

Old harbours in northern and western Scotland

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INTRODUCTION

The purpose of this paper is to carry forward, to the north and west, some studies already made of old harbours on the adjoining coasts (Graham 1968; 1969; Graham & Truckell 1977; Graham 1979a; 1979b; 1984). The part of the coast covered by the present study runs northwards from the opening of the Inverness Firth and then westwards and southwards, returning as far as the head of Loch Fyne. The review was not carried further into the Clyde approaches for the reason that the estuary ports have undergone such extensive industrial and commercial development that useful evidence of their earlier condition can now hardly be looked for. The terminal date has been set at 1850 to take advantage of the *Parliamentary Report on Tidal Harbours* that was published in 1847.

Whereas the first two of the earlier studies were based on their author's observations of existing structural remains, the present paper is based on documentary evidence, much of which was collected and reviewed by the original author. This has been supplemented by some further work, including visits to 110 sites, by the surviving collaborator. Descriptive notes are presented of those harbours which possess historical backgrounds or regarding which some significant fact is recorded. A great many sites of little general importance are listed with references and brief comment. The larger harbours are identified in the text and on the maps by small capitals, while the lesser sites are denoted by lower case Roman type. In the text, the name of each site is followed by its national grid reference. In fact, so much of this coastline is so well provided with minor customary landings, used by local fishermen and traders, that an attempt to include them all would collapse of its own weight. For example, inspection of the Ordnance Survey [OS] maps, particularly of Gaelic speaking areas, will disclose a very large number of coastal place-names containing the element 'port'. For a similar reason, the review as a whole has been confined to the mainland. The sites are taken in topographical order in a counter-clockwise direction, with an alphabetical list in Appendix 2.

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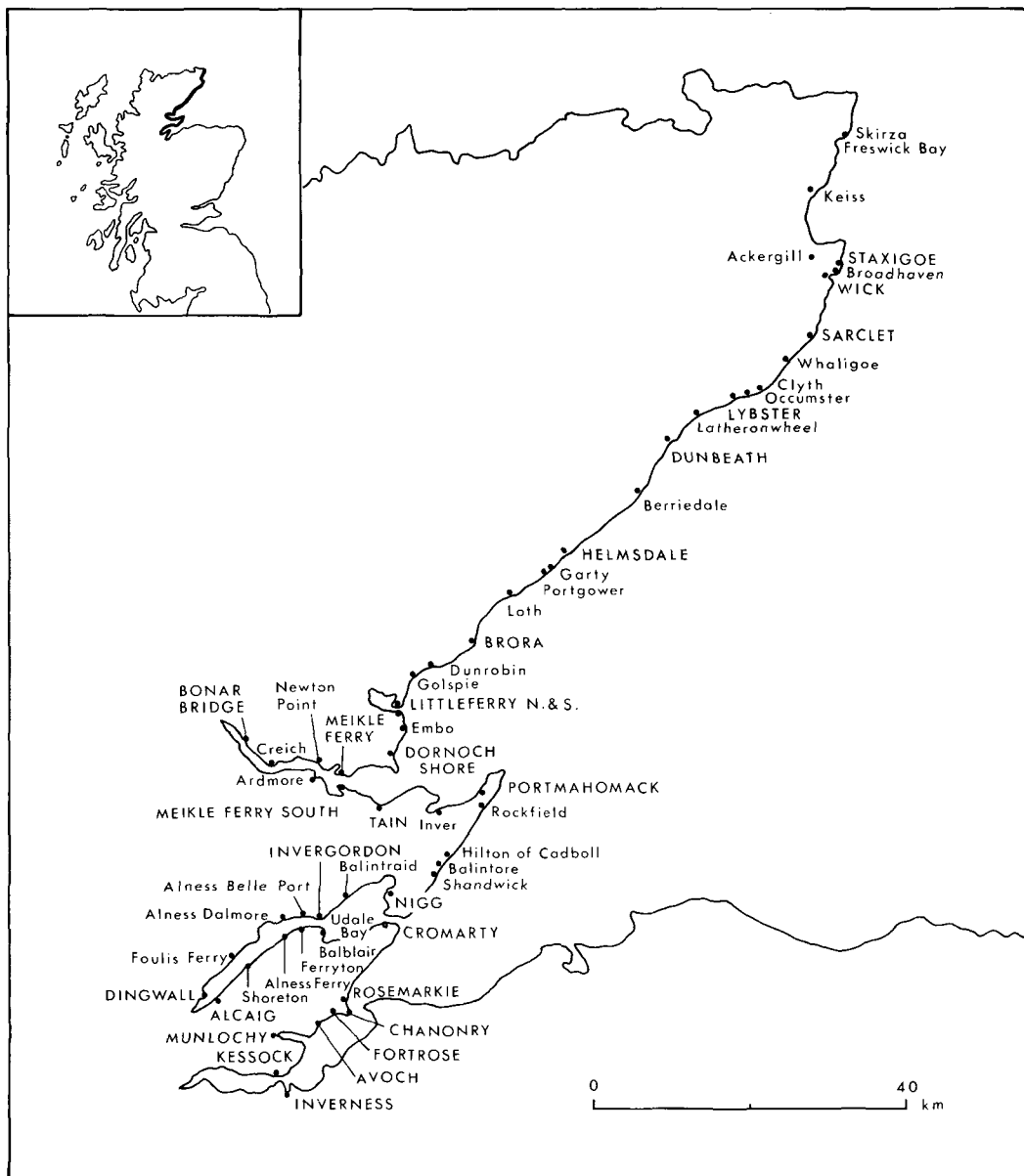
It may be thought that this method of treatment tends to give undue importance to the sites of the eastern seaboard but two points must be considered here, namely the physical character of the coast itself and the quality of the associated hinterland. The manner in which the Atlantic seaboard is broken up and penetrated by long sea lochs is sufficiently well-known, and was obvious enough even to compel the notice of the invading Romans. Tacitus (Tacitus, 10) describes this in singularly apposite language. 'Nowhere', he says, 'does the sea rule more widely, many tidal currents setting hither and thither; nor does it rise as far as the shore and the ebb, but flows far inland, going round and about as if in its own domain' (. . . *nusquam latius dominari mare, multum fluminum huc illuc ferre, nec litore tenuis adcrecere et resorberi, sed influere penitus et ambire, et jugis etiam montis insere velut in suo*). These great arms of the sea, and the multitude of lesser but often considerable inlets, have provided the very large number of natural havens in which fishing boats could be based or could find temporary shelter, and light cargoes of commercial craft could be worked by rowed boats or over a beach. Such undeveloped customary landings are not, of course, peculiar to the Atlantic seaboard as they occur equally on the north and east coasts and call for the same treatment there. The influence of their respective hinterlands on the eastern and western coasts is likewise of considerable importance. The contrast between the modest prosperity of the eastern shore, enjoying tolerable conditions for agriculture and comparatively easy access to southern and overseas markets, and the aptly named 'wet desert' that backs so much of the west, strikes home at once and need not be stressed further.

In the course of the harbours' development a series of phases may be seen. Who first caught fish in these waters, or at any rate caught them from a boat rather than in a land-based trap, is a question to be put to prehistorians; but fishermen must have been at work from very early times, originally no doubt for subsistence. Their activities would naturally have given them a thorough knowledge of all practicable landings, as well as of convenient stretches of beach for boat-work and, in due course, of suitable sites for settlement. As culture advanced to the stage of supporting a class of primitive traders and pirates, perhaps not readily distinguishable, such incomers would rapidly acquire whatever of local lore as promoted their own purposes; and thus the mariners who served the overseas trade of regular medieval merchants may well have inherited the experience of 4000 years or more. At the same time fishing retained fundamental importance, and sometimes was still, no doubt, carried on in a primitive fashion. A post-medieval phase, in which powerful interests were playing an increasing part in commercial affairs, leads on, in the 18th century, to one typified by the development and improvement of rich men's estates; and among the improvements entailed were the building of harbours for boats at regular fishing stations, a movement encouraged by the frequency with which large shoals of herring visited certain areas at this time. As a special case of such improvement there may be seen the establishment of coastal settlements accommodating some clearance victims, whose land had been taken for sheep-farming. The connection between improvement, so well-known as an agricultural phenomenon, the development of fishing stations and their harbours and the institutionalization of the landed proprietors' initiatives appears in the original form of the name of the body which later became the British Fisheries Society. The joint stock company of 1785 was entitled, *The British Society for extending the fisheries and improving the sea coasts of the Kingdom* (Dunlop 1952, 1). The east coast was to see more of the lasting improvements, but the Society began by selecting a west coast site – Ullapool – on which to found a fishing port and build a harbour.

Ferry terminals, too, were further developed at this time, and constituted essential links in all coastal routes in northern Scotland until the present century, while some served, and have survived still to serve, fishermen and traders. The latest phase of the small harbours' history has been their obsolescence in the face of steam navigation and good roads. Fishing, however, seems to have maintained its importance as in all previous history, while ferries are only now, with the sole exception of Corran, finally disappearing.

THE NORTH-EAST COAST: INVERNESS TO DUNCANSBY HEAD (illus 1)

The east coast may be seen as consisting of three contrasting sections. From Inverness to Golspie much of the shoreline is flat and sandy, though there are rugged outcrops. The near hinterland, especially the Black Isle, is agriculturally productive. It is, however, deeply incised by the Moray, Cromarty, and Dornoch Firths, and Loch Fleet. From Brora to Wick the coastline is rocky, rising to impressive cliffs where the Ord of Caithness meets the sea above Berriedale. Small areas



ILLUS 1 Map of the north-east coast

only of agricultural land exist near the mouths of some rivers, in a few of which there are harbours. The characteristic small harbour site of this coast is the 'goe', a fault in the cliff-line, making a narrow inlet only to be reached by a steep track or even steps, down as much as 300 feet from inhabited levels (illus 2). The northern third of the coastline, from Wick to Duncansby Head, backs on to the plain of Caithness, bleak indeed, but always more habitable than the mountains of the south-west. The sands of Sinclair's Bay and Freswick Bay interrupt the rocky shoreline, and harbour sites, other than the problematic mouth of the River of Wick, are restricted to small pockets in the rocks.

In the southern section Inverness has some history of maritime trade, but most harbour works on the shores of the firths relate to the development of a system of communications for an area ill-served by roads until very recent times. Ferries for people, animals and merchandise are numerous. The great development of herring fishing in the 18th and 19th centuries led to some harbour building, for instance at Cromarty and Portmahomack. In the two northern sections, however, most of the harbours were built primarily to serve that fishery. There are small customary landing-places, some, like Sarclet, in narrow and precipitous 'goes', where piers, breakwaters, spending beaches, and fish-curing and store houses were expensively constructed, and used, at most for a few decades. Wick, though much needed as a harbour of refuge, proved unsuitable for that purpose, and achieved only modest development as a centre of trade and communications.

The ferry crossings of the firths in the southern sections were less exposed to wind and sea than were the harbours of the North Sea coast, but local hazards dictated in most cases the provision of two terminals at each end. Kessock is, however, the only ferry to have had four piers of equal, or nearly equal, size and solidity (of which three survive). Emergency piers elsewhere were often smaller



ILLUS 2 Whaligoe: the steps from the southern lip of the goe

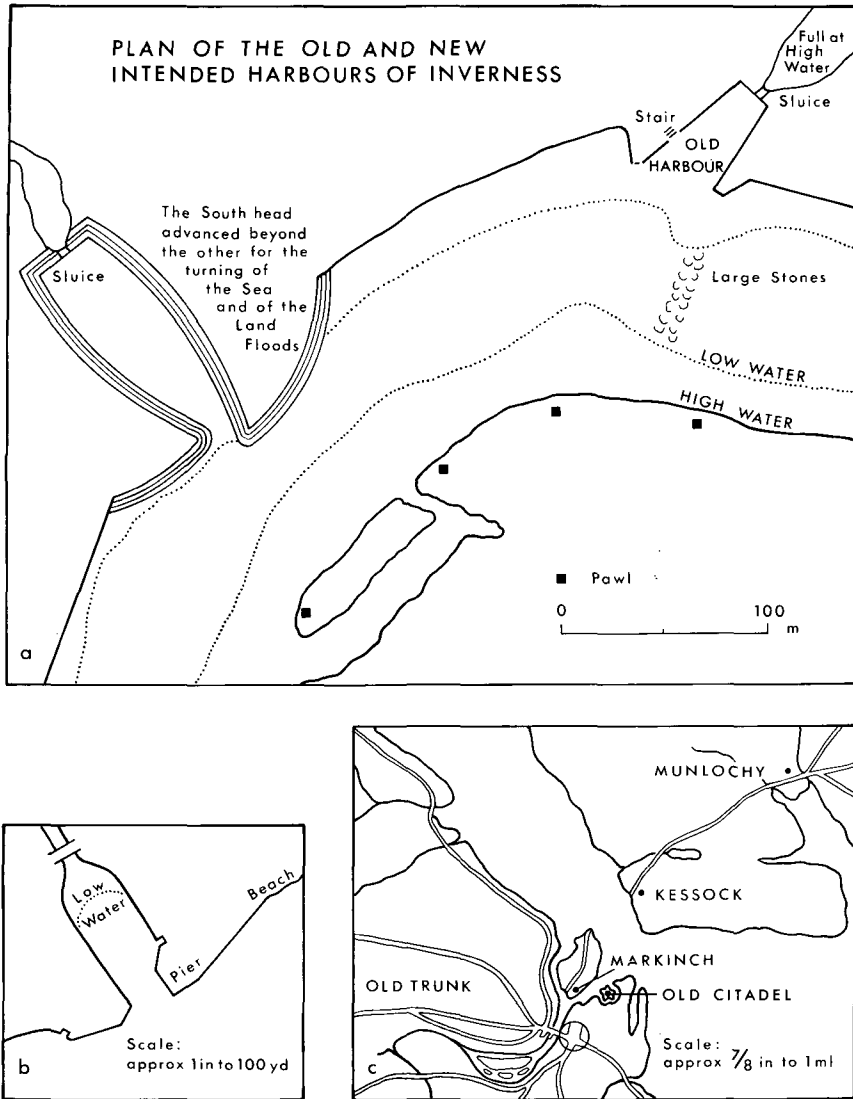
wooden structures, many of which have disappeared. Some ferries developed at their main terminals passenger traffic and commerce with distant ports. Such development was characteristic of ferries near the sea openings of the firths, because these were less liable to silting as well as being close to the main sea routes. On the other hand, some passengers and much of the local produce had further to go to reach, for instance, Chanonry of Ross than Dingwall, hence the efforts kept up well into the 19th century to build a harbour even at Dingwall.

