the gasworks of the 1830s [223] and the tidal mill of 1842 [225] are all on undeveloped ground around the Copperhouse wharves, while the site of the 1822 limekiln [346] lies under a supermarket car park. Evidence of the construction and use of structures built upon these wharves [222] [224] is likely to survive undisturbed, since there has been no subsequent development. Given that at least one 18th century building [175] survives on the wharf and another may survive disguised behind a 19th century facade [531], the whole mid 18th century Copperhouse Dock complex, or at least recoverable evidence for it, may in fact survive almost intact below ground.

One of the earliest parts of the town of Copperhouse to be developed was in Market Street. While many of the known elements in the town were demolished and built over even by the early 19th century, such as the chapel of 1784 [644] or the first market house [645], the earliest rows of houses stood south of market street. The present buildings on the south side of Market Square are 19th century, in the 18th century this seems to have been a large open space with only one or two buildings, including a limekiln [192]. There were some buildings [646] immediately south of this space, which seem to have survived well into the 20th century and which, as well as cottages, may well have included the first buildings used by J & F Pool's metal working business when it was set up in 1862. The metalworks are marked in this area on the 1877 OS map. South of this was New Row [607], a continuation of, and perhaps contemporary with, the still standing row attached to the CCCo offices [182-3] [536]. South of New Row was Trevassack Row [609]. This core of the early settlement has been completely demolished in the late 20th century, with no record of the buildings destroyed, nor of the townscape thus eliminated. Part of the area has already been re-developed with housing (Pool's Court), but the area of Trevassack Row is currently (March 2000) an open cleared area awaiting redevelopment. The Methodist Chapel of 1816 [277] has been demolished and redeveloped as part of this same process.

There is one other possible area of investigation which could be pursued, which is the exact location, state of preservation, and history of the mine exploration adits dug by the CCCo in the late 18th/early 19th century, known as Wheal Jane and Wheal Arthur. The main adit opening is said to have been somewhere near the Copperhouse Dock Gate [180], and ventilation shafts can be traced on the 1877 and 1908 OS maps as the line ran due south below Bodriggy Junior and Infant Schools [487] and High Lanes.

7.5 Foundry

Note that the description of the surviving fabric and archaeological potential of the quays and wharves associated with Harvey's Foundry is to be found in section 7.3.

7.5.1 Standing historic fabric (Figs 11 & 15)

7.5.1.1 The Pre-industrial Remains

Carnsew Hillfort [345] is one of the major elements in the surviving prehistory landscape of the Hayle estuary, and with the Cunaide Stone [30] found at its foot, and a hoard of Roman coins from Carnsew, the indications are that this was a high status settlement/beach head in the Iron Age, Romano-British and early medieval periods.

Nothing else of such early origin is currently known to survive in the area, which consisted of marshy foreshore and waste ground at the head of the Penpol branch of the estuary, and there seems to have been little here before the 1750s.

7.5.1.2 The Industrial remains

Carnsew Quay [48] was built in 1758. The basic outline survives, although altered, but there is nothing remaining of the limekiln, cellars, offices and yards and timber pound, nor the cottages on the quay and the two houses on what became the site of Harvey's gasworks, in one of which John Harvey and his family lodged when he first came to Hayle.

The most prominent standing structures are those associated with Harvey's Foundry itself. This went through several phases of expansion between its founding in 1779 and its closure in 1903.

John Harvey built a small foundry in 1779-80. The offices survive as Excaliburs [18], the interior of which also contains remains of the entrance yard, a limekiln and the furnaces [19], all of which are known to have been part of the initial complex. On the south side of Foundry Hill are the remains of the old hammer and boring mills [24], supplied by and emptied by specially constructed leats [381]. Permission for the millpond [27] was obtained in 1780, and it was certainly there by 1791. The remains of the ropewalk [54] and other buildings [379] [380] to the south of the Mills probably also date from the 1790s. Stabling facilities were also provided for the small number of horses kept at the foundry at the time (only 9 draught horses and 1 saddle horse in 1813); some of the surviving stable complex probably dates from this time, especially parts of the Granary [10], perhaps the northern stable block [11], and the attached remnant structures in the yard [558], but it has not been possible to survey the fabric closely enough to be certain of this. The large wall [32] which now forms the boundary of no. 2 Foundry Hill is part of the garden wall of the now demolished Foundry House, which John Harvey built for himself around 1800.

Expansion in the 1830s is reflected largely by the greatly enlarged stable yard, and although the two main surviving blocks [11] and [15] are clearly of different character, they may both be of the 1820s - by 1830 there were 52 heavy horses kept at the Foundry. There was a great expansion in the size and capacity of the granary [10], and the grist mills [10] [25] which started to use steam power at this time.

Most of the surviving remains of the Foundry date from the major phase of expansion between 1839 and 1845, with the 1842 Tithe Map showing the progress of the work. The surface area of the foundry was increased by excavating out the east side of Carnsew to create more level ground, with Foundry Lane being created at the same time (1843-45). From this period are the Plantation stores [3], the pattern shop [5] and wagon sheds [6], the new boring mill [8] and boiler house [9], both of which have part only of their walls

surviving, including part of the damming wall to the reservoir [7] which served them. There are also fragmentary remains of cattle houses [14] and tunnels of unknown use [12] [13] in Foundry Lane. The alterations and extension of the offices, shops and emporium buildings along Foundry Square probably also date from this time [18] [20] [21] [22]. The boundary wall to Turnpike Road [42], which contains evidence of gateways and of some of the buildings formerly attached to it, was built in 1843 as part of the (now demolished)

16. Harvey's Foundry - the architectural and townscape potential of the surviving buildings is matched by the archaeological potential of the remnant foundry site behind them.

Foundry Gasworks.

Most of this activity was as a direct result of the increased capacity needed to build the huge steam engines for the Leeghwater drainage project in Holland. That this also created a great deal of wealth and was seen as a high water mark in the firm's history at the time is reflected in the landscaping on Carnsew [36-44], walled enclosures with buildings [60-65]

and triumphal arches [31] [43], that Henry Harvey began in 1843/4, in celebration of the success of the contracts, and continued during his retirement throughout the 1840s.

The 1870s and 1880s saw considerable activity at Harvey's, especially on the wharves. By 1888 1200 were employed, and shipbuilding was the main activity. Nothing at all of any significance now survives of this last great period of expansion and activity.

The other major buildings surviving on the foundry site, while they may contain elements of earlier structures, especially in the rear of the Whites Building [17], are basically later 19th century rebuilds associate with the milling and baking business of J H Trevithick, which split off from Harvey's in 1852, and later became part of HTP (see Loggans Mill [227]). The Whites building was Trevithicks' main store, and 18-20 Foundry Square [23], while it had been the Harvey's emporium, was rebuilt in 1893 as the Cornubia Biscuit Factory.

The other major industrial activity in Foundry in the 19th century was tin-smelting. Of the three smelters that worked at one time or another in Foundry, there are remains of Mellanear Smelter, including part of the boundary wall in Millpond Avenue [74] and a building (now residential) of unknown use but which is probably part of the original complex of 1837 [369]. Another building, perhaps an office or stables from the late 19th century [75], together with a possible fragment of the extended works of around 1900 [378], also survives.

7.5.1.3 Housing

The Harvey family never built on the same scale as their rivals at Copperhouse. The only workers cottages that can be attributed to Harvey's, all of which are still standing, were the cottages in Millpond Avenue [367], [368], [70] built before 1800 and Drovers Row [68], probably built around 1830. Harvey's were constrained on the east side of the area by

17. Industrial housing in Foundry generally came later, on a smaller scale, and in a less forbiddingly urban form than at Copperhouse.

Penpol manor, owned by R O Millet, who as one of the Directors of the CCCo, was inimical to the Harvey interest.

He died in 1830, and the two rows that stand on what was his land - Tremeadow Terrace

18. Villa in Millpond Avenue. The Harveys were less concerned with workers' housing than with providing residences of quality for the extended family, all directors of the firm.

(formerly Mill Row) [29] and nos. 1-10 Penpol Road [113] - probably date from after his death and reflect a more open attitude by the succeeding landowners.

The substantial houses for the senior officers and members of the extensive family network involved in the Harvey's businesses form a major feature of Foundry - the oldest surviving is c. 1800, the Foreman's House [589] built for John Harvey's son-in-law and manager, William West. Throughout the 1820s and 1830s, provision was made for the various members of the Harvey, West and Trevithick families (grand houses in Millpond Avenue [69] [72] [73], Foundry Hill (Pencliff [66] [67]) and for the senior officers - Foundry Farmhouse [384], no. 34 Foundry Hill [366]. The houses were partly built on Harvey's land (Millpond Avenue), but also on land owned by neighbouring landlords, especially after about 1840 when space within the Harvey property seems to have been all used up. Hence, the villas up Penpol Hill were on the land of the old enemy, the Millets of Penpol, but the houses were all lived in by Harvey family members - Trematyn [393], West Villa [394], The Beeches (Rose Villa) [395]) - while other houses built in the 1840s and especially the 1850s were on the land of the Rodd family who owned Trelissick (Glanmor [84]). The series culminated in Downes [77], built for J W Rawlings, a partner in the firm. Other houses in this area were part of the same process, but less clearly linked to the family (Crofthill [363], Rodfield Villa [83]).

Other housing within Foundry surviving from before the 1870s includes the small cottages behind the Old White Hart [110], [111], Chapel Terrace [274], and the southern extension of Penpol Terrace [420], together with the first of the villas up by the new (1852) railway

station [405], [406], and the short rows added to the north side of Penpol Road [388], [389].

After the collapse of the CCCo and the sale of all its assets by 1870, there should have been little need to build more housing in Foundry itself, since the pool of workers and housing already established at Copperhouse and Hayle was sufficient to supply the Harvey's businesses, even when the total numbers employed reached 1200 as they did in the late 19th century. Despite this, there was some workers housing built at Foundry on the south side of Penpol Road [273], [385], [386], between 1877 and 1908. This was perhaps associated with a major phase of expansion at Harvey's in about 1888. These houses had shops integrated into them for the first time from the outset, a new feature for the Foundry area.

7.5.1.4 Commercial buildings

Whereas Copperhouse already had a market hall built by 1814 and an Inn by 1769, with a commercial, urban centre well developed by about 1800, Foundry was slower to develop,

19. Foundry Square. Although this urban set piece is on a grand scale, the settlement around it was more like a village in size, and all the buildings here were part of the corporate, public face of Harvey's - a company town in miniature. Today the tawdry setting belies the quality of the space and the buildings.

mainly because for long it was a private domain of the Harvey family - employees bought goods at the Harvey shops and emporiums.

These latter, first recorded in the 1820s, continued to expand throughout the 19th century, and the buildings survive today although in different use [20], [22]. No independent shops or businesses are recorded within the Harvey properties, except perhaps the new White Hart of 1838 [108], replacing the Old White Hart [109], which was ostensibly a business venture set up for Jane Trevithick, but served as a counthouse/reception suite for Harvey's. The shops that did develop in the 19th century did so in Chapel Terrace and

Penpol Terrace, on properties not controlled by the Harveys. These were originally all domestic, which explains why all the shops are built out into the former front gardens of the houses [119], [419], while the bank (Bolithos) adapted a house for the purpose [118]. Trade Directories make it clear that Copperhouse far outweighed Foundry in the numbers of business and retail premises. This was partly, of course, a function of the larger numbers living at Copperhouse, but must also be partly explained by the wide range of facilities provided by Harvey's themselves.

Despite continued requests by Harvey's from at least 1828, Foundry only acquired a Post Office in the late 19th century - between 1877 and 1908, when it is shown in a small house in Foundry Hill [297].

In the late 19th century/early 20th century, as the economic and employment centre of Hayle became more centred on Foundry and the harbour area west of the Copperhouse sluices, more commercial facilities concentrated in Foundry, the two banks currently operating in Foundry Square [115], [20] were already there in the 1920s, the present Post Office [553] was built (1911), replacing an earlier 20th century one in Penpol Terrace, more shops were built in Penpol [420] and Chapel Terraces [419].

7.5.1.5 Community facilities

Harvey's played a role, but not a markedly proselytising one, in providing for the spiritual and intellectual welfare of the area. They founded and had built Foundry Hill school [1] in 1838, which survives although converted to domestic use, and the firm continued to support it throughout the 19th century until the new education act of 1903 made it redundant. It was supposedly fear for public health that led Henry Harvey to acquire and drain Penpol Pool in the 1837, although since he went on to build the new White Hart on the site, commercial interest may have had a significant role to play.

The major community building in Foundry is the Chapel [117] of 1845, with its attached Sunday School, both now in commercial use - there is no known connection with Harvey's, it was not on their land, and they were themselves staunch Anglicans.

The family did support the creation of a Public Hall in 1869 [115], although it was set up by a private company outside their control. A market house was provided in the basement, a venture supported by Harvey's, but actually set up by a private company; the upper floor was used as a cinema in the early 20th century. Only the ground floor survived a fire of 1935 and now houses Lloyds Bank. Other facilities (Men's Institute, Drill Hall etc) provided in the mid 19th century no longer survive, being replaced in the later 19th century and early 20th century by the surviving new Drill Hall of 1911 [148] and the Passmore Edwards Institute of 1893 [149], both built on land given by Harvey's outside the Foundry area.

7.5.2 Buried archaeological potential (Figs 12 & 16)

On the basis of original function, primarily in terms of whether the original structures would have had below ground elements (eg casting pits, furnace bases, machine and crane bases), it is possible to indicate those areas of the Foundry site where significant buried archaeology may be found.

The foundry/casting house [19] stood on the site of the current Bookers building. It remained in the same part of the site throughout its history from 1780 to 1903. Rebuilt in 1816, there were several further phases of alteration and extension, particularly to the west of the old core and on the north end of the original building where a series of furnaces was added in the 1840s, parts of which are still visible attached to the rear of the White's building.

The 1839-1840 boring mill [8] stood to the south west of Bookers. There may be important sub-surface archaeological remains within the footprint of this building and preservation of the floor area of this structure is likely to be good. There are many unanswered technical questions relating to this important mill that can only be resolved by close examination of the remains.

The site of the 1840 New Boring Mill and the area to the north was previously occupied by an erecting shop [8] and [19]. This was part of the major expansion of 1816, which transformed Harvey's from a relatively small foundry into a major manufacturing centre. It was here that the steam engines/boilers, etc. cast at the foundry were assembled.

To the east of the Bookers building is the site of the short-lived limekiln [672], built in 1780 as part of the first phase of the foundry. This was overlain in 1816 by a pattern shop [671] and a stores building. A tramway of c. 1852 ran between these buildings and the rear of the surviving offices/shops to the east [18], [21], and evidence of it may survive here as it does further south in the site.

There are extant building remains attached to the north side of the standing pattern stores [5], and to the north end of the wagon shed [3] and below the viaduct itself. These structures were apparently added after the building of the first viaduct across the site in 1852. Investigation is required to establish the history of these buildings and their relationship to standing structures, including the viaduct. They appear to predate the main pattern stores building.

West of Bookers is the site of the reservoir (the eastern retaining wall of which is visible above ground [7]. Although the reservoir is now filled in, nothing is known of the infill material, its stability or potential toxicity, and evaluation trenching is required in order to determine if the structure/fabric of the reservoir survives beneath the infill. If this is the case, it may be appropriate to totally excavate the fill in order to reveal and display this feature. The expansion of the Harvey's complex in about 1843-5 saw the creation of Foundry Lane, the building of the pattern stores and the wagon house, and the creation of the reservoir. Part of the retaining wall for this is the natural bedrock - all this development being achieved by extensive quarrying and levelling of the western part of the area. The Cunaide stone [30] now set up on Carnsew Hill fort was found at the same time in this area, and the opportunity to establish any surviving pre-industrial layers could be taken as part of the investigation of the reservoir area.

The gasworks [102] were designed in 1830, but not built until 1843, and this area presents a rare opportunity to study a single phase, single use industrial complex of this sort. Harvey's, in conjunction with William Brunton of the Eagle Foundry in Birmingham, designed and built gasworks at the same period for Falmouth and Penzance, so that investigation here could have wider implications for understanding this class of site elsewhere in the County. The adjacent area to the east may retain evidence of 'Mr Ellis's House' [648], part of the mid 18th century development of Carnsew Quay that was the earliest of all developments in this part of Hayle. There was also a copper smiths and sawmill [97] on this site. The site is complicated, however, by the potential for contaminated land associated with the gasworks.

In Foundry Farm/Foundry Lane virtually all the original buildings recorded in this area survive today, and the historic maps show no evidence for these having replaced any earlier structures. There is some limited potential for buried archaeological remains - the foundations of a structure previously attached to the western end of one of the stable blocks [11] may survive below ground, as may the remains of early surfacing (eg cobbling, drains, and other external features). From the available map evidence the site currently occupied by the Rowe building appears never to have been previously built on. It seems

historically to have always been an open space. However, although there is no potential for early buildings to survive, the fact that it is named as a yard on the 1879 OS map suggests there may be the remains of early surfacing (such as cobbling).

Outside the Foundry area, it is likely that significant remains of the various buildings on Carnsew and South Quays still exist - these are discussed in Section 7. 3.

The other major area in Foundry with buried archaeological potential is in the island between Foundry Square and Chapel Terrace. This was the site of the Trelissick Tin Smelter [549] built by George Grenfell in 1820. He gave up his interest in 1847, but the smelter carried on under different owners until 1855, when Harvey bought the site and removed the smelter furnaces, using part of the site for storage for his foundry. This in turn became the site of the Drill Hall [335] of the Volunteer Artillery Battery formed in 1860, with the old smelter/warehouse building possibly being re-used. It was in the forecourt of this building that the standing Public Hall and market of 1867 (now Lloyds Bank [115]) was built. The bank, Post Office [553] and parcels depot [554] occupying the site today are bounded by a series of stone walls with traces of buildings and openings in them [556]. The wall dividing the car park from Chapel Terrace follows the line of the now culverted Penpol Steam, also the ancient parish boundary between St Erth and Phillack. The car park itself is the site of a row of early 19th century cottages [336] demolished in the 1980s.

Just to the south-east of Foundry is a complex of ponds, banks, mine wastes and burrows along the Penpol stream that would appear to be an area of high archaeological potential.

Other areas in Foundry are likely to have limited archaeological potential, being either heavily redeveloped, as at the Mellanear Smelter site, or being sites where the only known structures are still standing.

7.6 Other industrial settlement components and features (Figs 8 & 15)

7.6.1 Housing - outside of the key settlement areas

The middle-class rows of the area around St Elwyn's Church, Chapel Terrace [274], Penpol Terrace [276], Hayle Terrace [145], Commercial Road [479] are extant, although partly modified by conversion, or with the addition of some shops in the front gardens in the later 19th century and 20th century, good examples of which abound [119], [146], [275]. The later 19th century villas around the railway station [272], [405-406], [416] have seen some alterations, but, with their walled gardens, are still prominent townscape elements. The more ornate and probably higher status houses at Bodriggy Villas [268], [630 - 638] make another good group.

While Harvey's built large houses in and around Foundry, and the CCCo occupied many of the older estates, large houses built by other major figures in the industrial history of Hayle also survive, for instance at Lethlean [243] and Penmare [226] which, although built in 1825 as a Hotel by the rector (William Hockin), was in the mid 19th century the home of William Hosken of Loggans Mill. Hockin, whose family were rectors of Phillack throughout the 19th century, was a major figure in Hayle and rebuilt the Rectory [240] on grand lines.

Good examples of inter-war and immediate post Second World War housing (ie pre 1946) are to be found on the edges of the core areas of Foundry and Copperhouse, such as Hollows Terrace [499], various 'Hayle style' bungalows [513], and the interesting Modern-movement influenced bungalows and houses along St George's Road [640]. Also relatively unaltered is the large, late garden suburb style estate off Sea Lane, Bodriggy [639].

7.6.2 Use of scoria blocks

The use of moulded scoria blocks for building, while not unique to Hayle, is such a local feature, that its use has been noted in the inventory in Appendix 3 wherever it occurs. The density and hardness and size of the cast blocks has ensured the survival of some of earliest buildings in the town, especially in Copperhouse. Important examples can be found all over the eastern part of Hayle, including the former Foundry Offices [183], Phillack Church Hall [175], Copperhouse Dock [179], the walls to the former CCCo Foundry [566] and Ropewalk, [187], Riviere Farm [265], Phillack Churchyard [239], [257], the Black Road [233], [234], [441] and Grigg's Quay [615]. More houses and cottages built of scoria survive than might at first be thought because many examples are now painted over or rendered; good individual houses and groups are at Phillack [458], [459], Glebe Row [538], [540], Ventonleague [488-490] and Guildford [598]. Much of the scoria from the demolished foundry buildings was re-used in later buildings, as seen in the rear of Copper Terrace [178], built in 1901 nearly 100 years after the blocks stopped being produced.