INVERNESS NJ 665 460 (illus 3 & 4)

Summary

Development of the harbours of Inverness up to 1850 took place in three main stages, focusing successively on particular sections of the river banks, the sites respectively of the three harbours being mentioned in the *New Statistical Account*. From the earliest times to the 17th century, the right bank at the Maggot, where fords connected the beginnings of the town with the Merkinch and Kessock ferry, served fishermen, shipbuilders, and traders with the outside world. The second phase, of extension downstream on the right bank, saw the siting of the Cromwellian Citadel between the Maggot and the sea, in a position to control both access to the original harbour and the Merkinch road to Kessock. The new harbour in the south ditch of the Citadel, and the Old Quay as re-planned before 1821, failed to accommodate all the developments of communications and trade as these expanded after 1745. In the third phase, the Merkinch ceased to be an island, facilitating development on the left bank, with Thornbush Quay as its focal point.

It is idle to speculate on the origin of the port at Inverness, as historical records fail us; at the same time, the site obviously possesses such natural advantages as would have attracted sea-going people at any period. The delta of the River Ness provided, up to the late 18th century, more than one mouth for the river. Its conformation, even the numbers of islands, may have changed considerably from time to time. The main island in medieval and early modern times was the Merkinch, the northern tip of which forms the south shore of Kessock narrows, at the mouth of the Beaully Firth. Views of Inverness in the 18th century, including the drawing by P Sandby made in 1774, show water flowing in the Nabon, between the Merkinch and the left-bank mainland. The crossing of the Nabon at Bowbridge, later called 'The Stones', was wet within the memory of persons alive in 1881, and the area on the right bank known as the Maggot was thought to have been an island in the 16th century (Ross 1883, 66, 67). Avery's map (1725–30) also shows the Merkinch as an island (illus 3). Fords existed, one near the head of the tide above the bridge commanded by the Castle, and two to the Merkinch, near the precursors of the modern Waterloo and Railway bridges. Wordsworth (1982, 388–9) has recently suggested that the level ground on the right bank near to these fords and to the parish church is likely to have been the site of the burghal nucleus. A settlement here would always have enjoyed shelter among the islands of the river mouth for its boats, and access at a distance of less than two miles to the safe and extensive anchorage in the Kessock narrows, on a natural east–west traffic route linking Moray with the Beaully district and Strath Farrar. Supplies of shipbuilding timber would also have existed up-country, with the River Ness available for the driving of logs. In view of these facts it is unlikely that so attractive a potential port would have lain unused until an Anglo-Norman burgh was created by a 12th-century King of Scots; and it is probably safe to think of a customary landing or landings in the estuary as having long been used by communities of fishermen, traders or pirates. In historical times, again, whatever may have been the date of the town's erection as a Royal Burgh – a point which does not seem to have been clearly established – it is hard to imagine any trading community, irrespective of its legal status, failing to provide itself with organized shipping facilities of one kind or another. This seems to apply to Inverness with particular force in view of its later reputation as a shipbuilding port.



ILLUS 3 Inverness: details copied from three early plans:
 a *Plan of the old and new intended harbours of Inverness*, c 1729, based on a plan in the archive of the Highland Regional Library, Inverness, made available by courtesy of Mr A B Lawson. This is a larger scale version of the central harbour area as projected according to the plan initialed A. M. (INVMG 244), differing, however, in that this is the only record seen of a sluice being thought of as a way of scouring the old harbour
 b Plan of the citadel ditch harbour, 1841. No sluice appears
 c The mouth of the river Ness in 1730, based on Avery's plan. The Merkinch is an island and the citadel ditch is open all round

The history of the harbour as it developed in later times should be viewed in the light of a passage in the *New Statistical Account* (NSAS, Parish of Inverness, V14, 28) which states that three harbours were made at different times in the mouth of the River Ness. The writer may be supposed to have had in mind (1) the Old Quay, situated in modern terms between the Waterloo Bridge and the

railway viaduct; (2) the Citadel Quay, adjoining Cromwell's fort; (3) Thornbush Quay, on the left bank of the river and further downstream. The burgh presumably enjoyed full liberty in the choice of sites for its harbours, as a charter of 1641, which purports to confirm earlier unquoted charters dating back to William the Lyon (*APS* 5,538), specifies as burgh property '... all portes, heavines and cruikes' on both banks of the water of Ness, from a stone known as Clash na haggag to the sea, together with the fishery landing places at North and South Kessock and the right of working the ferry.

The position of the Old Quay is given by A D Cameron (1975, 232) and his conclusion is supported by Wood's Plan of Inverness, of 1821, and the Report of the Boundaries Commission of 1832. Earlier evidence comes from a Macfarlane document of the 17th century (Macfarlane *Geog Coll*, 1, 204), which alludes to a road to the harbour distinct from another leading to Kessock ferry, the former presumably following a line corresponding generally with that of Church Street; while Slezer (1693, pl 34) shows in his view of Inverness three good-sized boats berthed at the point in question with smaller boats beached nearby. G Cameron (1847, 33) would appear to place the site further upstream, as he states that the 'oldest part of the harbour was built in 1675', and this would imply a connection between it and the seven-arched masonry bridge near the Castle, which was, in fact, built at about that date – 'lately' as Slezer put it in 1693 (Slezer 1693, 44). However, a bridge was recorded in the early 17th century (Macfarlane *Geog Coll*, 2, 403) and in 1596 a bridge and harbour were both in need of repair (Marwick 1866, 1, 489) all of which suggests that G Cameron confused two bridges, applying to the one mentioned in 1596 the date 1675, which belongs properly, as has been said, to the stone bridge near the Castle. No weight need therefore be given to his dating of the harbour, or to whatever this might seem to imply in respect of position.

For the old harbour's true, or at least approximate age, evidence is given by the record of 1596, as quoted above. That is to say, the works, whatever they were, must presumably by that date have been standing for a longish time to have earned the epithet 'decayit', and to require an impost for their repair. This fact might well put their origin back to the beginning of the century or earlier. Repairs were again being discussed in 1660 (Marwick 1878, V3, 504). The harbour of the early 17th century was described as treacherous, and able to take only small craft (Macfarlane *Geog Coll*, 2, 504) '*portu infido et minorum capaci*'.

The second harbour of the series envisaged by the *New Statistical Account* was built in the third or fourth decade of the 18th century, A D Cameron dating it to between 1725 and 1732 (1975, 223) and G Cameron (1847, 60) to 1738. G Cameron writes of an 'excellent beach' about 160 yd (146 m) long extending downstream from the Old Quay – no doubt the one on which Slezer showed the boats drawn up – and he places the New Quay at the end of this, close to the remains of the Citadel. This latter faced the river on the west, and was enclosed on the north, east and south by a wet ditch: A D Cameron, whose account of the harbour will be followed from this point without further individual references, describes the New Quay as lying 'at right angles to the river outside the southern defensive mound', and notes that it is shown on Hume's Plan of 1774 (Hume 1774). Precisely to what extent the adjoining part of the moat was included in the works is not clear, but Slezer's view shows that in 1693, that is to say before their construction, entry to it was blocked by a row of stakes (Slezer 1693). According to A D Cameron, this harbour was never completed, as the funds ran out, though it was certainly in use and was repaired at some date after 1803. A plan in Inverness Museum, dated 1729 and initialled 'A.M.', sets out fully a project for developing a harbour in the moat. A basin at the opening into the south ditch of the Citadel was to be fed with and scoured by incoming tide-water entering the north ditch from seaward and flowing round by the east (landward) ditch. Sluices are shown both at the opening into the north ditch and at the closure of the new harbour from the rest of the south ditch. It was calculated that nearly 60 000 tons of water would run off from between the

sluices in three hours. Hume's plan shows that by 1774 the opening of the south ditch had been widened for use as a harbour, but neither this nor Hume's plan shows any sluices. Fraser (1910, 100 & 102) described the Citadel and published a plan of its conversion in the 1730s of the south ditch as a harbour, quoting a cost of £2700. Such a sum may well have been insufficient for the full realization of the 1729 scheme.

At the end of the 18th century the *Statistical Account* described the harbour, presumably the whole complex within the estuary, as being 'safe, commodious, and kept in excellent repair' (SAS, Parish of Inverness V9, 617). While it is possible, partly in view of what is known of the Town Council's attitude in immediately succeeding decades, to suspect that the writer of 1793 was influenced by a local patriotism, the harbour was not totally neglected. The New Harbour as marked on Wood's plan in 1821 occupied over half the length of the south ditch of the Citadel, with a bridge at its head giving access to buildings on the Citadel site. If this New Harbour was indeed only a partial realization of the 1729 plan, lacking the scour of its proposed sluices, then its appearance on Leslie's plan of 1846 as 'Old Tidal Basin', and the need for new tidal basins as also shown on Leslie's plan, to the east, up a new cut between the Muscle Scalps, and on the west bank to the south of Thornbush Quay, would be readily explicable. The Harbour Commissioners' statement in 1847 that the harbour 'with the exception of Thornbush Quay and a small dock near the Town, remains in a state of nature' (*Harbours*) may be in part a reflection of the failure to develop new tidal basins, such as were envisaged in connection with Leslie's plan, but never built.

The 'small dock near the Town' referred to by the Commissioners (*ibid*, xxxvi) was probably the old tidal basin in the south ditch of the Citadel. In the same year, however, G Cameron's reference to an Old Quay 160 yd (146 m) upstream nearer the town draws attention to a stretch of the right bank of the River Ness of importance to trade and communications from very much earlier times. Ross (1893, 66) recorded memories of persons who had seen, possibly in the late 18th century, boats passing as far as the foot of Chapel Street, an area connected with the Castle by a road, now Church Street, along the line of which the town had grown up. The Maggot Ditch shown in Hume's plan of 1774 could have taken only small boats so far, and the line of the river bank was altered at the time of the building of the Black Bridge (a forerunner of the Waterloo Bridge) in 1808. Wood's plan of 1821 shows the right bank below this bridge cut back to run due east across the former mouth of the Maggot Ditch before turning north, then east-south-east, then north again for 160 yd (146 m) and finally forming a similar but larger projection into the tideway at the mouth of the tidal basin in the Citadel ditch. An Admiralty survey of 1845 shows no change (*Harbours*, App C 376). A Ministry of Transport plan (RHP 1117) labels the 30 yd (27.4 m) stretch running northwards from a point 50 yd (45.7 m) east of the bridge 'Old Quay', and the longer stretch from there to the Citadel Quay 'Wooden Quay'. Both abutments of the tidal dock in the Citadel ditch are shown as stone quays having river faces 70 yd (63.9 m) in length, as described by Fraser (1899, 93–102).

Thornbush Quay, the third of the harbours covered by the passage quoted above from the *New Statistical Account* stood on the west side of the estuary some 600 yd (548 m) below the Citadel Quay and is shown on a plan surveyed in 1844 as a stretch of riverbank wharfage about 180 yd (164.5 m) in length (*Harbours*, 376 opp). Its origin and functions cannot, however, be considered in dissociation from fresh factors introduced by the construction of the terminal section of the Caledonian Canal, about which something must accordingly be said here (see also *Harbours*, xxxvi and Lindsay 1968, 144). The Canal was authorized by Parliament in 1803, and was begun in 1805 under T Telford as principal engineer with W Jessup as consultant. The terminal works consisted of a sea-lock at Clashnaharry, giving access to a lower basin, and from this a second lock led into Muirtown basin, shown on the plan published by the Harbour Commissioners as measuring about 900 yd (822.6 m) in length by up to 200 yd (183 m) in breadth. It was intended primarily to serve the Inverness trade, and

the *New Statistical Account* of 1845 (*NSAS* Inverness, V14, 28), notes that ships too large to negotiate the estuary were worked from the Canal's wharves. The basin was almost completed by 1807, but difficulties encountered in the building of the sealock delayed progress until 1811, and the canal as a whole was not opened until 1822. Large scale repairs became necessary in 1843, and the water-way was finally reopened only in 1847.

The building of the Caledonian Canal had important effects on the fortunes of Inverness harbour. Constructional work on the terminal locks and basins brought much new business to its quays, but the Town Council, since ceasing work on the Citadel Quay, had consistently scamped expenditure on the harbour's upkeep, and the fresh revenue was accordingly absorbed into the Common Good while the harbour was allowed to deteriorate. As a result, after the completion of Muirtown basin, shipping tended to resort to it rather than to the Town's quays (*Harbours*, xxxvi) and it was evidently the threat of competition from this quarter that led the council to repair the Citadel Quay and to build Thornbush Quay in 1813–17. This latter work accommodated ships of up to 250 tons, and according to the Town Clerk's evidence to the Tidal Harbours Commissioners, further unspecified improvements were made in 1813–18, 1826, and 1837–45 (*ibid*). Nevertheless, the Commissioners in their report blamed the Town Council for failing to take advantage of such natural features as a 14 ft (4.25 m) rise of tide and the absence of a bar. Again, two Admiralty surveyors pointed in their evidence to insufficient outlay on maintenance, and emphasized the need for dredging in the estuary's channel. They stated that the chief cause of navigational difficulties was the steep angle of the river's descent from the level of Loch Ness, the fall amounting to 45 ft (13.7 m) in seven miles (11.2 km); as a result of this, the tide reached barely two miles (3.2 km) up the estuary, the effect of the flood water going out with the falling tide was consequently feeble, and the river's strong current, thus insufficiently checked, was to bring down large quantities of sand and gravel. They insisted that dredging was necessary to lessen the angle of the estuary bed's descent.

The harbour was eventually reorganized, a Harbour Trust was established, and in 1847, J Mitchell was appointed Harbour Engineer. It was Mitchell's reforms that gave the harbour its later shape, but most of the work was done after the terminal date of this study. In summary, the channel was dredged to a depth of 21 ft (6.4 m), Thornbush Quay was extended, and on the west embankments were built, one stretch protecting Capel Inch and another carrying a tow path to Carnac Point. In the 1880s, the Citadel Quay was repaired, Shore Street Quay was built by the railway company when its viaduct cut off the Old Harbour from the Citadel Quay, and a groyne was constructed to give this area improved shelter.