7.6.3 Street furniture and other ephemera

Examples of what might be termed ephemera can be found all around Hayle - street furniture, areas of paving [17], [475], [476], [574] or steps [137], monuments and memorials [76], [150], the ruined remains of Phillack village pound [288], but most especially the important series of boundary stones in and around the town. Some are undoubtedly ancient property markers [561], others probably date from the late 18th century/early 19th century disputes between Harvey's and CCCo, when the parish boundary between St Erth and Phillack assumed a great importance [112]. Most were set up by Harvey's on acquiring the waterside properties of the CCCo in 1868 [437], [438], [537].

7.6.4 Public buildings - general comment

Community buildings survive very well. Apart from those in the two centres of Foundry and Copperhouse (see Sections 7.4.1.2 and 7.5.1.5), the most important and least altered survivals include the 1911 Drill Hall [148], and the Passmore Edwards Institute [149].

Most of the recorded 19th century schools in Hayle are gone (the earliest of all, at Foundry, survives in domestic use [1]), replaced by the good early 20th century schools at Penpol [391] and Bodriggy [487], and the new secondary school (Hayle Community College) [545] built in the 1950s at High Lanes.

St Michael's Hospital [361] is still active, and indeed recently expanded, with a number of good ancillary buildings either adapted from older houses [363], or newly built [362], and it retains its links with the Convent in The Downes. Carew House [637], a good traditionally detailed inter-war Old Peoples Home, has recently been converted to a community centre.

7.6.5 Ecclesiastical buildings

What has not survived at all well is the chapels. The best preserved are Foundry Chapel (converted) and Ventonleague Chapel. The former Baptist Chapel [296] lost a great deal of its original character on conversion in the 1950s to a Catholic church. The original late 19th century Roman Catholic chapel remains attached to the small convent occupying The Downes [77]. The relatively limited survival of non-conformist chapels is in contrast with other Cornish Towns of the period, although there is still a strong presence in Hayle with the Catholic Church, and a new non-conformist church centre.

The Anglican tradition is better reflected in the surviving fabric, perhaps reflecting the dominance of the Hockins of Phillack (and the fact that the families and directors of both Harvey's and the CCCo were Anglican rather than non-conformist). Apart from the two medieval church complexes already mentioned at Phillack and Lelant, there is also the

dominant presence of St Elwyn's [133], built 1888 to the designs of J D Sedding, together with the church hall of 1904 [132], and the former St John's Church in St John's Street.

20. Lethlean Bridge. Reputedly the oldest railway bridge in Cornwall, this once carried the Hayle Railway, opened in 1837 - a remnant of the age when Cornwall was in the forefront of technological innovation.

7.6.6 Railways

Important remains survive of Hayle's rail network. The course of the Hayle Railway [95] can still be traced and walked as a path from its start point at the old station site [333] on the north side of the present roundabout in Foundry Square, along the public gardens in Penpol Terrace to the crossing (the swing bridge [128]) at the mouth of Copperhouse Creek, along the north shore by Riviere and the present King George V Memorial Walk, and across the marshes and out by Penmare. The remains of the original bridging point across the northern sluice channel at Hayle are extant [134], as is the bridge at Lethlean [235], the oldest surviving railway bridge in Cornwall.

The 1852 alterations produced a major station and sidings at Hayle on the site of the current mainline station, all demolished in the 1980s, although the cut for the Wharves branch [121], and the over bridge [122] associated with it still survive. Sections of track on the wharves are extant [121], [431], especially on North Quay and East Quay, and further lengths probably survive below recent resurfacing.

The late 19th century improvements on the 1852 main line have left some major local monuments - Guildford Viaduct [603], Trevassack Arch [526], Bodriggy Arch [486] and Foundry viaduct [337].

The early 20th century extension of the lines to the National Explosive Works at Upton Towans has left a short length of the route detectable [230] and a bridge [229], now obscured by a recently completed house (January 2000).

7.6.7 Roads

The development of the road system in and around Hayle was of crucial importance to its effective expansion as a port, and there are a number of important surviving structures associated with this. The oldest is probably the causeway across the sands to Lelant [625] that may have prehistoric antecedents. Along the line of the main pre-19th century road (Angarrack - High Lanes - Foundry) are two probably 18th century milestones [114], [320], both depicted on the 1809 OS survey drawings, while the Causeway of 1824-5 [89] remains one of Cornwall's major historic road engineering monuments. Within Hayle, the road connection between Copperhouse and its main quays at Riviere survive in the form of Sea Lane [441], Black Bridge [234] and the Black Road [233], all c.1811. While other minor bridges and causeways around the estuary area are generally either lost or unrecorded, the small bridge [231] at Lethlean of 1812 is an important survival.

7.6.8 Loggans Mill

Loggans Mill [227] is perhaps the most important industrial site in Hayle not located within the three key settlement areas. This disused corn mill is a major monument in Hayle, dominating the eastern approach to the town. The important role played by the Hosken family in Hayle, and the continuing importance to the town of HTP has been noted in previous sections; for further information and analysis of this important site reference should be made to the detailed report produced by CAU (Thomas 1998).

7.6.9 National Explosives

Although outside the study area, National Explosives was of great importance to Hayle in its short life (1888-1920), becoming the largest employer in the town during the First World War. Its possible effect on the small scale expansion of Copperhouse during this period is noted in Sections 5.3 and 6.6; for further information and analysis of this important site reference should be made to published accounts and reports (Earl 1978; Earl and Smith 1991; Jones 1998; Jones 1999).

7.6.10 Mining

No attempt has been made here to describe the mining remains around the outskirts of Hayle, although the mining operations these reflect undoubtedly had an impact on the settlement (see Section 5.2.1). Although there are some visible remains within the study area, these are limited to the dumps of Wheal Alfred mine [325], and a number of sites of shafts and other dumps which have not been surveyed or categorised in detail in the inventory - they are most notably to be found in the fields immediately to the east of the Mellanear smelter site. Some cottages in the High Lanes area may be converted mine buildings - especially those just south of Trevassack [593], [594], and the large house in Water Lane built in the mid-late 19th century [350] may be associated with Gundry's Shaft which was shown as a working mine site on the north side of the lane on the 1877 OS map (part of Mellanear Mine).

8 Character

8.1 General character

The character of Hayle is defined by its natural setting, its late development within an ancient landscape and settlement pattern, symbolised by the churches around the estuary, and its industrial and commercial history. What emerges is a settlement of great historical significance, contained within a landscape of equal merit. The farmland, marshes, dunes and tidal estuary set against the backdrop of the open sea are a pervading presence, so that few towns in Cornwall are defined so strongly by such natural features, nor retain such important wildlife habitats within the boundaries of the settlement.

This section looks first at the character of the built fabric in Hayle, with identifiably different building types grouped in sub-sections. It then considers the nature and quality of views, spaces, setting, permeability and access in the Town, and current uses and issues.

8.2 Built townscape

Reference should be made to Section 7 and the Inventory in Appendix 3 for detailed descriptions of individual buildings or groups of buildings; this section will deal with some broad themes, identifying those which define the distinct character of Hayle.

8.2.1 Hayle Harbour

The character of Hayle harbour is derived from its quays and associated remains. Even dwarfed as it is by the scale of the wider estuary, these extensive remains have produced a unique industrial character and texture. For example, one of the remarkable features of the harbour is the importance of built-up land using the scoria and slag from the various smelting and foundry businesses in the town - Fore Street/Commercial Road, Penpol Terrace, Copperhouse canal and dock, Black Road, Customs House Quay, Carnsew Pool are all constructed in this way. Even Middle Weir, the great spit extending out into the estuary, looking so much like a natural feature, is an engineering product, although like most of the wharves and quays it is based on natural shoals and reefs. All these quays have considerable buried archaeological potential since, by and large, original buildings have been demolished and levels built up, with very little new building to disturb below ground deposits.

The harbour is not a random collection of structures, but an integrated engineering system, with important elements surviving of the four sets of sluices, the swing bridge and winding gear, and the railway and road networks and bridges. Moreover, it is integral to understanding the history and surviving character of the other varied industrial processes and systems that created Hayle.

The contribution the quays make to the character of the town cannot be overemphasised. It is not just their extent, but also the broad open spaces which have always characterised much of the wharf areas (see the illustration on the front cover of this report), the quality and quantity of granite used in their construction, with the scalloped plan of the quay walls, in the best parts ashlared and moulded (Carnsew sluices), together with the extensive series of bollards, steps and spillways that make them so special and prominent in the townscape. The relationship of the solid quay walls to the ebb and flow of the tide, the changing appearance and shifting nature of the estuary itself is an essential part of Hayle's character.

21. The Harbour, a key element in Hayle's character, architecturally and archaeologically important, it is also the stuff of local legend (see photo 22) and the major economic regeneration challenge in Hayle (CAU 729/69/557 376, 1990).

22. On East Quay and Penpol Quay pitch battles involving hundreds of men were fought between Harvey's and the Cornwall Copper Company.

8.2.2 Industrial buildings

As individual structures many of the surviving industrial buildings are of great significance in their own right, often through sheer scale and presence, such as the granary building at Foundry, the Hammer Mills complex or Loggans Mill - now a major monument in Hayle, and a symbol of continuity of use on the site from the Middle Ages to the 20th century. Together these form the heart of the built industrial character of Hayle. Similarly, the former stores and the former Cornubia Biscuit factory, both associated with Trevithick's/HTP in Foundry Square, are testimony to the importance of the bakery and grocery trade associated with milling. Further, they express their separate identity in this part of the town dominated by Harvey's by a clear distinction in architectural treatment and materials of rubble stone and terracotta mouldings in contrast to the plain classical render of the foundry, White Hart and Public Hall which were all provided by and for Harvey's.

Although the major historic industrial buildings in Copperhouse have been demolished, the scale of the 20th century factories and J & F Pool's metal works, still standing within the 18th century and 19th century enclosing walls of the CCCo yards, give an impression of what the original scale and character of the area must have been like.

The industrial remains, including the wharves, are thus doubly significant. They are a monument to and represent, in a way perhaps unique in Cornwall, the integration of all the various industrial activities that, in the heat of the Industrial Revolution, made Cornish skill and enterprise, for at least some fifty years, pre-eminent in the world. They also represent the reason for Hayle's growth and prosperity. In particular, the 25 or so historic structures still standing associated with Harvey's Foundry have attained a great significance: they present the most coherent group of industrial monuments in the town, and one of the best in Cornwall, and they still have a dominant role in the local townscape

8.2.2 Road and rail

The improvements in road and rail transport in the first three decades of the 19th century, which were so important to Hayle's development, have left a group of structures of outstanding interest around the mudflats and levels (such as the Black Road, the 1837 Hayle Railway Bridge and the Turnpike Causeway) that tie the scattered elements of the estuary-side settlements together, helping to make Copperhouse Pool, for instance, part of the town, rather than a feature outside its boundaries.