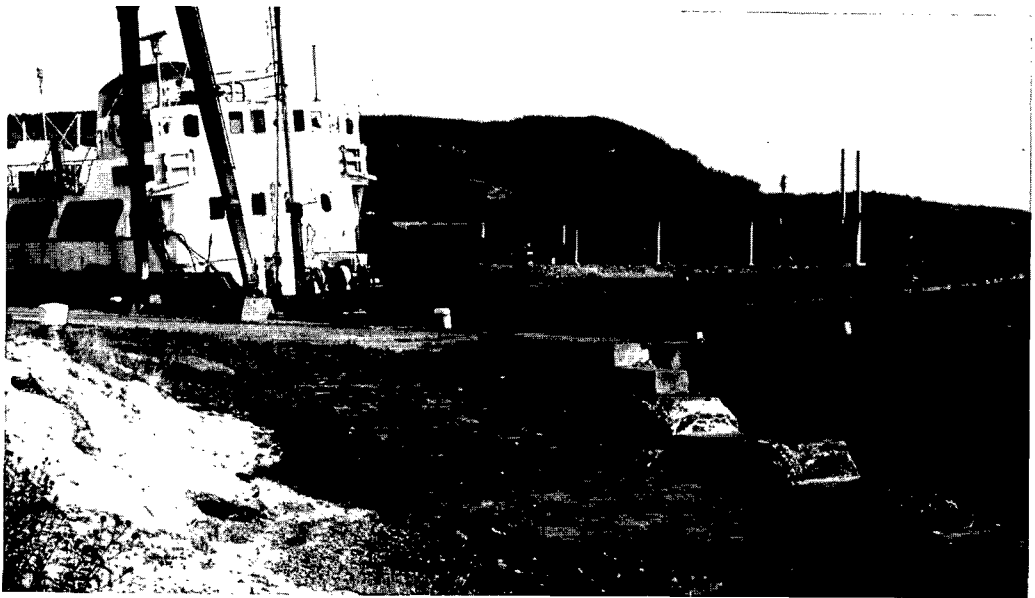
Some details of the maritime trade to which this harbour formed a background for several centuries are set out by A D Cameron (1975, 226). He notes that medieval charters granted the burgh a monopoly of trade with the country to the north and west, reserving the right of the burgesses to buy and sell timber, hides, fish, wool and cloth. Nearly 5000 hides were exported in 1406, and in so far as such products came from the Highland region, it is certain that lack of roads necessitated their transport by sea. Again, J Steuart, a prominent local merchant who flourished in the earlier part of the 18th century, was trading with a dozen small ships to Rotterdam, Lisbon, Barcelona and Leghorn, as well as to the West Highlands and England; his chief exports were skins, salt cod and herring to the Baltic and Holland, and salmon and herring to France and the Mediterranean. In 1720, a barque carried skins to Danzig and returned with a mixed cargo of tarred rope, flax, linen, iron, glass and soap. The same owner was smuggling on the west coast. In addition to this export and import trade, shipbuilding was evidently an important local industry, a shipyard being established, in particular, at Thornbush Quay. This comparatively recent development is, however, far outrun by what seems to have been the local industry's scope in the middle of the 13th century. Matthew Paris (1880, 5, 93) recorded that in 1249 a French crusading count, Hugh de Chatillon, had a ship, described as

'marvellous', built at Inverness in which he and his companions from Boulogne, Flanders and the Low Countries could be carried oversea (*transfretari*). A vessel which could accommodate, as we must suppose, at least four knights, with retainers to an unknown number, and possibly horses as well, on a voyage from, say, Boulogne to a Mediterranean port, naturally had little in common with the local trading craft of the 18th century, which A D Cameron rates in general, at not more than 50 tons. Nor was this the only overseas order executed in the 13th century, as G Cameron states, though without giving his authority, that another French count had a replacement built for a ship lost in Orkney. On the other hand, Paris' language (*navem mirabilem . . . paraverat in Ylvernes*) could apply to work not done by a native shipyard but by a gang of skilled Low Country shipwrights sent to Scotland for the purpose, and taking advantage of a supply of suitable timber conveniently close to tide water. An analogy might be seen in the practice of the English 18th-century iron masters, who shipped their ore to the West Highlands and built smelters there to exploit the fuel supplied by the local woods.

Structure

Modern construction has completely obscured the layout of the original harbour of Inverness on the site of the inlet downstream from the Maggot. Portland Place, the eastern exit from the Waterloo Bridge, preserves the line of the embankment from the east end of the 1808–49 Black Bridge across the mouth of the Maggot inlet to the point at which the Old Quay diverged (in 1821) at an oblique angle north-eastwards, as Shore Street does today. The Harbour Office, the abutment of the railway viaduct and Shore Street Quay stand today on made ground which covers over the whole site of the Old Quay, and is protected by the later 19th-century groyne. This quay was only 30 yd (27·4 m) long, according to the Ministry of Transport's 1843–4 plan and would not have extended as far downstream as the end of the groyne. Even the further 200 yd (183 m) of former wooden quay leaves room for G Cameron's 'excellent beach', 160 yd (146·2 m) long in 1847, to have occupied the site of the upstream part of the present Citadel Quay.

Thornbush Quay retains, beneath a modernized surface, much visible masonry datable probably to 1813–17, all of red stone blocks in courses. It is an irregular rhomboidal structure, about 15 ft (4·5 m) high. On a foundation course of thin stone blocks, set vertically, rest 12 courses of large rectangular blocks,



ILLUS 4 Inverness: Thornbush Quay; the slip at the upstream end

forming a face about 168 yd (153.5 m) long, slightly shorter than that of the foundation course upon which the main structure is set back a few inches. The downstream end of the Quay, battered slightly from the narrow platform on which it is set back from the edge of the foundation course, has a flight of steps, only c 1 ft (0.301 m) wide, descending from the top back corner to the river front edge. At the upstream end of the Quay, a slip 50 ft (15.2 m) long descends gently to the beach (illus 4). Two stone pawls remain in place at the back of the quay; another lies uprooted, showing its massive foot (see illus 51).

KESSOCK FERRY, South NJ 655 473, North NJ 655 478

Though not, of course, physically a part of Inverness harbour, Kessock Roads provided anchorage for ships of deep draught trafficking in the estuary. Some might reach the quays at high tide, while others could use tenders. The river mouth opens at the narrows which separate the Moray and Beaully Firths, and the anchorage lay immediately to the west, giving shelter, deep water, and good holding ground for anchoring. The right to landing places for fisheries on both sides of the firth, and also the working of a ferry, was secured to Inverness by a charter of 1641; and the ferry itself was an important feature of the site. A plan surveyed in 1845 (*Harbours*, 376 opp) shows, on the south shore, approached by a road from the town, a pier marked Ferry, and on the north two piers, one similarly titled. The pier on the south shore was built in 1825–6 by Sir William Fettes, and a witness stated to the Tidal Harbours Commission in 1846 that it served the ferry very well, but occupied the best holding ground and anchorage owned by the Port of Inverness. An early edition of the Ordnance Survey 1:2500 map (1870) shows two piers on either shore, the west pair being linked by a line marking the course of the ferry.

Structure

One sloping pier remains at South Kessock, approximately 220 yd (201 m) long and 20 yd (18.3 m) wide. Neat courses of red stone blocks show on the east side below the modern coverings. About 200 yd (183 m) to the east, a section of the bank between the shore and the road is faced with timbers, possibly indicating the site of the second south pier. On the north shore, there are two piers. The western one has modern coverings, but that to the east appears to be in its original form, closely resembling the south pier.

MUNLOCHY BAY NH 690 525 (at mouth)

This long, narrow and mainly tidal inlet probably possessed some local importance as it is commended as a good natural haven in a document of the early 17th century (Macfarlane *Geog Coll*, 2, 554). The record is of ships 'for daily passages into Moray' being berthed at Munloch in preference to 'Chanrie', where there was no harbour: (see Chanonry Point p 277). The haven of Munloch may then have been less silted up than it is now, the settlement being at present well away from deep water across acres of tidal mud-flats and half a mile of pasture, or the anchorage may have been near the mouth of the bay, sheltered except from the south-east.

AVOCH NH 705 551

In 1795 good anchorage was noted between Seatown of Avoch and Castletown Point, and except in southerly or south-easterly gales craft could lie safely and work cargoes on Seatown beach (*SAS Avoch*, V15, 613). A pier was built in 1814 (*Harbours*, xxxviii). The OS 1:2500 map of 1873 shows a 30 yd (27.4 m) long quay, from the west end of which a pier projects just over 56 yd at right angles, ending in a return head parallel with the shore quay, also 30 yd (27.4 m) long. These measurements correspond with those of the harbour at Avoch which T Telford is recorded as having built between 1813 and 1815 (Gibb 1935, 311).

Structure

The modern road (A 832) from Inverness to Fortrose is separated from the head of Avoch harbour only by a sea wall. The damaged footage of this wall is of red stone block construction, like that of the inside

face of the pier to the west. There are flights of steps inset in this face near each end. Part of the face, towards the sea end, is built of smaller dark red blocks, neatly coursed and much worn. The whole face is slightly battered, and is in much better repair than the sea wall, though broken at the corner where the two once joined at an oblique angle. *The debris here may be that of a former slipway. Modern extensions have replaced or obscured the rest of Telford's harbour.*

FORTROSE NH 724 563 (illus 5)

To avoid confusion between Fortrose, also known as Chanonry of Ross and its neighbour Rosemarkie, distant about a mile and a half (2.4 km) to the north-east, a word of explanation is necessary. In the mid 17th century, Rosemarkie seems to have been in decline; a charter of 1641 confirmed its amalgamation with Fortrose (*APS*, 5, 223). The place was of sufficient importance to be marked on Collins' chart (Collins 1776), though no harbour existed at that time. Petitions to the Convention of Royal Burghs for help in building one began in 1715, and in 1725 a voluntary contribution by all burghs and traders was approved (Marwick 1885, V5, 147, 168, 372). Local people believe that a harbour was built for the embarkation of troops in 1745, but no trace remains of what would probably have been a flimsy, hurried structure. A harbour was ultimately built in 1817 (*Harbours*, xxxviii). Gibb (1935, 311) lists a 'new pier' 170 ft (51.7 m) long at Fortrose, and deepening of its harbour as having been carried out by Telford between 1813 and 1817.

Structure

The east pier, quay and west pier with head returning east-north-east, are all of large red stone blocks. (The west pier has a modern wall, with look-out box, heightening its parapet.) The lower courses of the east pier look the oldest, but this could be the result of different sea-wear on the top three courses (illus 5). Matching wooden pawls survive, as shown on the OS 1:2500 map (1871), one near the tip of the east pier, two on the outer edge, below the parapet, of the west pier.

ROSEMARKIE NH 738 536

All that need be added here to the foregoing note on Fortrose is that the sandy bay provided excellent anchorage and shelter from the west. Rocks at the north-east end of the bay may have given some shelter to craft small enough to be worked over the beach.



ILLUS 5 Fortrose: courses of red sandstone blocks without mortar. The neatness is characteristic of structures actually supervised by Telford

CHANONRY POINT NH 750 557 (illus 6)

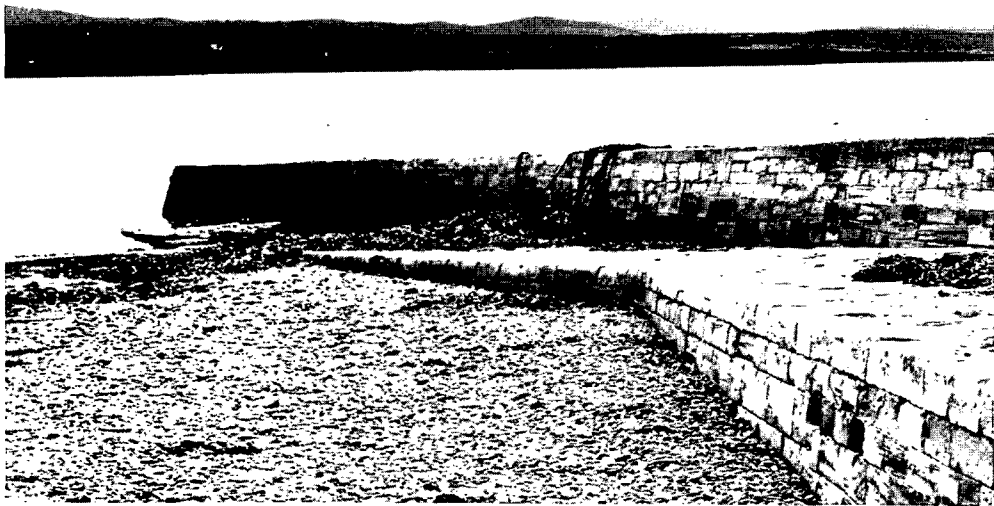
This point formed no part of either Fortrose or Rosemarkie, though it was included in the parish account of the latter. It carried the terminal of a ferry from Fort George and in 1840 a steamer was making weekly calls (*NSAS*, Rosemarkie, V14, 356). Gibb (1935, 309) includes ‘Channery’ among piers constructed by T Telford in 1819.

Structure

The ferry pier is a massive, lengthy, elegant structure of large red stone blocks, 250 yd (228 m) long and over 6 yd (5.5 m) wide. Seven courses high at the point, 110 yd (100.5 m) from the shore, where the pier turns slightly eastwards, it slopes to five courses at the tip. Only the lowest, outermost block is slightly undercut by the sea. A parapet wall running nearly the full length of the west side, with a neatly curved butt at each end, shows slight signs of wear at about the half tide mark, the level at which so many such works are initially breached by wave action. It is secured by iron straps and a continuous central linear cramp, in sections of uneven length to accommodate the uneven sizes of the blocks, held in place by flat-headed iron bolts. Two very large iron rings, on ring-headed bolts, survive near the shore end of the pier. The massive kerb blocks of the pier margin are carefully fitted, alternately long and short sides out, to form keys for the stones of the pavement, and are curved on the outer edge. The tip of the parapet wall is of five courses, including two heavy capstones, the top one neatly curved. The parapet stops a little short of the pier end, leaving an angular platform accessible from the sea on two sides. All faces of the pier and parapet wall are battered, no doubt because this was believed to strengthen them, and certainly with fine aesthetic effect (illus 6).

CROMARTY NH 866 677

Records relating to an early harbour at Cromarty are difficult to interpret with confidence as they are apt to confound the firth itself with artificial works at the town. This is certainly true of Bishop Leslie’s account (Brown 1893, 140); of a document of the early 17th century (Macfarlane *Geog Coll*, 2, 415), which rates the firth as safe, capacious, free of sands and shallows and providing a good bottom for anchoring (*omnes denique egregii portus laudes habet*); and of the *Statistical Account* (*SAS*, Cromarty, V12, 250), with its allusion to an anchorage in the shelter of the Sutors; and of the



ILLUS 6 Chanonry Point: the ferry pier

New Statistical Account (NSAS, Cromarty, V14, 2). In earlier days the firth was called *Portus Salutis*, and is marked as *Portus Securus* on Biship Leslie's map (Brown 1893, 114). On the other hand, the reference of 1592 (APS 3, 586) to regulations for the 'heaven and port of Cromarty' suggests an organized sea-port rather than a mere roadstead or sheltered anchorage, while the chart in Collins's *Pilot* (Collins 1776) is ambiguous. Ambiguity ceases, however, with the positive statement that a 'most commodious quay' was built in 1785 jointly by the proprietor, George Ross, and the government; this accommodated vessels of up to 350 tons and served a ferry crossing the narrows of the firth (SAS, Cromarty, V12, 250). A plan surveyed in 1839 (*Harbours*, App C 376) shows two parallel east-west piers and a free-standing breakwater to the west of the entrance.

Structure

Apparently consistent red stone block construction characterizes the present north pier, 300 ft (91.2 m) long and 20 ft (6.1 m) wide, the shore quay 220 ft (66.9 m) long, the south pier 200 ft (61 m) long and 30 ft (9.1 m) wide and the freestanding breakwater in the harbour mouth, now joined to the south pier by a bridge and extended to form a deep water quay. There is a string course all the way along the curved outer side of the north pier, which otherwise rises uninterrupted to the summit of the parapet wall. This ends in a small turret, where a light would have been useful. Steps are inset in the inner pier face, just below the turret. One wooden pawl survives near the head of these steps. There is another set of steps, descending seawards, contrary to the direction of those just mentioned, inset in the face about halfway to the shore. Still nearer the shore quay, an arched opening in the pier has been blocked with matching stonework. A third set of steps is in the quay face, at its angle with the north pier. A slip rises from the beach for 65 ft (19.7 m) alongside the south end of the quay, which curves back a little at this point, perhaps to facilitate haulage to the level at which it meets the south pier. There is a fourth flight of steps inset in the curved end of the south pier. The whole design is elegant, and indicates, in addition, an intention to assist the working of small craft in rough weather.

Udale Bay NH 713 652

The Newhall Burn enters the Cromarty Firth through the sands of Udale Bay. The marshes and small lagoons on the edge of these sands have accommodated boats up to 20 ft (6.1 m) long, one of which may be seen decaying below the bridge at the angle of the B9163 road. A site resembling in some respects the 'pows' of the Solway coast, it is dominated by the remains of Gordon's Mill.

Balblair NH 701 761 formerly Inverbreckie (see Invergordon p 282)

Telford recorded building piers for the Invergordon–Inverbreckie Ferry (1821, 49). Although Inverbreckie today is an eastern suburb of Invergordon, and Avery (1725–30) marks Inverbuky Ferry on the north shore, the map issued by the Commissioners for the Caledonian Canal in 1821 (*Accounts and Papers* vol x 1821, 34), shows Inverbreckie at NH 701 761.

Structure

The surface of the pier slopes to low water level. The west side is neatly curved back towards the shore. The sides of the pier are of large rough red stone blocks with no mortar visible, and the pavement is of smaller red stone blocks. There are three large iron rings in line down the centre of what was clearly no more than a ferry terminal. This limited usage is consistent with the fact that the old cottages between the pier and Newhall Point line the road looking out to sea northwards, instead of facing one another with gable ends towards the shore in the manner of fisher people's dwellings in this region.

Alness Ferry NH 664 663

A roadway between steep banks curves down to the shore. At high tide no structural remains of the terminal are visible. The very exposed site lies directly south of and at the shortest crossing from the mouth of the Alness river. It may have originated as a fair weather terminal from some point on

the Alness delta, perhaps the area of the present Dalmore Distillery pier, long before the building of Alness Belle Port (see p 281). In west wind, ferries from Alness would have reached Ferryton Point (NH 670 700), where there is a large ruined building and a similar road to the shore, more easily than Alness Ferry, or could have used Balblair as an alternative refuge.

Ferryton Point NH 680 670

See above, under Alness Ferry

Shoretton NH 618 621

Merely a firm area of beach, looking across to Foulis Ferry on the north shore.

ALCAIG NH 565 576

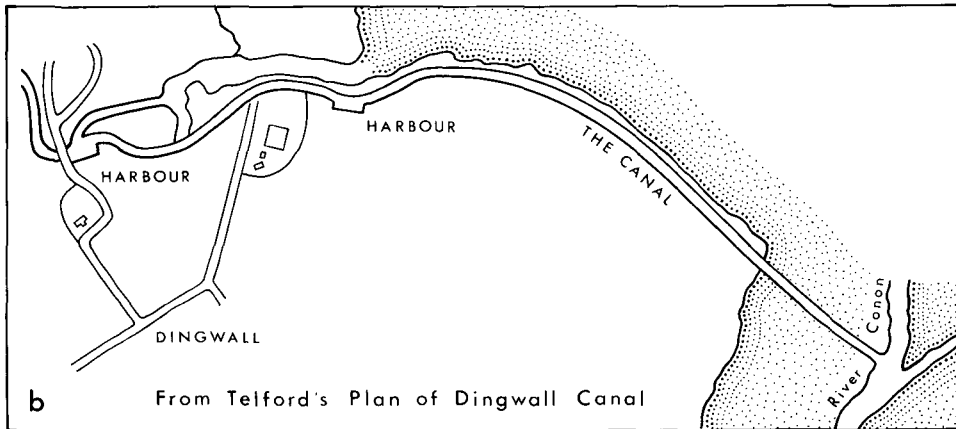
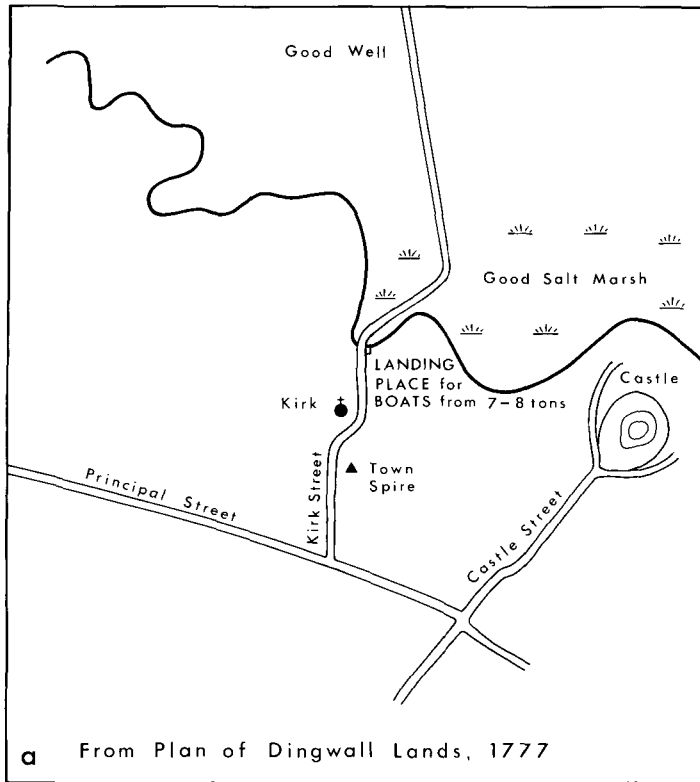
Though this is in itself an unimportant place, an allusion to it in the *New Statistical Account* (NSAS, Urquhart and Loggie Wester, V14, 378) is of interest as evidence of the importance of inland waterways before roads and railways were developed. In this instance, no craft of any size could reach the inner end of the Cromarty Firth, and goods were accordingly unloaded here into sloops before the water shoaled, to complete the journey upstream. Similar arrangements were made on the Firths of Tay and Forth (Graham 1969, 261, 278). The OS 1:2500 map (1973) marks a disused pier 350 ft (106 m) by 12 ft (3.6 m), with a slightly expanded tip, in the mouth of the Ryefield Burn.

Structure

Two courses of masonry are still visible forming a causeway through the mud at low tide, from the left bank of the burn, which turns eastward at its mouth, to one of the channels through the estuary. Rubble is heaped up at the tip.

DINGWALL NH 562 585 (illus 7)

This town, though not necessarily its harbour, was of sufficient importance in the 1570s for inclusion on Bishop Leslie's map (Brown 1893, 114). The burgh charter, obtained in 1587 from James VI (Macrae 1923, 88), includes references to cobbles and small boats. The anomalous position of the 19th-century harbour, nearly a mile from the town and at the end of a man-made canal, suggests an earlier beach landing close to the settlement, which eventually ceased to fulfil its function as a result of the silting up of the whole head of the firth. Alluvium brought down by the rivers Conon and Orrin seems to have created a reach of tidal islets and backwaters almost all the way from Maryburgh, and associated sands and shallows extend for more than three miles (4.8 km) below Dingwall. (An effect of the shallowing of the head of the firth has been noticed above under Alcaig.) It is tempting therefore to think of the burgesses of Dingwall as engaged in a losing fight with the forces of nature, and finding their beach landing gradually becoming less and less fit for their purposes. The depressed state of the burgh in 1773, when no harbour existed, is illustrated by a reference in the Inverness Burgh Records (NSAS Dingwall, V14, 220). Improvement seems only to have come when the canal was cut in 1815–19. Navigable water was reached by deepening and canalizing the River Peffery. That the course of this river had already been somewhat rationalized is suggested by a plan of 1777, which in addition to marking a landing place for boats up to eight tons at the site of the later town harbour, shows the river's lower reach taking a sinuous course past the castle, much like that of the later canal (illus 7). On the plan published by Telford in 1821, the cut into which the Peffery was diverted during construction of the canal is clearly marked, debouching into an area of salt marsh which retained something of the form of the river mouth as it had been before the rationalization recorded in 1777. In 1815, Dingwall Town Council Minutes record a contribution of £100 to the building of the canal which



ILLUS 7 Dingwall: a, copied from a plan of 1777. (Macrae 1923. By kind permission of Councillor Macrae); b, copied from Telford's plan of 1821

eventually cost £4365 (Macrae 1923, 248). In 1828, another Minute records an effort, which failed, to transfer responsibility for the canal, then earning less than £100 a year, and in need of £800 worth of repairs, to the Parliamentary Commissioners (*ibid*, 250). In 1837, the canal was held to constitute a tolerably good harbour quite close to the town, two small vessels, built and owned in the town, were

then engaged in the coasting trade, while others came with coal, lime and other cargoes, taking out grain, timber and bark (*NSAS* Dingwall, V14, 220).

Structure

Of the 19th-century harbour below the bridge at the head of the canal only a few uneven courses of grey stone blocks are still visible in the face of the right bank. About a quarter of a mile (0.4 km) to the east, Old River Road preserves the line of the opposite bank of the swampy river mouth in which boat landings were made before the canal was built. A building known as Harbour House stands on the right bank of the canal near its opening into the Firth. From below Harbour House, the canal mouth was reconstructed in 1861, and now takes a final turn to the south-east (Clew nd, 8). A short distance upstream from Harbour House, also on the right bank, there are remains of a timber wharf. Seven heavy frontal uprights are in place, as are two front edge timbers, each about 7 ft (2.1 m) long and a foot (0.304 m) square, at the upstream end. It may be that this timber wharf dates only from the period of the construction of the railway bridge, just below the Castle, when the second harbour marked on Telford's plan disappeared.

Foulis Ferry NH 600 635

A disused track leads to a stretch of foreshore where there are many fragments of dressed stone and some 30 tree trunks driven vertically into the shore near the present line of the bank.

Alness Dalmore NH 664 683

The *New Statistical Account* for Rosskeen parish mentions a harbour at Dalmore, (perhaps on the site of the modern distillery pier), exporting timber to the north of England (*NSAS*, Rosskeen, V14, 275).

Alness Belle Port NH 690 673 (illus 8)

The B817 road comes right down to the shore of the Cromarty Firth immediately to the east of the delta of the Alness River, a quarter of a mile (6.4 m) before reaching Belle Port pier. This survives complete, though the top surface is grassed. Both sides curve neatly out from the shore, and are slightly battered up to a rolled edge kerb which is continuous round the sea end. The corners of the sea end are mitred. One very large iron ring is in place near each corner (illus 8). Steps descending seawards are inset in the west side near the sea end, and near the shore on the east side.



ILLUS 8 Alness Belle Port: the sole instance of an upstanding rolled-edge kerb, presumably a decorative feature

INVERGORDON NH 709 683

The records suggest that this was a place of little importance, except as the terminal of a ferry plying, presumably, to Balblair, for which Telford is stated to have constructed a pier in 1817 (Gibb 1935, 309). A pier for passengers was built in 1821, and in 1828 the proprietor provided a harbour giving 16 ft (4.8 m) of water at springs and 13 ft (3.9 m) at neaps (Groome 1901, sv). The *New Statistical Account* of Rosskeen Parish adds some details. 'A few years ago a fine pier for large vessels was . . . erected at Invergordon' (*NSAS* Rosskeen, V14, 275), presumably Groome's 1828 pier. In 1837 a wooden jetty, intended to provide a depth of 10 ft (3 m) at ebb tide proved useless. In the same year a boat slip was constructed. Regular passenger services went to London and Inverness (*ibid* 275). The OS 1:2500 map of 1973 shows a west pier 250 ft (76 m) by 20 ft (6 m) with a return head extending 100 ft (30 m) due east, that is at right angles to the line of the pier. From the inner side of the shore end of the west pier, a shore quay runs obliquely, north-eastwards for 180 ft (54.7 m) making an acute angle where it meets the inner face of the east pier. This is parallel to the west pier, and its length of 340 ft (103.3 m) brings the pier heads level. The east pier is 30 ft (9.1 m) wide. While less adapted for fishery or commerce than, for instance, Cromarty, the form of this harbour with both east and west piers distinguishes it from the isolated jetty, slip or pier of most ferry terminals.

Structure

Parts of both east and west piers survive, much built over. Of the east pier only the land end can be seen, the slightly battered sides finishing in a raised kerb of one course of blocks, at the edges of the pavement of granite sets. The west pier as shown on a postcard dating from before it was built over by the gas works, had only about 6 ft (1.8 m) of its return head. A flight of steps inset in the inner face of this pier protected originally by the return head and descending away from it, is still visible.

Balintraid NH 742 711

Marked on Collins' chart (Collins 1776). A landing pier 90 yd (82.2 m) long with a return head served Balintraid Ferry from 1820 (*Harbours*, xxxviii). According to Gibb (1935, 309) Telford was working there in 1817. The pier survives, but is breaking up. The kerb is missing from the rounded sea end, and the parapet wall of six courses is breached near its rounded tip and immediately to shoreward of its curve at the back of the return head.

NIGG NH 786 698 (Pot Burn) 796 688 (Nigg Ferry)

No harbour existed at Nigg, but it was recorded in 1836 (*NSAS* Nigg, V14, 20) that at high water light craft could negotiate the channel of the Pot Burn, traversing the tidal Nigg Sands. The rather large number of fishing boats (36) then owned in the parish was probably due to the proximity of the rich fishing ground off Tarbat Ness. Nigg was a place of sufficient importance to be marked on Collins' chart (Collins 1776), perhaps by virtue of such shelter as could be obtained in Nigg Bay. Nigg Ferry is the northern terminal from Cromarty, and the OS 1:2500 map of 1973 marks a disused slipway besides the modern pier.

Shandwick NH 860 745

A fishing village in 1847 (*Harbours*, xxxviii), also marked, as 'Shandaig' on Roy's map of 1745-7.

Balintore NH 865 745

A fishing village in 1847 (*Harbours*, xxxviii).