The new main railway line opened in 1852 is a major topographical and townscape feature in Hayle, defining much of the core of the town, and has led to the construction of some major local monuments - Guildford Viaduct, Trevassack Arch, Bodriggy Arch and Foundry viaduct, all products of the late 19th century improvements on the original line. The Foundry viaduct in particular, while not a thing of great beauty, is nevertheless a key component of the townscape and industrial character of Hayle.

8.2.3 Housing

Hayle's urban fabric is characterised by being densely developed. While the generous Victorian villas are placed within spacious grounds, most of the housing terraces are tightly packed at very high densities. Most have very little or no front gardens, but generally long back gardens, some reduced to provide vehicle courts, although most streets appear to provide adequate on-street parking despite not being designed for the car. Tremeadow Terrace is unusual among the workers' housing in Hayle in having long front gardens with access only by footpath.

The contrast between the strangely uncoordinated little groups in Foundry, and the full scale urban grid in Copperhouse is important and reflects the different development

23. Copperhouse, characterised by terraces of worker's housing. Copperhouse Canal hugs the southern shore and the War Memorial stands in the triangular junction between Chapel Street and Commercial Road; (CAU 717/10/562 376, 1989)

histories and character of the two areas. Fortunately this contrast has survived recent demolitions and infill development.

The scale of the town is generally of two storey terraces, and three storeys for the larger buildings. Where the terraces are not built up to the pavement, the individual front gardens are often set behind a common wall. Walls are an important feature throughout the town, separating private from public space, unifying disparate elements, and helping to define public spaces.

There is some contrast between the slightly better quality workers' housing in Copperhouse, which uses the Hayle style detailing (for instance the south side of Bodriggy Street), and the ordinary cottages of simple render or exposed rubble stone and scoria. There is little originally exposed stone used in housing in Hayle compared with, for instance, the granite district around St Just (more has recently been inappropriately exposed by removal of the original render). The main examples are Tremeadow Terrace (already noted for its unusual range of front gardens) and 1-10 Penpol Road. These are, unusually for Hayle at this date, almost like regular terraces. They are also, curiously, about the only instance in Hayle until about 1900 of a speculative development of workers housing.

The predominance of rendered finishes in Hayle is due in large part to the extensive use of scoria blocks for building in Copperhouse, a characteristic and important feature, up until the closure of the copper smelter in 1819. Contemporary visitors from the mid 18th century onwards remarked on the use of scoria in the area - 'I suppose such another is not in England, nor in Europe, nor in the World. It is round, and the walls are brass; that is brazen slags. It seems nothing can destroy this, till heaven and earth pass away.' John Wesley writing in 1785 about the first Copperhouse Chapel (Noall 1985, 34). Heaven and earth apparently passed away in 1816 when a new chapel [277] was built to the south.

The use of scoria stimulated the use of render, in order to cover the rather unpalatable blood-brown colour of the blocks, which must have been of dubious aesthetic value even

in the 19th century. The use of rendered detail may also be due to the great number of large houses and other buildings that were built in the early 19th century, in what was then the fashionable Grecian detailed stuccoed style. As exemplified by the new White Hart of 1838, this gave an urbane quality to the town, similar to that of Penzance, Falmouth and Truro at the same date - the developers of Penpol Terrace clearly had one eye on what their rivals in those places were building, this being a period when skilled workers and professionals needed to be attracted in to the rapidly expanding town.

Thus the 'Hayle style', typified by roughcast, with quoins, door surrounds and other details in rusticated or sometimes vermiculated stucco, seems to have developed in the 1820s (Hayle Terrace/Penpol Terrace) and ran right through to be applied to early 20th century bungalows in the town.

The villas and terraces of c.1900 (Station Villas/Copper Terrace/Penpol Road), are superficially different to the earlier 19th century rows in their scale and size, with Gothic-influenced canted bays, hipped, almost turret like roofs, heavier, coarser detail and more vertical emphasis. They were, however, clearly influenced by the Hayle style, producing a local variant which still had the rusticated or vermiculated stucco panels contrasting with the main surface.

One of the features of Hayle is the number of large houses built for the directors, partners, senior officers and family members of the two principal business, Harvey's and CCCo. They tend not be of outstanding architectural quality, ranging from simple, large hipped boxes, like Riviere, to overblown and crudely decorated stuccoed mansionettes along Millpond Avenue. There were some rather more elegant examples, for instance the villas along St George's Road, Glanmor along Trelissick Road and Phillack Rectory. At least one house and garden of more than local significance was designed (by Edmund and John Dando Sedding) at the Downes, Trelissick Road. The contrast between the higher, more salubrious sites (the elevated parts of town both literally and metaphorically), such as the slopes around Foundry, the southernmost houses at Copperhouse (Bodriggy especially) and Clifton Terrace, and the tight streets of workers' cottages alongside the industries in the valleys is one of the most characteristic surviving features of Hayle.

In between the workers' housing and the grander villas, are the middle-class rows of Chapel Terrace, Penpol Terrace, Hayle Terrace, Commercial Road and Fore Street. It is here that the Hayle style is most typical, with its modest architectural display and here that front gardens are most prominent, and picturesque siting most obvious, with the great sweeping curves of good quality houses deliberately sited to be seen from and to look out over the hive of industry and activity on the quays.

Inter-war housing and immediate post Second World War development maintained the traditional forms and details of the earlier industrial housing, while introducing some new ideas filtering down from enlightened housing estates and the garden suburbs of the early 20th century. Certainly the bungalows that were built in the Hayle style are part of the character of the town, rather than a new 'holiday' element superimposed on it, while the Bodriggy estate continues the late 19th century/early 20th century tradition of workers housing. Laid out with garden suburb ideals, this estate has good townscape qualities. Subsequent developments can be less well linked to the industrial heritage of the town, and do not reflect the density, scale, detailing or layout of the traditional housing in Hayle.

8.2.4 Public and commercial buildings

The public buildings in Hayle are locally important but not on the whole of great distinction. This is partly because of losses and damage over the years - the Public Hall and Market in Foundry was damaged by fire in 1935, and is now a single storey building that

struggles to impose its presence on the wide expanse of Foundry Square. The old cinema (St George's Hall) in Copperhouse, while having great potential, has been battered by unsympathetic mid 20th century alterations. Phillack Church Hall opposite, while an interesting and historically valuable building, has relatively little impact, its setting and surroundings needing considerable enhancement.

The Passmore Edwards Institute designed by Sylvanus Trevail is a significant building in itself, but is too isolated from the main public areas of the town to impose any presence upon anything other than its immediate context. The same can be said of the nearby Drill Hall.

There are individual shopfronts in Foundry, Penpol Terrace and Hayle Terrace of some quality and interest in themselves, although they struggle to impose some quality to the general run of poor shops along Penpol Terrace which rather detracts from the quality of the local street scene.

Copperhouse remains the main retail centre in Hayle, where there are many fine surviving shopfronts which form an important element of its character. Some are certainly early 19th century, particularly those on the south side of Fore Street. Phillip's Butchers occupies a prominent and important position in the street on the corner of Market Square and Fore Street. Later 19th century examples are associated with the development of the north side of Fore street, and the rebuilding of earlier buildings on the south side, although there is markedly better survival on the south side of the road.

8.2.5 Ecclesiastical buildings

The relationship between the contrasting 15th century towers of Lelant and Phillack and Sedding's St Elwyn's of 1888 is essential in tying the disparate settlement elements together. The three churches in a sense bridge the physical landscape by providing such

24. St Elwyn's church rises high over the harbour, commercial sites and housing, and is the focal point of views into and across the central hub of the estuary.

important visual focal points. This relationship is intimately linked to Hayle's history - to its relationship with the estuary, to its origins as a divided settlement straddling two ancient parishes, and to its ecclesiastical history, unusual for industrial Cornwall in the strength of the Anglican tradition.

Phillack remains, despite its proximity to the industrial heart of Copperhouse, a typical churchtown hamlet, overlain with some industrial housing, but dominated by the church, Rectory and Pub. It is unusual, perhaps, in the number and quality of ancient crosses and 19th century tombs in the churchyard, in the incomparable setting of the church against the Towans and overlooking the estuary, and also (a reminder of its place in Hayle) in the overpowering presence of the dark, dried-blood coloured churchyard wall and vestry built of scoria blocks.

The dominance of the Anglican churches is more apparent now because of the loss of several important non-conformist chapels, but they seem never to have dominated the town as in other industrial centres in Cornwall, and certainly their fragmentary survival has left only the Foundry Chapel as an imposing building in the townscape, with its curious late 19th century window tracery, but even this is compromised by its conversion to commercial use, with shop-stalls in the forecourt. The former Baptist Chapel lost a great deal of its original character on conversion in the 1950s to a Catholic church and makes little enough impact on the wide, traffic dominated Commercial Road, especially as it is set against the indifferent modern library and community centre, and a poor area of open car park. Ventonleague chapel is unexceptional, but, set behind its railed forecourt, is the focal point of the remarkably complete 19th century streetscape of Ventonleague Green, looking for all the world like a rural village green.

8.3 Views

The setting of Hayle on the slopes leading up from the twin-armed estuary means that there are inevitably lots of views both out of and into the built up areas, and beyond the estuary itself, particularly to the west, are wide views of St Ives bay, St Ives itself, Trencrom Hill and the hills and moors of West Penwith. Both Copperhouse and Foundry are set in small valleys leading off the main arms of the estuary, so that there are views across the built up area as well as out over the estuary. The views are so varied and there are so many viewpoints, that perhaps only the most striking can be noted here.

The main view is the interrelationship of the three churches of Lelant, St. Elwyn and Phillack which has already been noted. St Elwyn is of exceptional importance as a focal point of these views. The church sits very like a Breton church overlooking the strand and harbour, and is the focal point of all the views into and across the town, and is at the precise junction of the two opposing townships that made up Hayle, providing a symbolic as well as a physical meeting point for the two communities. It is the landmark of the harbour area.

Views from the rising ground around the main centres provide some of the most scenic vistas in Hayle, for instance from above the landscaped grounds of Carnsew; from the railway station over to Lelant; from The Beeches and Barview in St George's Road across the harbour to St Ives; from Ventonleague across to Phillack; or from Phillack, the Towans or Riviere over the whole of Hayle. In these latter views, surprising buildings are seen to play an important role in defining Hayle's character, such as the large agricultural buildings at Trevassack, Hayle Community College, and the layout of parallel lines of rows at Copperhouse.