Hilton of Cadboll NH 872 763

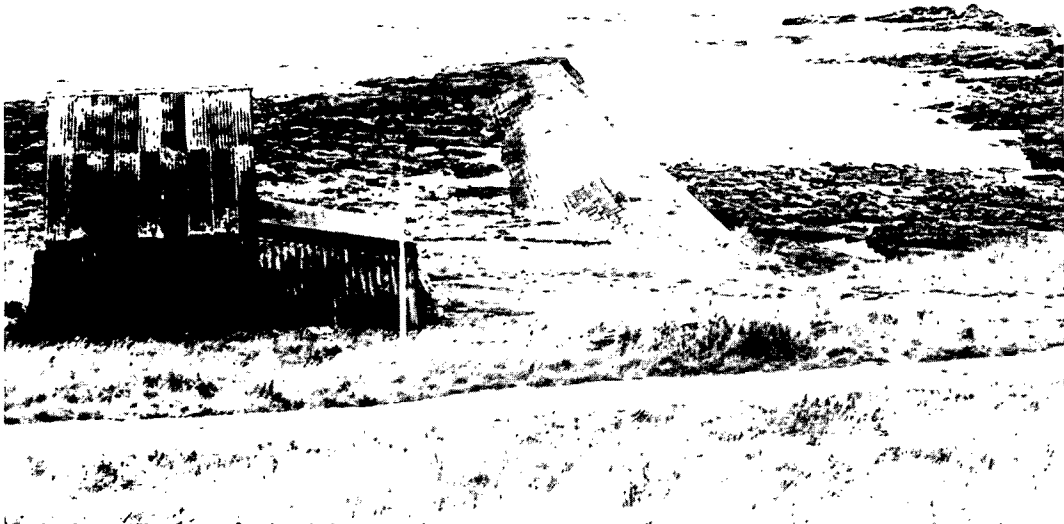
A fishing village in 1847, said to have no harbour accommodation whatever (*Harbours*, xxxviii), but in 1828 the Herring Fishery Board had agreed to assist in improving the landing place. The Commissioners' Report included a specification referring to 'the present landing slip' (Reports Commissioners, 1830 V15, 21), though Mitchell's accompanying sketch shows only a narrow opening in the rocks. The present harbour is modern, and of the structure planned by Mitchell before 1830, towards which the proprietor contributed £130, a quarter of the cost, no trace has been found.

Rockfield NH 925 829 (illus 9)

Of the group of fishing villages connected with the Tarbat Ness herring fishery, Rockfield, though only two miles (3.2 m) from its sole developed harbour at Portmahomack, is on the opposite shore of the promontory. Harbour facilities here would often have saved a difficult passage round the Ness. In 1828 James Mackay of Rockfield was one of the first three proprietors in Scotland to obtain a Treasury grant for harbour construction (see Sarclet p 299). Mitchell's plan for Rockfield pier was published by the Herring Fishery Commissioners in 1830 (Reports Commissioners, 1830 V15, after p 27). Mackay's contribution was £107 10s, one quarter of the contract price, for a pier 350 ft (106 m) long.

Structure

The pier survives and is in use, but whereas Mitchell's plan was for it to narrow from 8 ft (2.4 m) to 4 ft (1.2 m) in width at about half its length, where it reached an outcrop of natural rock, the whole length today is 10 ft (3 m) wide (illus 9). It ends at a rock outcrop, so the narrow extension was either never built in that form, or has been changed later. Five courses of well dressed stone blocks of approximately 12 in (0.3 m) by 18 in (0.45 m) rise from two base courses of flatter blocks, which project a few inches at the foot of the slightly battered west face. The east face of the pier is more noticeably shaped, rising at about 45° to the perpendicular, with a shallow concave flare outward at the foot. One kerb block on this side is loose, revealing the rubble core. Iron cramps in the kerb and straps at wide intervals over the sides begin about



ILLUS 9 Rockfield: Mitchell's pier, as modified in 1851

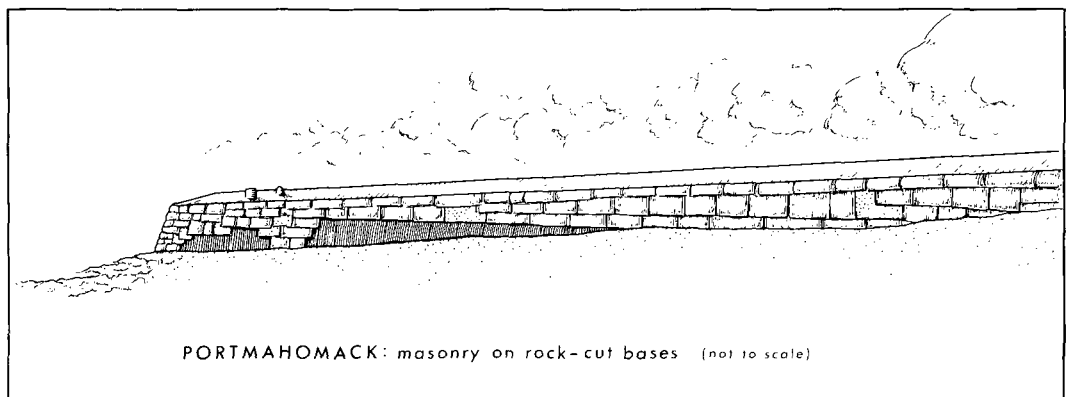
150 ft (45.6 m) from the shore. Many of these are now missing. The pier curves slightly eastwards before meeting the natural rock, and ends in a slip descending eastwards at right angles to the head, between rocks, a feature not shown on Mitchell's plan.

DORNOCH FIRTH

The whole firth was regarded as a unit by the Tidal Harbours Commissioners (*Harbours*, xxxvii); and authors of the early 17th century cite it under the names *Portnecultro* and *Port ne Couter*, as forming part of the boundary between Ross and Sutherland (Macfarlane *Geol Coll*, 2, 437 & 3, 97, 100). The sites in the firth are dealt with individually below.

PORTMAHOMACK NH 915 846 (illus 10 & 11)

Ordnance Survey maps show that Tarbat Ness carried a large group of fishing villages, exploiting the rich herring fishery close to the Ness; and of this group only Portmahomack ranks as a regular port. The place name points to an ancient settlement with a church dedicated to Saint Colman, but the earliest available record seems to be a charter of 1681, granting to Sir George Mackenzie of Rosehaugh the right, *inter alia*, to make 'ane convenient harbour and sea port for small ships and boats of the said burgh of Tarbat' (*APS* 8, 386); but it was the first Earl of Cromarty who, while still Viscount Tarbat, ie before 1690, built the 'handsome little peer' that evidently formed part of the harbour 'for barks and small ships' mentioned in a document probably datable to the early 18th century (Macfarlane 1906, 1, 215). The name Seafield, which appears on Collins' chart, no doubt refers to Portmahomack, and stands as additional evidence for a harbour at about this period. In 1790 Telford, who was first employed in that year as engineer to the British Society for extending the fisheries and improving the sea coasts of the Kingdom, later the British Fisheries Society and referred to hereinafter as the BFS, reported the harbour works as 'a natural mound or pier has already been somewhat built up' (Dunlop 1952, 244). The ruinous condition of the Earl's pier is again mentioned in 1793 (*SAS Tarbat*, V6, 425); but the harbour was still able to accommodate ships, giving 13 and 9 ft (3.9 and 2.7 m) of water at springs and neaps respectively. Further construction followed up to 1816 (*Harbours*, xxxviii). Gibb (1935, 311) states that a pier 350 ft (106 m) long was constructed by Telford between 1811 and 1816. This measurement corresponds to that of the centre line of the present north pier. Telford's account of his work at Portmahomack relates exclusively to the north pier, nor is the south pier shown on his plan of the harbour (Telford 1821, 100). Structurally, however, it is similar enough to the north pier to make it seem unlikely to have been built much later, and also rather



ILLUS 10 Portmahomack: the south pier. Slope accommodated by rock cutting and use of L-shaped blocks

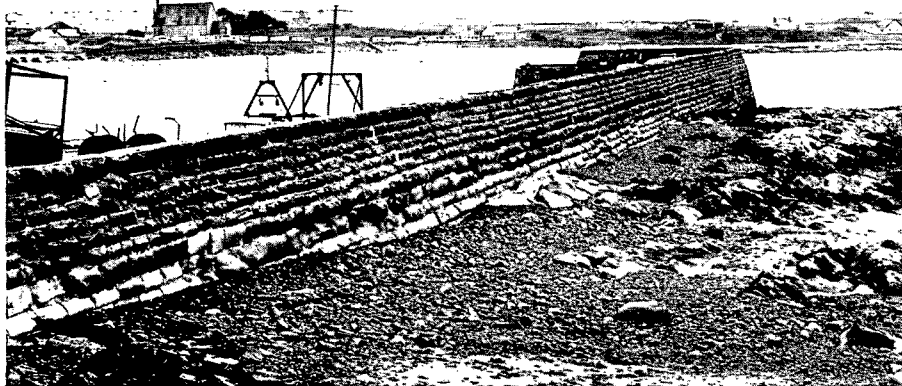
improbable that it is the 'handsome little peer' of 1690, though the stepped cuttings of the natural rock base and use of L-shaped blocks described below could be called handsome without exaggeration (illus 10).

Structure

The north pier, the inner face of which is 310 ft (94 m) long, the shore quay, 300 ft (91 m) long and the south pier, 120 ft (36.4 m) long, are all of red stone blocks some 3 ft (0.91 m) long. Both piers are 20 ft (6 m) wide. No mortar is visible between the blocks of the seaward end of the north pier or those of the lower courses of its outer face. Either mortar has been washed out with particular effect from these sections, or other parts have been pointed or are, perhaps, of later date. Both piers rest on natural rocks, those at the base of the south pier (probably Telford's 'natural mound'), having been cut in steps to take the courses of blocks. Seven L-shaped blocks accommodate the changing levels as the pier slopes seawards. An iron strap 3½ in (8.8 cm) wide was set in a channel in the surface of the kerb all the way round, and survives in part. The outer face of the north pier is 500 ft (152 m) long and presents an impressive curved bastion of cushion shaped blocks to the weather quarter (illus 11). The parapet wall, which continues the upward curve to its summit, ends a little way short of the head of the pier. This is rectangular, and returns towards the south pier. The end of the parapet wall is in contrast, curved. Six waisted black granite pawls, 28 in (0.71 m) high and of the same maximum diameter, are ranged along the base of the parapet. The kerb stones are all curved at their edges. There are no inset steps in the pier faces, only small iron ladders, not inset and probably not original. The exigencies of refuge rather than assistance for routine working of boats appear to have had the dominant influence over the design of this harbour, though there is a slipway at right angles to the inner shore end of the north pier, rising to it alongside the shore quay, and remains of another beyond the south pier.

Inver NH 861 826

Marked on Roy's map of 1745-7, Inver is later recorded as a fishing village lacking any protection from the north or east (SAS, Tain, V3, 390; NSAS, Tain, V14, 294). In 1847 there were no harbour facilities (*Harbours*, xxxviii). The lagoon area at the head of Inver bay retains the shape of a river mouth, but now receives only the much canalized drainage of the area between Loch Eye, which has a separate outfall to the east and the sands of Morrigh More, part of a delta formation east of the present unique mouth of the River Tain. At Inver village, boats could have been drawn up on a shore sheltered from the south and east, and with readier access to the Firth than from the marshy pows higher up.



ILLUS 11 Portmahomack: worn rusticated blocks in the weather face of Telford's north pier

TAIN NH 786 824

It was noted in 1793 that access to Tain was obstructed by an offshore sandbank, exposed at low tide but traversed by a channel which needed expert pilotage (*SAS*, Tain, V3, 390), and in 1837 that the only available harbour consisted of the tidal sands of the firth itself (*NSAS*, Tain, V14, 283). Nonetheless, harbour works of a kind must once have existed at Tain, as in 1604 the Convention of Royal Burghs was approached for help in repairing the 'herberis and shore', described as ruinous (*Marwick* 1870, 2, 180), and this language suggests at least a stretch of built wharfage on the waterfront. Bishop Leslie marked Tain on his map in the 1570s (Brown 1893, 114), as did Roy in 1747 and Collins on his chart (Collins 1776). Ferry traffic converging on Tain, also well served by roads from the south, resorted mainly to the Meikle Ferry, landing at the Ness of Portnecoulter, four miles to the west.

Structure

An older course of the River Tain is shown on the OS 1:2500 map of 1975 as an ox-bow south-east of the mound from the summit of which Saint Duthus's Chapel looks eastwards across an area of the delta which has been drained and re-made in many forms in recent times, the left bank more recently than the right. Both river banks have stretches of timber revetment of various ages, the most substantial being a line of 30 large upright timbers, with cross pieces, which could be the framework of a left bank quay, situated about 40 yd (36.5 m) north-east of the Chapel mound, near the downstream angle of the ox-bow.

MEIKLE FERRY SOUTH=FERRY POINT OF NESS OF PORTNECULTER NH 732 860

Although today this site is nearly deserted, and difficult of access, it deserves mention here, for its former importance as the southern terminal of the ferry by which the bulk of traffic to and from the north connected with the market and route centre of Tain (*Macfarlane Geog Coll*, 2, 437; 3, 97, 100).

Structure

Modern construction covers most of the end of the promontory, but about 30 yd (27.4 m) of its south eastern extremity is still faced with red stone blocks, between which no mortar is visible. The curve of this revetted bank disappears beneath modern work at the head of the ferry pier, which takes the form of a slip, built of similar blocks, and extending about 300 ft (91.2 m) north eastwards into the Dornoch Firth. The water on the south (inner) side is deeper than that outside the shelter of the slip, where, range along its length, there is a row of six wooden posts, each at least a foot (0.304 m) square.

Ardmore NH 703 866

A good natural harbour, taking craft of up to 150 tons (*NSAS*, Eddertoun, V14, 453). Well placed for ferry transit to Newton Point.

BONAR BRIDGE NH 610 915

The upper end of the Dornoch firth is largely choked with tidal sands, formed, no doubt, of alluvium brought down by the Rivers Shin and Oykell. Bonar Bridge, on the left bank of these rivers' common mouth, and just above their outflow onto the flats, is not in a favourable position to act as a landing; but in fact, in 1834, the water was deep enough for shipping and the place was described as doing a considerable trade in both imports and exports (*NSAS*, Crieck, V15, 20). Again, in 1847 big boats could reach the town (*Harbours*, xxxix), perhaps, as at Dingwall, sloops with goods transhipped from vessels too large to negotiate the shallows.

Structure

The right bank of the River Carron, just below the head of the tide, is straightened and revetted with timbers. The adjoining downstream section is cut back at an oblique angle, and partially faced with

masonry. A large drift of shingle immediately upstream diverts the main current of the Carron from the small pools at the foot of the bank, which is marked as a quay on the OS 1:2500 map of 1975.