25. View from Copperhouse Creek. Hayle's estuaryside location means that views into and across the salt flats and out to the wider landscape are possible from the heart of this industrial town. St Elwyn's church dominates these views.

The Hayle by-pass, whatever else its merits, has opened up for the traveller and visitor some of the most spectacular of all views, looking at St Michael's especially and on to St Ives, and then down the valley to the viaduct and what remains of Harvey's Foundry, or over the Causeway and Grigg's Quay down the estuary - one of the most famous views in Cornwall.

In views of the estuary, the enclosed water of Carnsew Pool is always a central feature.

Copperhouse Pool is in effect a large central open area with development all around it, each side enjoying views of the other: from Clifton Terrace up the valley and up the estuary; from Copperhouse across to Phillack; from Copperhouse dock up the canal. The popular walks along Sea Lane and over the Black Bridge enable these views to be enjoyed from the very centre of the wide expanse of salt marshes and mudflats. Much of the quality of Copperhouse is the uninterrupted curve of Fore Street opening onto the wide vista of the Pool.

These views have been appreciated and exploited for a long time. Since nearly all of Hayle is strung out along a shoreline, or on the edge of open areas of quays and wharves, or within narrow valleys, the intimate views over and between the industrial areas and the quays are of as much significance to the character of the town as the larger vistas. This was recognised and exploited even in the 19th century, with Penpol Terrace, Clifton Terrace, and to a lesser extent Hayle Terrace, deliberately designed to be picturesquely sited by the quays and waterfronts, with long sweeping rows of good quality housing, and just as deliberately sited to take advantage of the prospects not only of the natural environment, but of the commerce and activity of which the Victorians were inordinately proud.

In the same way, Carnsew Hillfort, which had dominated the southern part of the estuary since prehistory, was landscaped by Henry Harvey in the 1840s. The landscaping was both

meant to be seen, and to be a viewpoint, again to survey not only, or even primarily, the natural landscape, but the Foundry, and more especially the quays, wharves, shipyards etc which were Henry Harvey's primary interest and achievement. And no one can doubt that Sedding appreciated the scenic qualities and vistas of the site of the new church of St Elwyn.

One of the consequences of the topography of the town, is that the backs of houses and streets are often as visible as the main street-front elevations, and must be treated accordingly, this is especially so along Copperhouse Pool, where all the buildings on the north side of Commercial Road and Fore Street back on to the open views from across the Pool, and, while the architectural qualities of the Passmore Edwards Institute cannot be appreciated from this angle, its sheer bulk is very noticeable.

The main road along the south side of Copperhouse is for the most part a serious detraction from the qualities of the town, it is a classic example of the difference between a road dominated by traffic, and a street dominated by people and buildings. However, the sweeping curves of the houses along its length, the vistas opened up of the Pool, and the interesting variations in the spaces and sense of enclosure add considerable character to the townscape and, above all, potential for enhancement. One of the most enjoyable and important views in Hayle is that looking west along Hayle Terrace, with the terrace rising up to the crest of the small hill on which St Elwyn's stands, and the Passmore Edwards Institute seen in direct relationship with the church.

8.4 Spaces within the town

Most spatial quality in Hayle is semi-natural rather than urban - the Towans, the Creek, The Estuary, the mudflats, the beaches, Loggans Moor - or derives from the open quality of the surrounding quays and wharves. However, the quality of the most important spaces within the built environment, as distinct from the wider landscape setting of the town, has great potential for enhancing overall character. At present, good open spaces or intimate enclosures are too isolated to impact much on the wider settlement, as for example the Carnsew landscaping, or the green at Ventonleague. The latter is a good quality space, for all the world like a village Green, with little reference to its urban or industrial context. A contrasting spatial experience is found around the Millpond in Foundry, where the village pond and nature reserve that has been created from the hammer mills complex is in great contrast to the gritty realities of its industrial origins and its urban surroundings. It is, however, attractive in its own right and important as a natural environment in the town centre, and provides a link between the urban environment and the immediately adjoining open fields to the south.

Generally parks and playing fields in the town while providing good quality amenities, such as at the millpond, Carnsew, Plantation, Memorial Walk, are not spatially exciting or important for townscape. There is a danger that in improving facilities, and applying municipal standards of care or access, much character could be lost, this is especially true of the Wilson's Pool area.

Of the principal urban spaces in Hayle, Foundry Square, which should be the main space of that part of the town, is a broad, bare, traffic-dominated wasteland. It was formerly more built up, with high buildings closely built against the streets.

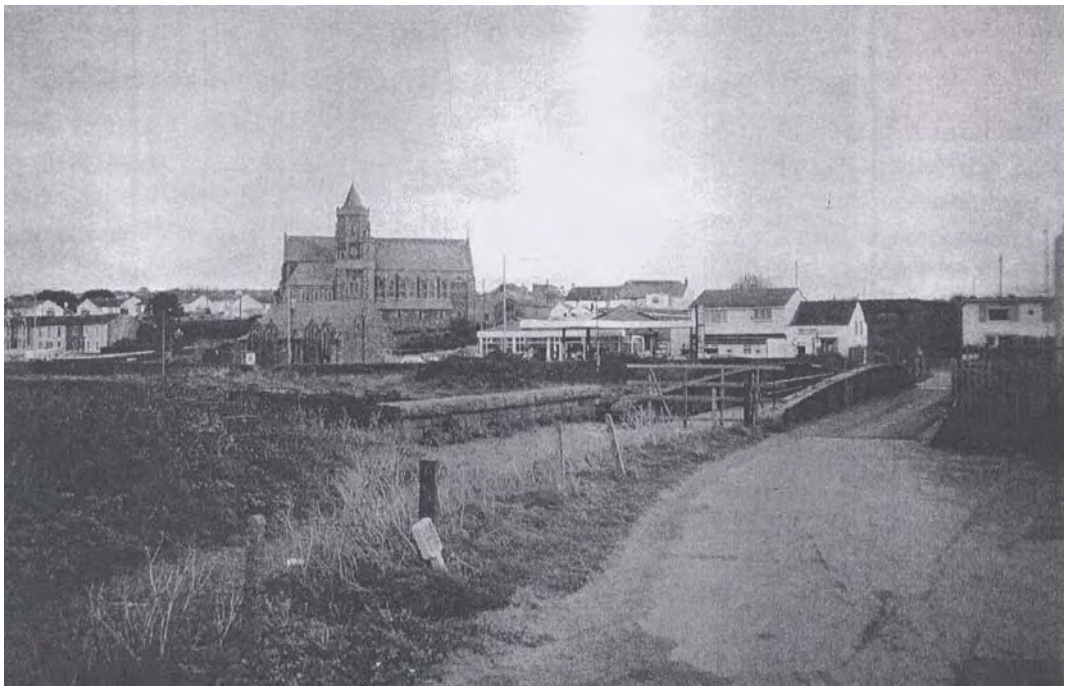
26. Foundry Square, one of the principal urban spaces in Hayle, now traffic-dominated and diminished in character. Since this photo was taken, the demolished Coliseum of Harvey's Foundry (left of picture) has been replaced by modern housing and most of the buildings on South Quay have been removed. (CAU 76/43/560 370. 1986).

27. Copperhouse - Market Square and Copperhouse wharf. Potentially a fine urban space, with important buildings, now a car park and road.

While it has lost much character, it still offers the best opportunity in Hayle to provide a focal space of real character. Copperhouse Market Square is not well defined, the main road paying no attention to the widening of space at this point, nor to the larger buildings which still stand around the square and are important despite the poor alterations they have all suffered. Seen from the north side of the Copperhouse Dock, the potential impact and quality of this space becomes more apparent.

Market Street, just south of the Market square, was the oldest part of Copperhouse, and still contains the oldest standing buildings, despite recent demolitions. Its partial redevelopment has left what should be an intimate and exciting area bereft of any focus and quality.

The triangular space around the War Memorial is defined by an excellent series of houses and gardens, set back to follow the old shoreline, and the approach and views into the area from the south (Chapel Hill) are amongst the best in Hayle. The memorial itself is a listed building in the form of a tall cross on a base, and just offset to the west is the Passmore Edwards Institute. It is undoubtedly a pleasing space, but enjoyment of it is marred by the unimaginative quality of the road and paving treatment that forms the setting of the cross, and above all by the dominance of the main road, which scarcely acknowledges the change in quality of the spaces along Commercial Road. Even the Institute is seen merely as an incident along the road rather than as a focal point.



28. Sedding's superbly sited church of St Elwyn. The underused quays and railway bridge retain historic and picturesque qualities. The houses of Hayle Terrace are well maintained and attractive. The flat-roofed garage forecourt shares none of these qualities and is hardly a fitting setting for the church.

8.5 Settings

While the natural setting to Hayle is outstanding, the more intimate settings of important townscape elements and buildings are generally poor. As discussed above, Market Square in Copperhouse has some potentially good buildings, but the setting does not allow them to be appreciated, while the important buildings in Market Street are badly affected by their run-down setting. Despite the quality of distant views of St Elwyn's church, at close quarters, its setting is dominated by a petrol station. The outstanding buildings around Foundry Square are of sufficient quality to overcome some of the problems associated with their setting, with considerable potential for enhancement.

29. Rear of Drover's Row, looking towards Foundry Hill. The footpath network within Hayle allows penetration into every nook and cranny, and links Foundry, the Railway Station, the Quays, Copperhouse and the wider landscape in a way that gives great potential for town trails, cycle routes and exploration.

Phillack stands importantly isolated from the rest of Hayle and distinguishable as a separate identity, the open spaces downslope and around it are vital to this character. This also applies to Riviere Farm, where the open land acts as an essential foil to the urban intensity of Hayle itself.

As remnant pockets of a more ancient landscape, and as heavily planted and enclosed areas within a more urban context, the important green wedges of Penpol House and Bodriggy contribute much to the character of the town.

8.5 Permeability and accessibility

One of the positive features of Hayle is the network of paths, alleys, lanes, roads and open areas where there is also great opportunity for enhancement. Both from the tight urban nucleus at Foundry and the long strand of Copperhouse, there is easy pedestrian access to the Towans and the beaches. While there is immediate access to the south of the town to open fields, the by-pass does interfere with extended access into the wider countryside.

Access onto the quays, and especially the New Pier/Middle Weir (the central spit of land in the middle of the harbour) is considered to be one of the most crucial amenity assets of the town, these areas are well used by locals and visitors, providing them with access into the very centre of the estuary.

Hayle railway station, which could be the key to developing the pedestrian network in Hayle, already has a good choice of paths to various parts of the town and the quays and could be the hub of a much extended network of routes.

8.7 Current uses and issues

Hayle has unique and sensitive natural and built environments. While it is imperative to preserve and enhance those environments, this must be balanced against the serious economic and social issues in the area, some of which present opportunities for enhancement, while others are potentially harmful. The Civic Trust Regeneration Unit's *Hayle Action Plan* (1994) discusses many of the broader issues which can only be dealt with summarily here, and reference should be made to that document as well as the Cornwall Structure and Penwith Local Plans.

8.7.1 Development and regeneration

Hayle's industrial base, and with it much of its employment, steadily declined in the 20th century, particularly from the 1980s. The large harbour area has a decaying infrastructure supporting a relatively small amount of shipping. Local facilities and amenities are perceived by the local community to be poor (Civic Trust 1994), and there is some demand for local-needs housing in the area. These are broadly the issues behind the proposed redevelopment and regeneration of the Harbour and Foundry Square. A number of redevelopment proposals has been made over the last two decades, but so far none has been implemented. The scale of the problem has meant that the proposals have also been on a large scale, and this inevitably raises economic and infrastructure issues which are outside the scope of this study. There is, equally inevitably, conflict with environmental concerns; the natural environment may in some ways be even more sensitive to change than the built fabric, but the latter is of more particular importance to this report.

There are current and ongoing proposals being put forward for the Foundry and the harbour. These proposals and the issues relating to them are likely to become very pressing in the near future. Any development in these areas will affect some of the most important surviving industrial structures in Hayle, and indeed in Cornwall.

Development will also affect the wider setting of the settlement, and indeed the estuary as a whole, and some of the major buildings within it - notably the three churches at Lelant, Hayle and Phillack. Views across the estuary and into the valley in which the Foundry stands are vitally important to the character of Hayle. These views are amongst the best known in Cornwall, partly because they can be enjoyed from the A30, the main arterial route through the county.

At the eastern, landward end of Hayle, the effects of industrial and commercial development can be seen to be putting pressure on the setting and character of the town; the impact of the roundabout, Service Area and industrial park has been to reduce the clear demarcation of town and country, with development spreading beyond the historic area of Hayle for the first time in over 100 years, adversely affecting the approach to the town.

There has been pressure in recent years for more development of tourist facilities on the Towans, and both County and District Councils maintain a strong policy position against this, and have proposed management plans for the Towans.

The continued expansion of housing in the town in recent years has meant developing on greenfield sites on the edge of the built up area. Because of the local topography, with the valley slopes so open to wide views, this has given undue prominence to housing schemes which, while they may be adequate in themselves, have had a poor affect on the setting of the town, such as the estate north of Wilson's Pool (Amal an Avon).

8.7.2 Traffic management

Although the by-pass has eased pressure of through-traffic, the main road along the south side of Copperhouse Creek and into Foundry Square is still very busy with both cars and heavy goods traffic. There are clearly amenity and safety questions related to this, but it also has important implications for the built environment. The main road through Hayle remains very much a main through-route in its visual character, the scale and detailing of the street furniture, the width of the carriageway, the detailing and materials used in the road and pavements. The lack of reference of the streetscape to the character of the houses, shops, landmark buildings and open spaces which stand on the road is one of the most telling negative elements of the town's character. As part of the Harvey's Foundry proposals, enhancement of Foundry Square and its environs is likely to be a test area for the effective management of these issues.

8.7.3 Enhancement of the historic environment

Underlying all these proposals and problems is the need to protect and enhance Hayle's sensitive historic and archaeological environment. This was under threat for most of the late 20th century and continues to be so. Removal of many industrial structures took place in the 1970s and 1980s, and although there has been a marked change in approach by all interested parties, the poor state of many surviving buildings is still an issue in Hayle. Listed buildings are not immune from this problem - the listed quays are in some cases in danger of localised collapse [50] [127], buildings such as the stable block on North Quay [139] have become roofless and windowless since previously recorded by CAU (Buck and Smith 1995), or seriously decayed [159], and even unique structures like the swing bridge and its small engine house [128] are in a poor state. Other unlisted buildings of historic importance have been demolished altogether, like Trevassack Manor House [282].

One of the most harmful development programmes in recent years has been the redevelopment of the area to the south of Market Square in Copperhouse. While the industrial remains of the Copperhouse complex, such as they are, appear to be under little immediate threat, and indeed retain substantial industrial character, the housing which was associated with the earliest (late 18th century) period of development here has been swept

away. The site of Market Street, New Row, Trevassack Row and the chapel of 1816 is now a partially redeveloped housing scheme bearing only a limited relationship to the historic street pattern and building types which it replaced.

Small incremental changes made to more humble buildings have, as in so many other places, affected much of the character of Hayle. However, the buildings in the town are, by and large, robust in their materials and detailing and many changes are minor or reversible. The overall pattern of development and the large-scale topographical elements that define the character of the town, such as the sweeping curves of the waterside rows at Hayle and Penpol, still generally rise above the inappropriate changes made to the buildings and their setting.

9 Existing designations

9.1 Scheduled Monuments (Fig 12)

There are six Scheduled Monuments (SMs) within the study area. These largely reflect the importance of Hayle's prehistoric and early Christian past, particularly the concentration in and around Phillack Churchyard of early Christian crosses [255] [258] [264] and inscribed stones [259]. In the same category, but isolated from this main group, is the Cunaide Stone [30] at Carnsew.

Two monuments of the industrial era are also scheduled, these are the 1811 road bridge across Copperhouse Creek built of scoria blocks and known as the Black Bridge [234], and the early railway bridge [235] which carried the Hayle Railway (1837) across the same creek. However, no elements of the manufacturing, engineering, mining and production industries in and around Hayle are scheduled, nor is any part of the important and extensive system of quays and wharves.

9.2 Listed Buildings (Fig 12)

This section provides an analysis of the general coverage of the existing list rather than an item-by-item description which can be found in the Inventory in Appendix 3.

The last comprehensive Statutory List of Buildings of Special Architectural or Historic Importance for Hayle was produced in 1988, since when there has been a small number of additions. There are currently 129 listed items within the study area, although this represents a much larger number of actual structures, since some of the items include several structures within the listing, and many other structures will be protected by virtue of being within the historic curtilage of the main listed buildings. Of the 129 listed items, 10 are listed as Grade II*, and the remainder Grade II.

Some of the earliest surviving structures in the area are listed as well as being SMs (the early Christian crosses [255] [258] [264] and inscribed stones [30] [259]). The medieval parish church at Phillack [238] is also listed. The pre-industrial estate centres at Bodriggy [166] and Penpol [269] are both listed, and there is indeed little else of the pre-industrial period left in Hayle to be considered.

Remains of the industrial complexes in Hayle are listed, but coverage is inconsistent and structures have rarely been considered as part of integrated complexes or in terms of a themed approach. Thus, while Merchant Curnow's Quay [130], Carnsew Quay [48] [52], Copperhouse Dock [179], South Quay [50] and East Quay [127] are listed, North Quay [142] and Tremearne's Quay [468] are not, despite being as early or earlier than the others (between 1740 and 1811) and as well constructed and prominent. Although important mid 19th century structures on the wharves have been listed [136] [139], surviving 18th and early 19th century structures [175], [427], [428] have not been recognised for what they are, and none is listed. There are also later structures of quality and interest on the wharves which have no statutory protection [126].

The surviving industrial buildings at Harvey's Foundry are nearly all listed [3], [5], [6], [8-10], [19], as are most office and ancillary buildings associated with both major foundry complexes [17-22], [183], [186], together with most, but not all, of both farm/stables complexes [9-11], [265], [267]. Inconsistency is again shown in that both Foundry and Riviere farm houses [384] [463] are unlisted, suggesting they have merely been considered as stand-alone domestic buildings rather than as part of an integrated complex, which should elevate their historic interest.

Despite being important historic structures and major townscape features the important surviving walls belonging to the industrial complexes are not listed - some are the walls of buildings [24], [25], [187], some of enclosing yards [495] [566]. While the partly rebuilt scoria-block wall of the churchyard at Phillack is listed [257], the earlier, larger and less altered wall [566] around the copper smelter complex (which actually produced the blocks as a by-product) is unlisted.

Other listed industrial buildings outside the main centres include Loggans Mill [227] and the brewery complex in Sea Lane [158] [159].

While many of the listings, therefore, reflect Hayle's industrial history, and include a good range of industrial buildings, most of the structures chosen for listing clearly reflect other criteria and considerations. The majority are domestic properties, listed either because they are good surviving examples of 18th century (and therefore relatively early) buildings [170] [171], [182], [575], or because of their architectural qualities [69], [72], [77], [393-5], and not because of their historical associations or because they represent a specifically industrial type. The only examples of industrial workers' housing listed are 2 & 4 Mount Pleasant [154], included because of its architectural detailing, and 7-9 Millpond Avenue, which are very scenically located by the millpond, group with several large (listed) villas, and are curiously grand cottages not typical of Hayle. Some of the middle class houses in Hayle Terrace [147] and Commercial Road [152] [155] [156] are listed, again on architectural grounds, and others are listed because of the quality of their later shopfronts [119] [146] [275].

Both ecclesiastical and secular public buildings (including inns and public houses) are relatively well represented in the listings [115] [117] [123] [132] [133] [149] [172] [173] [177], although there are some omissions which may be due to over consideration of not necessarily significant levels of alteration [175] [176] [279] or late date [148] [391] [487].

9.3 Conservation Areas (Fig 12)

There are two existing conservation areas (CAs) within the study area (Phillack and Hayle Town), and a third just outside the western edge of the study area in Lelant, encompassing the churchtown and village centre.

The Phillack CA reflects the village character of the churchtown and is relatively tightly drawn around the historic core, although it includes the open areas of the churchyard and the terraced gardens of the Rectory. It is based on the quality of the existing built fabric within the churchtown, which is not quite consistent with its historical or archaeological extent, and only incidentally reflects the prehistoric and medieval origins of the site and the later industrial history of the area. Thus, although the CA boundary extends down Phillack Hill to include the mid 19th century rows on the west side of the road and Riviere Cottage (the former almshouses), other historic elements of the churchtown, including the old school [660] and the manorial pound [288], are outside the current boundary.