A section of the right bank of the combined rivers Shin, Oykell and Carron below the modern bridge, is faced with red stone blocks in courses for a distance of about 10 yd (9.1 m). Below this again, there is an inlet made by some fallen masonry joining the upper end of an islet to the right bank. This could have been a rough dock.

Creich NH 640 882

A crossing place for droved cattle (Haldane 1952, map).

Newton Point NH 712 878

Improvements for the relief of clearance victims were attempted by George Dempster of Dunnichen (1732–1818) at Spinningdale, including the commercial development of a pier at Newton Point (Fergusson 1934, 206). No activity beyond the unloading of coals at a later yacht pier is recorded.

MEIKLE FERRY NH 729 869

This landing place may be regarded as having served Dornoch, just as Ferry Point of the Ness of Portnecoulter, the corresponding terminal, served Tain. The sinking of an overloaded ferry in 1810 is remembered locally, perhaps because the 90 persons drowned were returning from a Communion in Tain, and included the Sheriff of Dornoch. The pier is situated at the southern tip of the sandy promontory round which the River Evelix flows west and then south into the Dornoch Firth. A record of 1834 (*NSAS Dornoch*, V15, 2) describes it as an excellent harbour where ships could lie in safety once they had passed the bar. This may relate to the present pier site, as there is a sand bank directly to the south, and in 1793, besides serving as the ferry terminal, the place was used by ordinary shipping, the water being deep enough to allow them to approach the land (*SAS*, V3, 390 & V8, 3). Earlier however, the land locked area at and to the north of the mouth of the river Evelix may have been utilized, as is suggested by a Macfarlane document datable to the 17th century (Macfarlane *Geog Coll*, 3, 100), which mentions a 'bay or inlet' with a good harbour between Skibo and Pulrossie. The reference in the *New Statistical Account* to coal ships anchoring 'below the town' to discharge their cargoes is probably connected with Dornoch Shore, Ferrytown on the promontory being merely a farm name. The Parliamentary Commissioners' Report makes cursory reference only (*Harbours*, xxxix).

Structure

The ferry pier projects about 150 ft (45.6 m) into the Dornoch Firth from the south-east tip of the promontory to the south of the Evelix estuary. It is a massive structure of red stone blocks, in the form of a slip with a parapet wall. The long narrow blocks set on edge to pave the surface are keyed into the kerb of large rectangular blocks, one of which is set with its longer sides at right angles to the pier face between each two set with longer sides in line with the length of the pier. The parapet wall is set back from the western edge of the pier, leaving a platform on the west side only a little narrower than the main platform on the east. The wall, over 6 ft (1.8 m) high at its shoreward end, shows signs of three phases of building or reconstruction. To seaward, its end and top courses are rounded. Part of the iron strap which was bolted along the centre line of the wall head is missing. The sides of this part of the wall slope inwards from the base. There is less batter on the sides of the more landward looking part of the wall adjoining this. The top course of blocks here has a slightly curved edge. Mortar is visible between the blocks of this middle section. The third part of the wall, at its shoreward end, has the same slightly sloping sides, a top course with straight edges, but no visible mortar. The iron strap runs from the base of the wall at its shore end, up to its summit and all the way along its top centre line as far as the damaged area at the sea end. These features appear consistent with a possibility of the middle section having, as usual, required the most repair.

A bottle-shaped iron strap-work light fitting of some elegance is clamped to the shore end of the parapet wall top. Between the wall end and the shore, the pier surface does not slope, and carts could have turned.

Meikle Ferry had an emergency pier at Ardvoan, about a quarter of a mile (0.4 km) along the shore to the east, a wooden structure, used within living memory for crossing animals to Tain Friday market. (Information by courtesy of Mr and Mrs Charles Grant, Dornoch.)

DORNOCH SHORE NH 805 895

The *Statistical Account* of 1795 states (*SAS*, Dornoch, V8, 3) that Dornoch Shore is a safe place for harbourage. This seems, on the face of it, improbable in the highest degree, as the town's sea front is fully exposed to the east; but the context, which associates this shore with the mouths of the Evelix and the Fleet (Meikle Ferry and Little Ferry), suggests that the place referred to was not the town's foreshore but some site on the tidal sands to the south, which would have been sheltered from the east by Dornoch Point. This suggestion is supported by an allusion to the Grizzen Briggs sandbanks, which would have to be passed by any craft rounding the point and entering the firth, but not by those approaching the beach in front of the town. The same passage states that ships of 300 tons could negotiate the Briggs if piloted. There is a place still called Merchant's Pool (*Pollacheannaiche*) near Dornoch Point, where coal was formerly unloaded by persons still alive in 1983. Quicksands made this unsafe. Coal from a boat lost on the Grizzen Briggs in 1900 is still washed up. (Information by courtesy of Mr and Mrs Charles Grant, Dornoch.) Dornoch was mentioned by the Parliamentary Commissioners in 1847, but without comment (*Harbours*, xxxviii).

Embo NC 811 921

A fishing town in the 1830s (*NSAS Dornoch*, V15, 8). Older stone blocks are visible on the left of the incline to the head of the northern of two modern piers.

LITTLE FERRY, SOUTH NH 806 955 (illus 12), NORTH NH 805 956

A Macfarlane document datable to the early 17th century, alludes to a good harbour at the mouth of the river Unes (Macfarlane *Geog Coll*, 3, 100). This name no longer appears on readily available maps, but comparison with another document of about the same period (*ibid*, 2, 418, 439) identifies this river with the Fleet, written as 'Ulies or Floidac', 'Strath Floid' or 'Strath Fleit'. Contemporary translations into English of both Latin documents are given (*ibid*, 449, 465). In 1793 Little Ferry was described as an excellent harbour, but only accessible to craft of from five to 10 tons (*SAS*, Dornoch V8, 3). In 1812 J Henderson reported to the Board of Agriculture a proposal to build a 'mound across the Little Ferry' (Henderson 1812b, 153). The causeway which today carries the A9 road across the head of Loch Fleet is nearly four miles west of the Little Ferry, but its position, leading to the foot of the Mound Rock is probably that of the site originally proposed. In 1834 the depth of water at low tide at Little Ferry itself was given as 18 ft (5.5 m), and the place was used by craft engaged in the coasting trade (*NSAS Golspie*, V15, 41) The Parliamentary Commissioners' Report of 1847 makes cursory mention, and supplies a plan (*Harbours*, xxxiv & App C, 376).

Structure, Little Ferry South

Both the surviving jetties are of timber. Of the main jetty to the east, 13 rows, each of three uprights, remain standing, projecting into the mouth of the estuary. The shorehead bank, which has been cut back in a few places, is lined with posts as far as the lesser jetty to the west. Here, a much newer looking structure of two lines of uprights, with three cross pieces in place, has beneath it the remains of a much lower timber jetty. There are two warping posts near the head of each jetty, and one to the east and one to the west further inshore from the head of the main (east) jetty.

A track runs from these jetties south westwards to the T-junction of the road from Embo to Skelbo

Castle with that from Skelbo Street. From the roadside (NH 801 953) a wall runs parallel to the west side of the track and continues down to the shore at the foot of the dunes and out into the tideway. The wall, which may once have been a facing of dunes since shifted landwards, makes an angle with rough masonry embanking the southern edge of the bay (illus 12). These works may have been intended to stabilize the shoreline at a point where a disused railway line runs quite close, but the fact that the wall runs out into the tideway suggests that assistance to the working of small boats on this sheltered corner of the shore was an objective. Some ribs of boats remain, partly engulfed in sand, on the shore beyond the mouth of the burn to the westward. A castle landing for Skelbo may have been the origin of a small-scale fishery development, perhaps also providing the nearby ferry with shelter in rough weather.



ILLUS 12 Little Ferry South: the shore revetment

Structure, Little Ferry North

Approaching westwards along the north shore of the Fleet estuary, the first remnant of the Little Ferry to be seen is its auxiliary pier, a wooden structure ending in a rough stone extension. About 150 yd (137 m) west of this there is a broken slipway rising along the shoreline to the east end of a short quay of red stone blocks with a rolled edge kerb. This turns through a curve of 90 degrees into the east side of a pier of matching stone blocks. One set of steps is inset in this side of the pier, the surface of which is paved with grey-black stone setts. A parapet runs along the western edge of the pier. One stone pawl lies on the beach beside the slipway, two more, 3 ft (0.91 m) and 2 ft 6 in (0.76 m) high, are in place in the pier top, near the sea end of which is an immense iron ring, with its bolt now broken. The masonry pier may once have been longer, and there is now a wooden extension returning southwestwards.

Adjoining the shore end of the west side of the pier, opposite the quay, there is a flat-topped square of similar red stone blocks, once the base of an enclosure, its surface level with that of the pier, entry to which is between two single stone gate-posts.

Golspie NC 828 996

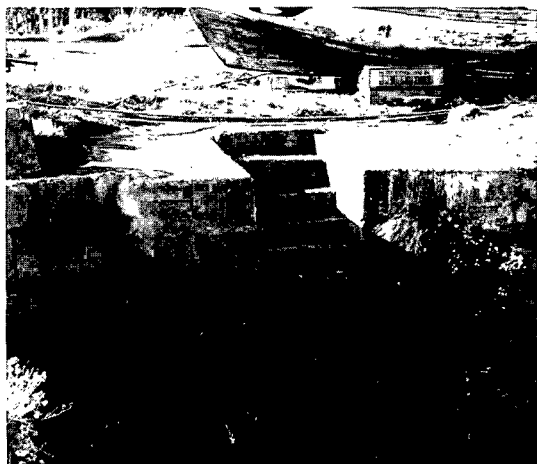
Marked on 18th-century maps (Roy 1745–7; Collins 1776).

BRORA NC 909 039 (illus 13)

A Macfarlane document of the early 17th century records a good harbour at the mouth of the Brora River for craft trading in local produce (Macfarlane *Geog Coll*, 3, 100). In 1794 this same harbour was described as tolerable for small ships (SAS, Clyne, V10, 301). At this time Brora was doing some overseas trade, with a scope extending at least as far as London. The place was of sufficient navigational importance to be marked on Collins' chart (Collins 1776); and the Tidal Harbours Commissioners include in their Report a plan surveyed in 1839, though their comment is brief (*Harbours*, xxxix). In 1840 the writer of the *New Statistical Account* mentions that the harbour was connected by 800 yd (731 m) of 'railway' to a coal pit half a mile above the bridge, the first Duke of Sutherland (1758–1833) having revived, at his own expense, the production of coal at Brora, which Jane Gordon, an earlier Countess (1546–1629) had also encouraged (NSAS Clyne, V15, 152, 160). (On early pit 'railways' and waggons see Broad 1981, and Unapool, *infra* p 324.)

Structure

The right bank of the river Brora below the town has been cut back to form one right angle between the outer east–west shoreline and a short south–north section, and another where the east–west line of the right bank, at the narrows, is resumed. This modified section of the bank is faced with six courses of red stone blocks, slightly battered and neatly curved round the corners. The revetment of the bank is continued upstream, lining a U-shaped inlet, or small dock, in the right bank, parallel to the river channel. The dockside quay is faced with at least 10 courses of red stone blocks, not rounded at the edge except by wear. The only steps are at the middle of the top end (illus 13). From that point, the number of courses decreases gradually to two, where the facing runs out into a bank topped with vegetation. There are two wooden posts set in the surface of this bank, and five more on the left bank of the river.



ILLUS 13 Brora: the head of the coaling dock

Dunrobin NC 853 006

The landing place for Dunrobin Castle. Marked on 18th-century maps (Roy 1745–7; Collins 1776). J Henderson's Additional Survey Report of 1811 (Henderson 1812b, 134) stated that 'water from the burn of Golspie . . . is to scour the harbour where a new pier is now erecting, on the shore near the garden of Dunrobin'. The accompanying plan shows that the length of the pier was 250 ft (76 m), the breadth 30 ft (9.1 m). A wooden frame, an unusual if not unique feature, supported a structure with slightly battered sides, a parapet and a rounded return head, projecting obliquely, south-westwards from the shoreline. Within the last 10 years this pier, or a successor, has been destroyed by storms. Remains of the wooden framework and stone debris may be seen.

Loth NC 960 085

Marked by Collins (1776). In 1793 there were several 'harbours', evidently natural inlets usable by fishing craft (SAS, Loth, V6, 317). East-north-east of the mouth of the River Loth (which may have had its course rationalized, possibly even before the building of the coastal railway line), a low lying area behind a line of sand dunes is now drained by ditches into the sea below Lothmore. Jane Gordon, Countess of Sutherland (1546–1629), who resided after 1594 at Crakaig, the dower house of Dunrobin, between Lothmore and Lothbeg and overlooking this area, is credited locally with having drained the loch or lochs, of which the name Loth is asserted to be a corrupt form. A prominent early improver of estates, she could have used a landing place at Loth, if only to supply her establishment at

Crakaig, which is connected by a road on a causeway across the reclaimed area with the dunes and promontory of Lothbeg Point.

Portgower ND 007 131

A fishing village (*NSAS*, Loth, V15, 208)

Garty ND 014 137

Marked by Collins (1776).

HELMSDALE ND 030 153

The mouth of the Helmsdale River was one of those listed in a Macfarlane document of the early 17th century as good harbours for ships trading in local produce (Macfarlane *Geog Coll*, 3, 100). Further evidence that it possessed a certain importance before improvement became general is given by the fact of its inclusion on Collins's chart (Collins 1776) and earlier on Bishop Leslie's map of the 1570s (Brown 1893, 114). The earliest harbour works came only in 1818, with a pier and breastwork which were later enlarged and extended (*NSAS* Loth V15, 209). Shipping from all parts of Britain and Ireland were now (1841) making use of the port (*ibid*, 208). An important fishing station was organized, with further construction in 1840 (*Harbours*, xxxiv, plan app C 376); and what Groome describes as a new harbour was built in 1892 (Groome 1901, sv).

A map of 1833 from Dunrobin Castle (Burnett & Scott 1833) marks another pier to the north, between East Helmsdale and Navidale, near a distillery.

Structure

The present harbour is outside and immediately to the east of the mouth of the Helmsdale River. The outer pier shows no obvious early features, but the sloping inner shore of the harbour is faced for a distance of 200 yd (183 m) with rough pieces of red stone. Near the curved west corner courses of worn grey stone blocks rise from the beach to an overhanging rolled edge kerb, much worn. There is an adjoining section of better grey stone blocks rising to a less worn rolled edge kerb, from the end of which the modern pier projects east-south-east.