The Foundry CA is ostensibly more related to Hayle's urban and industrial past, but in fact it relates only to standing remains, and does not fully reflect the archaeological and historical framework of the area, nor the current townscape setting of principal elements within the CA. It is focused around Foundry Square south of the railway viaduct and includes the rows of houses and shops to the east of the Square (Chapel Terrace, Penpol Road) and the rows and large houses in Millpond Avenue and Foundry Hill. The boundary of the CA crosses to the north side of the railway line to include the landscaped terracing on the east side of Carnsew Hillfort. However, the core of the Foundry site (and of the CA as a whole) is excluded, and the boundary is tightly drawn against surviving buildings, so that their setting is to a large extent also excluded. The boundary excludes parts of all the

key elements of the settlement, thus some of the Harvey family houses in the wider area of Foundry are excluded, the full extent of the industrial area is not within the CA, and parts of the landscaping of Carnsew are also outside the current boundary.

9.4 Other designations

9.4.1 Statutory designations

Most of the estuary was designated as a Site of Special Scientific Interest (SSSI) in 1993 (Hayle Estuary and Carrick Gladden), including Carnsew Pool and excluding only the deep water channel serving North Quay, East Quay and South Quay. The Towans north of Phillack Church is also a SSSI (Gwithian to Mexico Towans, 1987). In addition, the estuary, apart from the deep water channel, is a RSPB Reserve.

9.4.2 Local and other designations

Details of other designations and policies affecting Hayle and maps showing the extent and location of areas concerned are contained in both the Cornwall Structure Plan (December 1997) and the Penwith Local Plan, Deposit Draft (1998).

The whole estuary, including the deep water channel, has been designated by the County Council as an Area of Great Scientific Value, and is also a Cornwall Nature Conservation Site. Additional Structure Plan Policies of relevance include the following.

- ENV 3 Conservation Area/Listed Buildings.
- ENV 11 - re-use, adaptation and conversion of existing buildings, where the development would not detract significantly from the character and amenity.
- ENV 12 - respecting local distinctiveness in built and natural environment in new development, materials, siting and design.
- Tour 3 and 4 - tourist development should be encouraged to protect important heritage sites.
- The Towans, from Hayle to Godrevy, are already the subject of a County Council Management Project designed to protect the habitat of the dunes, to prevent their erosion, and to manage the large number of visitors.

Penwith District Council has in place or proposed in the Draft Local Plan a whole raft of policies for the protection and enhancement of the historic and natural environment, and to encourage economic regeneration. It is not proposed to discuss these in detail here, and reference should be made to the Plan. In summary, the following policies apply.

- Open Areas related to Settlements Policy TV2 - important for setting of current CAs, and for setting of the settlement as a whole.
- Tree schemes Policy TV5 - particularly important in relation to Carnsew.
- CA Policy TV6 - standard CA or its setting.
- Shopfronts Policy TV7 - shopfronts and commercial premises in CA.
- Policy TV8 - signs and illuminations in CA.
- Policy TV13 - traditional shopfront details.
- Listed Buildings Policy TV10 - development affecting a LB or its setting. Policy TV11 - development leading to demolition or partial demolition of a LB or a building that

makes a positive contribution to a CA. Policy TV12 - replacement windows and doors in a LB.

- Buildings of Local Significance Policy GD8 - conversion and re-use of buildings of local social or historic significance or which make a positive contribution to their surroundings must retain historic or architectural features and respect setting.
- Reclamation of derelict land Policy TV15 - must make positive contribution to regeneration, and an improvement in attractiveness of built environment, and use be compatible with surroundings.
- Paras. 7.3.106 - 7.3.130 of the local plan deals with specific polices relating to Hayle, referring to town centre shopping and use policies and a general regeneration and planning strategy. Policy TV32 - encouraging redevelopment of the quays and the foundry yard within constraints of compatible use, retaining important buildings and scale and design reflecting local characteristics.
- Policy TV33 - relates specifically to the Harvey's Foundry site and the provision of a heritage centre (refers also to Structure Plan policies Tour 3 and Tour 4).
- Copperhouse Pool is in addition identified as a recreational area, and a policy is proposed to promote this use and to limit development to only this use, within the context of the natural environment conservation designation affecting the area (Policy R-4).

The more important of the general local designations from the point of view of the Hayle Historical Assessment include the proposals in the Local Plan for a number of Open Areas Related to Settlement (Policy TV - 2) around Hayle. These are open areas perceived to be of importance to both the amenity and setting of towns and villages. In these areas, proposals for development which would result in the loss of, or have an adverse effect on, the local environmental value of the open areas will not be permitted. The proposed areas are: Carnsew Hillfort and landscape; the area to the north of Carnsew Quay (the New Pier/Middle Weir); Millpond Gardens and the fields to the south east towards Barview Lane; Ellis Park near Penpol House; the field between High Lanes and Trevassack; the fields on the northern slopes of Copperhouse Pool behind and between Clifton Terrace and Phillack Churchtown, and east of Phillack Churchtown to Lethlean Lane. These designations in effect cover the setting of the town, the backdrop to the existing development along the lower slopes around the estuary, and the important spaces between the constituent hamlets and other foci of the settlement area.

10 General recommendations

10.1 Statutory protection

10.1.1 Conservation Area revisions (Fig 12)

Perhaps the most pressing requirement in Hayle is the need to extend the existing CAs. Any area of special architectural or historic importance, with a distinct and special character, based either on archaeology, standing buildings, historical development and with recognisably special qualities can, and indeed should, be made a CA. Local Authorities have a duty placed upon them to identify and designate such areas, and to review their existing areas. Most of pre-Second World War Hayle is an area of special character, and of unique and outstanding importance.

That some parts of the historic core, (such as part of the Foundry site, or the market street area of Copperhouse) have been demolished in recent years should not justify the creation of doughnut-like holes within a CA, since CAs can include areas that may have limited apparent merit, but are an important element in the overall historic or architectural context or are visually important to the setting of the area. CAs are a means of managing the best new work as well as preserving the best of the old.

It is recommended that the whole of historic Hayle be designated a CA (see Fig 12). This proposed extension to the two existing CAs at Foundry and Phillack is based upon the premise that the town, and the industries and harbour that created Hayle, are so integrally linked that all relevant elements where they survive should be included. It may be appropriate to subdivide the large area proposed on the basis of the different historic centres at Foundry and Copperhouse (reflecting the ancient boundaries of the two parishes and the two late 19th century Urban District Councils) and certain other areas, especially Phillack, which continue to maintain separate identity within the overall settlement area.

Although outside the study area, the importance of the Towans area has been recognised both by the Local Plan and by the Civic Trust's *Hayle Action Plan*. The recommendation in that report for a CA based on the historic and scenic qualities of the group of early 20th century holiday chalets on the Towans, should be seriously considered and followed up at the first opportunity.

10.1.2 Review of Listed Buildings

A review of Listed Buildings in Hayle is appropriate, and should be based on a thematic approach, taking into account the interrelated histories of many of the surviving buildings. A particularly urgent requirement in the light of current development proposals is for a detailed survey of the quayside furnishings, such as bollards, mooring posts, steps and slipways etc, which has only been partially possible during the present study. Preserving a few key structures, or looking at different building types in isolation will not reflect the full historic importance of the buildings in either their local or their national context. The following list of potential candidates for LB status is based on an initial rapid appraisal of the surviving buildings, and should not to be taken as a definitive list of suggested additions.

10.1.2.1 Hayle Harbour

North Quays (especially easternmost) [142]

Sea Lane [441]

Store building, East Quay [427]

Corrugated-roofed store on East Quay [579]

East Quay house [428]

Bollards and mooring posts throughout Hayle should be considered as possible separate items from quays, especially those not on quays, like [533] at Copperhouse

Grigg's Quay - quays [615] and [619]; possibly the inn [616]

Riviere/Parc-an-dix scoria walls [444] [446]

10.1.2.2 Copperhouse

Phillack Church Hall [175]

The row attached to the CCCo offices [536]

Copperhouse Chapel boundary wall [525]

Best of Bodriggy Street (east end of [587])

Copperhouse walls, [566] [567]

Parts of Ventonleague Row [488 - 491]

Ventonleague Chapel and railings [279]

Some of the Ventonleague Cottages [500-503]

Caroline Row, Ventonleague [189]

Beatrice Terrace [331]

St George's Hall (Cinema) [176]

Copperhouse, Ropewalk walls [187]

10.1.2.3 Foundry

No. 9 Chapel Terrace [274]

Ramped walks at Plantation, Carnsew [36-41]

More of walled garden complex, Carnsew [60-65]

Foundry farmhouse [384]

Mellanear Smelter survivals [369], [75]

Hammer/Grist mill/Ropewalk complex, Foundry [24] [25] [54] [379] [380] [381]

Carnsew timber store [45]

10.1.2.4 Other areas

Penpol Terrace, various houses [276]

Hayle Terrace, various houses [145]

Henry Jenner's house, St Michael's Hospital [363]

Walls and outbuildings around Penpol House [400-403]

Boundary stones [437], [438], [537], [561]

Trevassack Parc cottages [590] and house [591]

60 Guildford Road [598]

Riviere farmhouse [463]

Penmare [226]

House on corner of Carwin Rise/Guildford Road [515]

10-12 Guildford Road [Terrace [331]

Phillack, scoria-built houses [458], [459]

Some of the early 20th century holiday chalets on the Towans (outside study area)

10.1.3 Locally significant buildings

A list should be prepared of local buildings that add significantly to the character of the area, and a Buildings at Risk Register should also be prepared. These should underlie both policies for protection and enhancement in the Local Plan, and also provide a database for future studies and design guidance.

An integrated approach to investigating, recording and managing the archaeological and historic fabric in the key areas of Hayle must be adopted. The approach set out by the Harvey's Foundry Action Plan should be adopted as a matter of priority, creating a forum for all the interested bodies in the Town, such as the District and Town Councils, the Hayle Town Trust, Harvey's Foundry Trust, the Harbour Company etc. There is considerable scope for more detailed survey of specific elements of the historic environment. - a particularly urgent requirement in the light of current development proposals is for a detailed survey of the quayside furnishings, such as bollards, mooring posts, steps and slipways etc, which has only been partially possible during the present study.

10.2 Policy and management

10.2.1 Management and enhancement of the historic environment

Future consideration of development proposals should take into account the importance and sensitivity of the surviving industrial buildings and related structures and townscape. Many of these are in extremely poor condition, and some form of investment is needed, but, as existing Local Plan policies emphasise, this needs to be achieved without harming the historic fabric and character of the area. Proposals which affect views across the estuary and into the valley should be considered as seriously as proposals affecting individual buildings.