From the west side of this pier the left bank of the river, here flowing from north-west to south-east, and spanned by a modern road bridge, is faced with red stone blocks. Below the bridge there is a section where the blocks are set with their longer sides horizontal. Red stone block construction of a more common kind, the faces of the blocks nearly square and with their shorter sides set horizontally, lines the left bank from the bridge as far as the mouth of a rough dock about 160 yd (146 m) upstream from the harbour. Four red stone pawls are set about 5 ft (1.5 m) back from the edge of the quay so formed. The head end of the dock for about half its length of approximately 50 yd (45.7 m) is lined on each side with rougher masonry, giving way to a narrow beach at the end. The rounded extremity of the outer arm of the dock is, however, of much neater block work. In the centre of the rounded end there is a short flight of steps, leading down to a lower, narrower ridge of stones with a convex surface. This groyne extends downstream nearly as far as the bridge. In it are set large timber posts, while smaller timbers lean towards them from bases in the river bed, close by on the left hand side. The right bank of the river opposite the dock is revetted with masonry. There are two lined recesses in this, but no quay, or even a path at the foot of the very steep bank.

Berriedale ND 121 225 (illus 14)

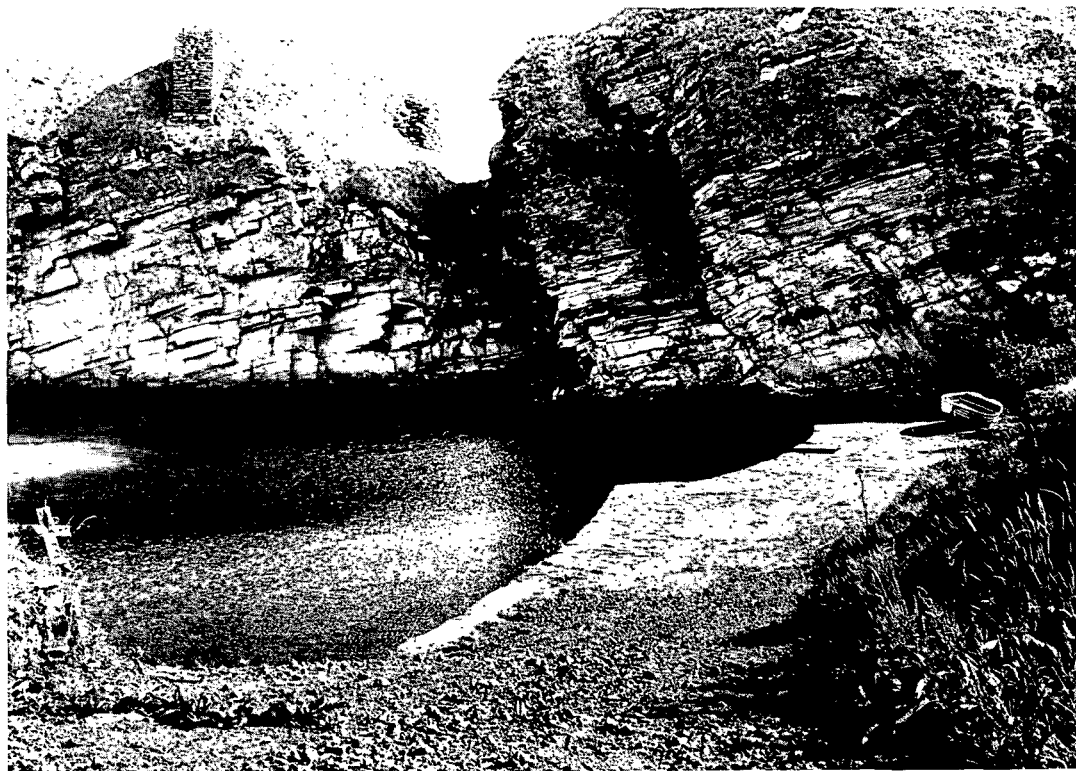
Inland from the Ord of Caithness, Morvern (706 m) and the Scarabens are drained by the Langwell and Berriedale Rivers into gorges which unite about 50 m from the sea. The course of the combined river turns from south-south-east to north-north-east at its mouth, between a high fortified cliff above the right bank and a tongue of shingle on the left, which has been driven into the angle by

the sea. The shingle bank now almost blocks the exit. These natural hazards no doubt help to explain why herring fishing from Berriedale was discontinued before 1840 (*NSAS*, Latheron, V15, 104), though salmon were still 'kitted' and sent to the London market. (On export of salmon, see *DNB*, 14, 335 on George Dempster of Dunnichen.)

Structure

Any boat in the deep pool at the foot of the cliff would be well sheltered, and could be reached from the left bank. For access from the right bank, there is a very small beach of stones at the base of the cliff, which may conceivably have been of some use to the castle directly above (illus 14). Upstream from this, the right bank has been faced, kerbed and paved with stone blocks to form a quay about 50 yd (45.7 m) long. Three yards (2.7 m) from the rectangular downstream end of this quay, a flight of stone stairs 1 ft 9 in (0.53 m) wide is inset. About 20 yd (18.3 m) from its upstream end, the south-westerly line of the quay changes, rounding a corner where perhaps it once ended, and straightening again for the final 30 yd (27.4 m) on a slightly more southerly line. The straight sides of the great fan-shaped capstone of the corner are 4 ft (1.2 m) long. One of its iron cramps is still in place, as are four others in the kerb nearby. The bank behind the quay is roughly faced with stone in a few places.

About 8 yd (7.3 m) upstream from the quay, a suspension bridge gives access to the left bank and beach to the north. The bridge rests on stone slab abutments without mortar. A row of four old cottages built of stone slabs faces out to sea from a terrace above the north end of the shingle beach, before it meets the next rocky headland. The terrace is fronted by a sea wall 30 yd (27.4 m) long of small red and grey stone slabs. These are set vertically up to one lateral top course and finished with a row of rounded stones. There is much slab debris at the foot of the wall, possibly the remains of an improved 'spending beach', of which a heavy kerb set into the south end of this beach may also be a remnant. Two more old houses, and an ice-



ILLUS 14 Berriedale: the quay and shingle bank (far left) blocking the entrance to the harbour

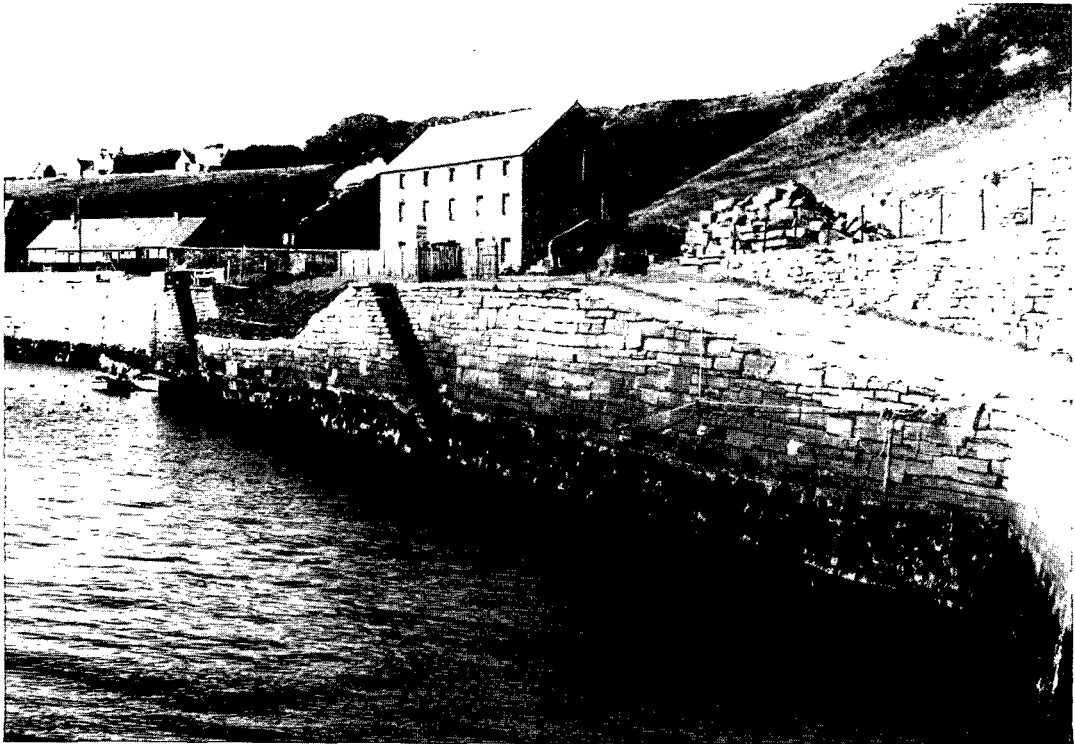
house built into the bank above the beach are evidence of earlier determination to use this harbour, in spite of its obvious dangers.

DUNBEATH ND 166 293 (illus 15)

This place was of sufficient importance in the 1570s to be marked on Bishop Leslie's map (Brown 1893, 114). A Macfarlane document probably of the 1720s, records that small barks anchored in the mouth of Dunbeath Water, and that this was the port most frequently visited by boats, presumably fishing boats, from Moray (Macfarlane *Geog Coll*, 1, 164). In 1840 the place was regarded as suitable for development (NSAS, Latheron, V15, 106); and in 1847 the Tidal Harbours Commissioners described Dunbeath as a fishing station and noted that the local fishermen had built a sea wall there (*Harbours*, xxxix).

Structure

Portormin Head is a bluff on the right at the entry to Dunbeath Bay from the east. The Dunbeath Water flows out into the north-west corner of the bay. At the foot of the bluff a rock pocket and a small sandy bay lie sheltered from the east and north, constituting, perhaps the original 'port'. The modern pier projects south-westwards into the main opening of Dunbeath Bay about half way from the bluff to the narrows at the river mouth. An older looking slip rises from the beach to the shore end of the modern pier, at right angles to its outer side. From the beach on the inner side of the shore end of the modern pier, another slip rises at right angles to the pier up to the surface level of a modern quay. This follows the curve of the river bank at the narrows, and adjoins a ruinous section, faced with red stone blocks, probably the remains of the 1847 sea wall. Very steep steps are inset at each end of this face, which ends quite near the



ILLUS 15 Dunbeath: the 1847 sea wall and two flights of very steep steps. Stones salvaged from the recently collapsed face at upper right

point at which a wooden jetty projects into the river (illus 15). One rough stone pawl 2 ft (0.6 m) high stands at the back of the quay in line with the head of the jetty. On the right bank of the river, a little nearer the mouth than the left bank jetty, the framework of another wooden jetty survives, suggesting a ferry crossing earlier than, or supplementary to the road bridge which crosses further upstream.

Latheronwheel ND 191 321 (illus 16)

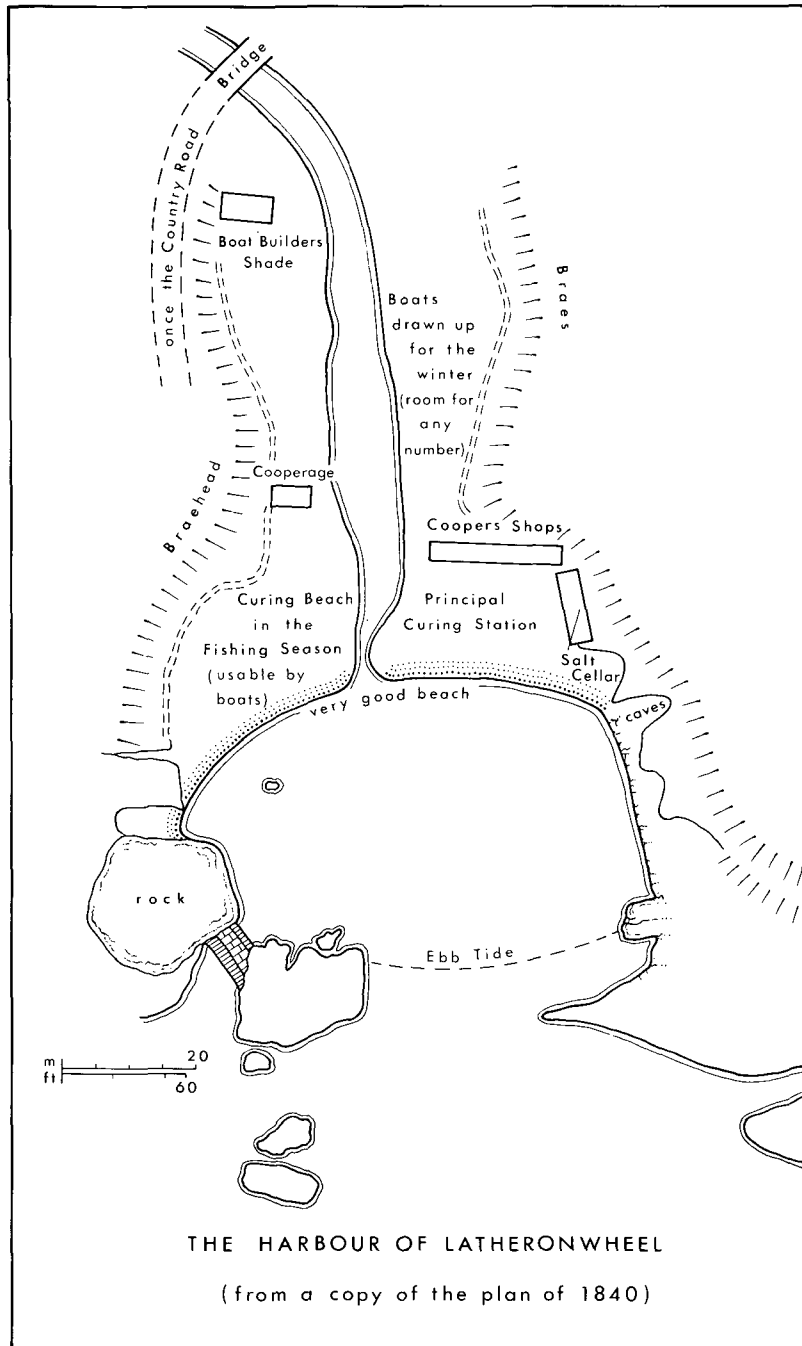
The British Fisheries Society in 1817 included Latheronwheel and four other small places in the fishing station of Lybster. Swany's plan of 1840 (RHP 4250), shows, however, that the inlet, a goe with rocks and one stack 40 ft (12.1 m) high in its mouth, had acquired few harbour facilities in the intervening 23 years (illus 16). The plan shows a rough quay along the north shore, and masonry blocking the 12 ft (3.6 m) gap between the stack and the shore. Both these structures correspond to regular features of the later harbour. It is not clear from the plan whether Swany recorded existing works or marked either or both as proposals. Stevenson's plan, dated 20 October 1851 (in the West Register House, Edinburgh), shows the south gap breakwater breached. From the quay along the north shore, a pier projects into the inlet and is marked 'Old Pier'. This appears to have been constructed between 1840 and 1850 on the foundation of a natural rock outcrop at the east end of the north quay, and may be the 'fishery harbour' which Mitchell (1883, V2, 130) states that he built here for the proprietor, the Hon Robert Dunbar.