10.2.2 Policy framework

The existing National, Structure Plan and Local Plan policies provide an adequate framework for future management of the historic environment in Hayle. Some elements of these policies could be developed to provide effective management tools, notably Policy TV 2 in the Local Plan regarding Open Areas Related to Settlement.

10.2.3 Supplementary Planning Guidance

The series of Guidance Notes produced by English Heritage on the management of historic buildings and areas should be adopted, where relevant, as Supplementary Planning Guidance by the District Council. All design guides should take account of these notes and those produced by the National Amenity Societies (for instance the Georgian Group and Victorian Society) as well as the best examples produced by other local authorities.

30. South Quay and the railway viaduct. Even in a decayed industrial landscape there is interest and quality. This can be exploited now, and new development should always take care not to overwhelm or sterilise a living space.

31. Loss of character in the oldest part of Copperhouse - Copperhouse Dock, with Market Square and Market Street behind. The dock is now dominated by a supermarket, much of the earlier terraced housing in Market Street has been demolished (and built over with modern housing since this photo), and the chapel standing in the top right hand corner of the vacant plot has also since been demolished. However, good quality commercial and public buildings survive in Market Square and this still attractive space has great potential for enhancement. The Black Road and the scheduled Black Bridge traverse Copperhouse Creek in the foreground. (CAU 317/11/568 380, 1989).

10.2.4 Conservation Area assessments

Any revision of the CAs must be accompanied by detailed Character Studies and Statements as required by the Planning (Listed Buildings and Conservation Areas) Act 1990, and detailed enhancement proposals for the key areas of the CA. These should cover not only the buildings, but, perhaps just as urgently, settings and streetscape issues.

10.2.5 Design guides

A detailed design guide is required for Hayle. County-wide or even District-wide guides are not sufficient to protect and enhance the specific local qualities of Hayle's built heritage; what is needed is an approach based on the character of Hayle, rather than the currently prevailing national standards governing road design and housing densities. It should focus on issues such as appropriate alterations and uses for historic buildings, use of materials and detailing etc, and establish a set of design principles for new development in Hayle. It should also cover issues of landscaping and surface materials. A shopfront design guide should be an essential part of this, based on local detailing and examples.

32. Foundry Square. Traffic management is required not only to improve noise and air pollution - visual pollution is also a major problem.

10.2.6 Traffic management

Traffic management and calming proposals must be fully integrated into the enhancement programme and design parameters set for the town, and priority given to enhancing the pedestrian network, thereby enhancing the existing character of the town.

10.2.7 Tree preservation

A full and detailed tree survey should be a priority. Although protection for trees will be covered by an extension of the CA boundaries, if these are not extended, or if important areas of trees are left outside the wider boundaries, Tree Preservation Orders should be made on the best groups and individual specimens.

10.2.8 Natural environment

The natural environment designations should be reviewed, and management proposals integrated with those for historic and archaeological sites where the two coincide. Existing initiatives should be developed, such as the Countryside Stewardship programme and the Penwith Coast and Countryside Management Service, which could be developed to take more account of historic and archaeological significance. The proposed management plans for the Towans are still urgently needed to prevent further erosion of character which, like the harbour development, could have serious implications for the wider setting of the town.

10.2.9 Marketing and presentation

Hayle has a unique heritage and character, and one of the most crucially effective policies for the future will be the successful marketing of that character, and its integration into the wider setting of Cornwall's history and culture, both through accurate and meaningful publicity and marketing, and through physical integration into long-distance footpaths and cycle-routes, and in county wide visitor and tourist trails.

11 References

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12 Project Archive

The CAU project number is 1999084.

The project's archive is housed at the offices of Cornwall Archaeological Unit, Cornwall County Council, Kennall Building, Old County Hall, Station Road, Truro, TR1 3AY. The contents of this archive are as listed below.

1. A project file containing site records and notes, project correspondence and administration.
2. An information file containing copies of documentary/cartographic source material.
3. Colour slides and colour prints (deposited with the archive but not indexed).
4. The main text of this report is held in digital form as: H\DOCUMENT\SITES\SITES H\HAYLE HISTORICAL ASSESSMENT 1999084\MAIN TEXT
5. The inventory of sites in the report (Appendix 3) is held in a digital form as: H\DOCUMENT\SITES\SITESH\HAYLE HISTORICAL ASSESSMENT 1999084\INVENTORY
6. The information in the Figures 12 to 16 is held in a digital form as: G\Avdata\Smr_data\Hayle
7. Figures 1-11 are held in a digital form on CD as Corel Draw images.

Appendix 1: Previous archaeological recording in Hayle

A number of archaeological or historical investigations have previously been carried out in Hayle, mainly by Cornwall Archaeological Unit (CAU), briefly summarised below.

A1.1 Foundry Square: archaeological assessment and evaluation, 1993 & 1995

Harvey's Foundry site: information about the history of the site and the sequence of buildings that were constructed on it; a record of the surviving structures; establishes the impact of the Guinness Housing Trust development on below ground remains. (Smith 1993, Smith and Buck 1995).

A1.2 Hayle Town Survey, 1993-5

A short history of Hayle, Harvey's Foundry, the Cornish Copper Company and other industries; a gazetteer of Listed Buildings, Scheduled Monuments and other historic structures and archaeological sites (with a one-line entry for each); hand-annotated maps showing the location and extent of the 190 items listed in the gazetteer; a brief assessment of the current state of the historic resource; and some general recommendations for its future conservation and management.

A1.3 Hayle Estuary Historic Audit, 1997

Commissioned by the Environment Agency and carried out by the Trust for Wessex Archaeology, this audit covered the immediate environs of St Ives Bay and the Hayle Estuary, with Clodgy Point and Godrevy Point marking the coastal limit, and the study area extending as far inland as St Erth and Loggans Mill. Records archaeological sites and historic structures which are estuary specific by virtue of their location and/or function: the harbours of Hayle and St Ives, together with other sites associated with coastal fortification, waterside and water-related industry, or maritime trade, communications, safety and regulation. The results are contained in a report (Wessex Archaeology 1999) and take the form of a gazetteer.

A1.4 Listing assessment for Harvey's Foundry properties, 1998

Limited research into buildings in the area surrounding the foundry site which were associated with Harvey's Foundry and which are potential candidates for Listing. A brief historical description of each building was produced, together with a GIS generated location map.

A1.5 GIS mapping of Harvey's ownership and archaeological potential, 1999

CAU subsequently extending the GIS mapping of historic structures to include South Quay and the Foundry site, in order to inform the County Archaeologist's response to a planning application for redevelopment of Hayle Harbour (see A3.@ below).

A1.6 Gravel mine watching brief, 1999

A modern housing development to the west side the foundry site, within one of the historic walled garden plots, recently exposed remains of a gravel mine. A brief site visit was made by CAU and the remains were also viewed by others interested in the history of the site.

A1.7 Excalibur's site visit, 1999

The present building incorporates: parts of the original pre-1800 foundry, yard, and office block; the new, pre-1845 office block (with clock tower) and strong rooms; and the pre-1880 wooden drawing office. A brief report of the results of CAU's visit was produced in the form of a letter to Councillor Rob Lello.

A1.8 LRP assessment of the western part of Harvey's Foundry site

An assessment of surviving historic structures was carried out within the Foundry site as part of a bid to the Land Reclamation Programme (LRP) for consolidation of these structures; inventory of sites tied to a location map generated using GIS mapping (Smith 1999).

A1.9 Harvey's Foundry Action Plan

Gordon Lewis Associates have recently produced this Action Plan for Cornwall Enterprise Company, who are acting as financial and technical agent for the Hayle Town Trust. The Plan identifies the best way to achieve a long term sustainable re-use of the site which has regard for its historic character and importance (Gordon Lewis Associates, 2000). CAU provided the historical and archaeological input to the Action Plan with guidelines for preservation and interpretation.

Appendix 2: Current and future initiatives

A2.1 Cornwall Industrial Settlements Initiative

Cornwall's industrial settlements are currently the subject of a Conservation Area Partnership under the heading Cornwall Industrial Settlements Initiative (CISI). The aim of CISI is to produce a settlement by settlement analysis in order to obtain an overview of the history, present character and importance of Cornwall's industrial settlements. This will help determine where, for example, new Conservation Areas should be designated (and existing ones revised), and could provide the basis for Conservation Area Statements (to be drawn up subsequently by District Conservation Officers). The results of the Hayle Historical Assessment will be integrated into this initiative.

A2.2 Extensive Urban Survey

The Extensive Urban Survey (EUS) is a nation-wide English Heritage initiative involving a systematic assessment of the country's towns in order to guide the management of the urban archaeological resource.

There are 40 settlements of varying sizes which are candidates for inclusion in the Cornwall and Scilly EUS, and Hayle (with Copperhouse and Phillack) is one of these.

The EUS has the following aims.

- To identify sites and areas potentially of National Importance.
- Provide a framework of policies, agreed with Local Planning Authorities, and linked to a map base, to guide implementation of PPG 16 and PPG 15.
- Provide a consolidated database to guide the response to proposals within the towns.
- Develop an enhanced research framework for archaeological conservation and recording in the towns.

The results of the Hayle Historical Assessment will be integrated into this initiative.

A2.3 Harvey's Foundry LRP – archaeological recording

An LRP grant has recently been secured for initial clearance and consolidation work at the Foundry site. This includes provision for some initial, small-scale archaeological recording (including making a general photographic record of the standing buildings and evaluation trenching).

A2.4 Harvey's Foundry Action Plan – archaeological recording

The Action Plan includes a phased programme of archaeological recording work -historical research, detailed standing fabric recording, evaluation trenching and an archaeological watching brief. This work is scheduled to take place prior to and during the redevelopment of the site.

A2.5 Hayle HERS

A Heritage Economic Regeneration Scheme has been agreed with English Heritage as part of an integrated package of grant aid being sought by the Local Authority to enable the regeneration of the Harvey's Foundry site and the existing Hayle Town Conservation Area. The HERS scheme will run for three years from April 2000, allocates £100,000 from English Heritage each year, to be match funded from a mixture of other private and public

sources, and is aimed at the repair, reinstatement and re-use of both listed and unlisted historic buildings in the Conservation Area.

A2.6 Hayle Harbour Redevelopment

An outline planning application is being prepared for the redevelopment of Hayle Harbour for mixed retail, leisure, industrial, residential, and business use. The proposed scheme will have an impact on the historic character not only of the harbour, but also of the surrounding town and estuary. The results of the Hayle Historical Assessment will be available to the Local planning Authority and to the developer.