Structure

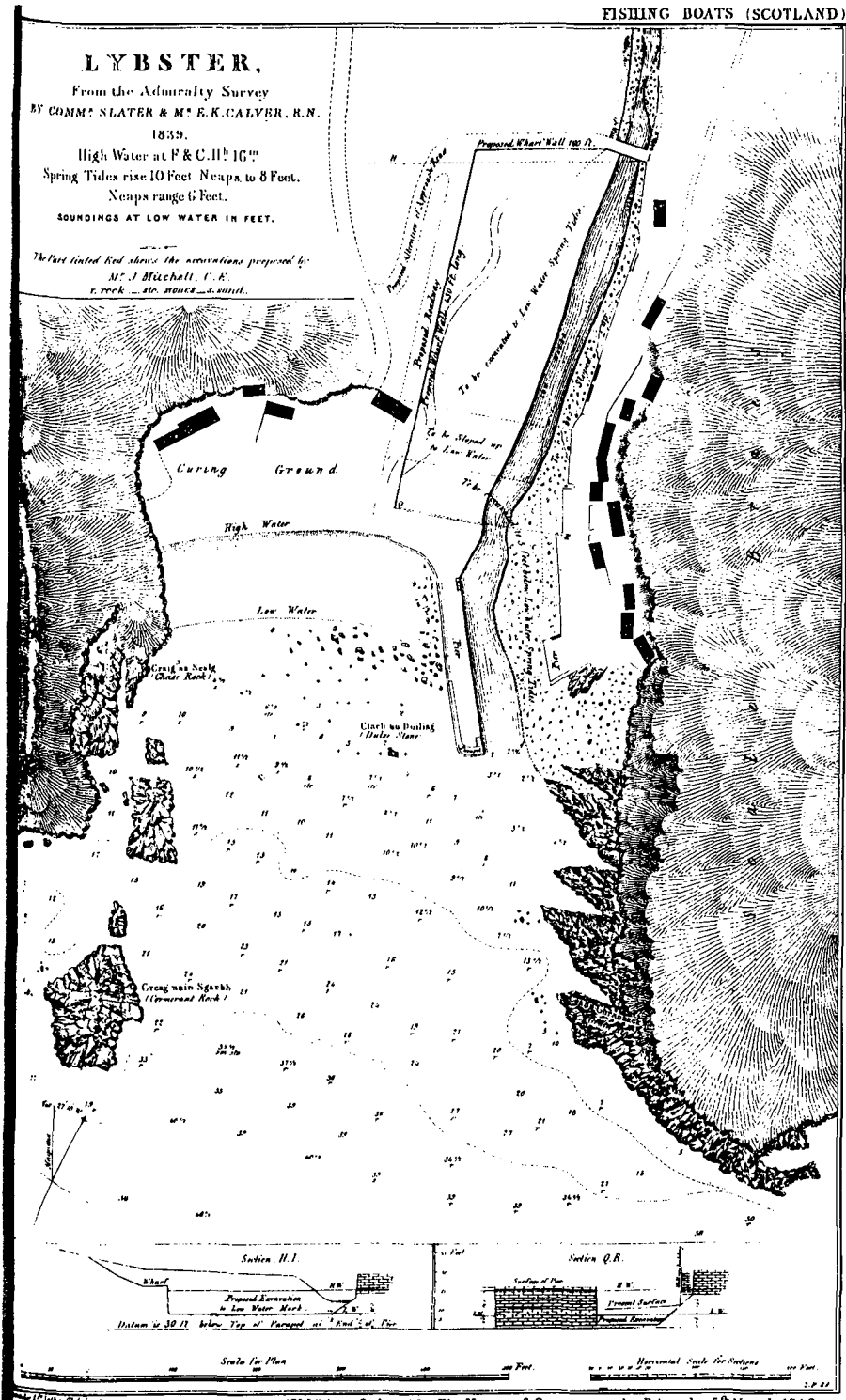
The form of the early 19th-century harbour of Latheronwheel is more readily understood from the OS 1:2500 map of 1906, than by reference either to Stevenson's plan or to the harbour as it is today. Not all of Stevenson's plan was realized, and there have been many more modern changes. In 1906, the pier of the 1840s had been somewhat extended, but the curve of the bay head was not much changed, except for a small projection along the left side of the burn mouth, where the outfall appears to have been canalized. The south gap breakwater is in place.

LYBSTER ND 245 350 (illus 17)

In 1817 the British Fisheries Society organized Lybster fishing station, working 40 boats and including Forse, Achastle, Swiney and Clyth. By 1833 this station was the third largest in all Scotland (Mowat 1938). W G Mowat, the local historian whose account is followed throughout this note, adduces place name evidence for early Christian and Viking use of the landing place at the mouth of the Reisgill Burn in Lybster bay, and leads up to its development at the height of the herring fishing boom by recording that clearance victims were fishing here for lobsters in 1793. The improving proprietor, General Patrick Sinclair of Lybster founded the village in 1802 and began to grow wheat in 1806. He built a timber pier in 1810. In 1830 the harbour was formed by the erection of a stone pier 90 yd (82.2 m) long, paid for wholly by the proprietor, Captain T F Sinclair. Mowat dates the completion of this pier in 1832, and states that it ran south along the west bank of the Reisgill to the sea, and that a stone jetty with an adjoining retaining wall and an upper retaining wall was built on the east side of the harbour mouth in the same year. Boats at this time were beached or moored to rings in the rocks near the Reisgill waterfall. In 1833 Inver House, then an inn, was built into the face of the hillside above the right bank of the burn, which was diverted from crossing the building site into its present course. This is as already shown on the Admiralty Survey made by Slater and Calver in 1839. Their plan, published by the Tidal Harbours Commissioners in 1847 (*Harbours*, App C, 376) shows an area of the burn mouth inside both piers largely dried out at low tide, and illustrates the need for deepening alluded to in the *New Statistical Account* (V15, 105). After a gale in 1848, in which 94 Caithness fishermen were drowned, the Washington Commission (Washington 1848, 272) issued a preliminary extract from the main Report (Washington 1849) recommending improvement of the



ILLUS 16 Latheronwheel: from P Swany's optimistic plan, 1840



ILLUS 17 Lybster: J Mitchell's plan of the harbour built on the 1848 recommendation of the Washington Commission

'small but safe harbour of Lybster' with an urgency in strong contrast to the tone of the recommendations for Wick which emerged after a long enquiry. Work financed by the resulting Parliamentary grant enabled Lybster to shelter 100 boats. J Mitchell, the Fishery Commissioners' engineer, supervised work by a Perth contractor to the designs of D Stephenson (illus 17). Improvements continued after 1850, causing riots when construction stopped fishing, and left the harbour much as it is today, apart from internal north and east jetties. The weir in the Reisgill, specifically recommended by Washington, was made at this time.

Structure

The site of General Sinclair's wooden pier of 1810 is perhaps most likely to have been the same as that of the stone jetty of 1832 on the east bank, as this is sheltered from the north and east and would, before the long west bank extension pier was run out to below low water mark opposite, have been directly at the burn mouth. The lozenge-shaped head of the pier now occupying this site is built of large rough blocks, in the surface of which one stone pawl survives. A slip rises behind rocks to the south-east up to the level of the former fish-curing buildings. The form of the retaining walls running inland along the left bank shows little change from the plan of 1839 in spite of modern resurfacing and additions. Four sets of steps in the shore wall, and three in the land-retaining wall recall the heightened activity of transferring herring from a harbour full of boats to the curing stations above, between tides. The shoreward end and west side of the harbour show fewer early features. There is still a slip in the centre of the shoreward end. This served a boatyard which replaced the curing ground shown there in 1839. The enlarged basin of the 1850s brought a new approach road to the back of its new quays, adjoining the improved and straightened 90 yd (82.2 m) pier, which still occupies the site of the 1832 original.

Clyth ND 280 358

In 1840 a fishing village with a 'neat little pier' (*NSAS*, V15, 105) was part of Lybster fishing station. The OS 1:2500 map of 1906 shows a short straight pier projecting from the north shore of the narrow inlet marked Clyth Harbour. A plan in the West Register House, Edinburgh, dated 1893 (RHP 4294), is of a short pier at this point, from which a path is marked, leading to two buildings at the head of the inlet.

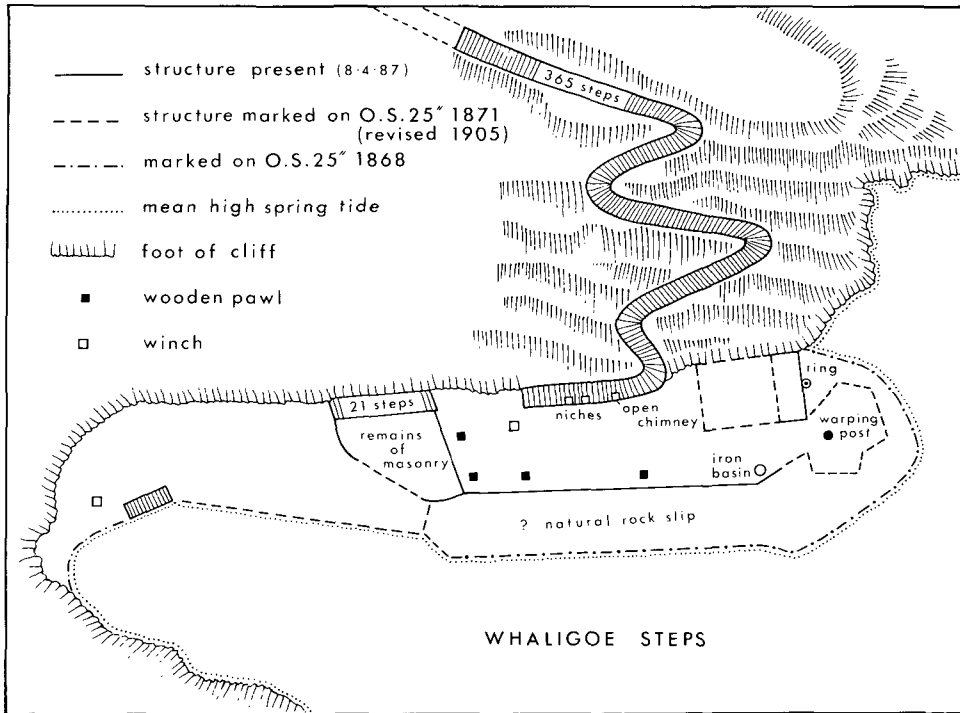
Occumster ND 265 353

A small burn runs out of a v-shaped fissure directly on to the beach of an inlet with very steep sides, sheltered from the north and east. A fish house stands just above high water mark on the beach to the west of the burn mouth. Of the pier built partly by Bremner before 1845, according to Mowat (1980, 10), and marked on the 1871 OS 1:2500 map, only a short stretch, consisting of long narrow flagstones vertically laid, survives at the foot of the cliff to the north of the inlet. Partial shelter from the south is given here by a stack off shore, south-west of Creek Belly. The track from Occumster descends through a double hairpin bend to the steep rock incline above Creek Belly, to which it was carried down a slope on a facing of masonry, which survives. It did not reach the sea, and boats could only have been loaded and unloaded in Creek Belly by haulage over the rocks. There is no visible path to the inner harbour, and it seems most likely that the pier and fish house were reached only by boat.

Whaligoe ND 321 403 (illus 2, 18, 19)

Pennant, in 1769 (1979, 333) noted the 365 steps in the face of the 360 ft (109.4 m) cliff, up which fish were carried from boats using the inlet (illus 2, 18).

The 365 steps still give access to the north shore of the inlet, and to the remains of a stonebuilt quay, approximately 30 yd (27.4 m) long and 11 yd (10 m) wide. With their low balustrade, formed, like the steps themselves, of Caithness flagstones, the steps have been partially repaired at intervals up to the present. Many are broken, and parts of the structure are in some danger from landslips. Five



ILLUS 18 Whaligoe: plan of steps and harbour



ILLUS 19 Whaligoe: the second and third turnings of the steps, looking down and across to the cliff on the south side of the goe

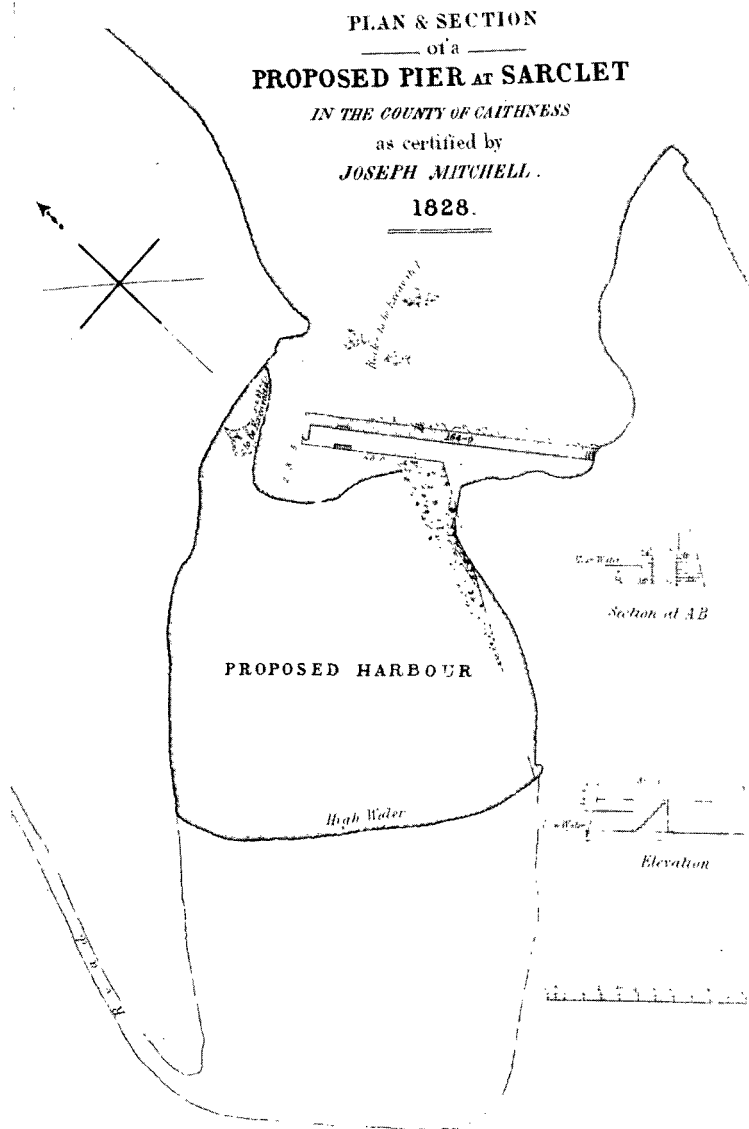
hairpin bends take advantage of natural inequalities in the cliff face (illus 19). Twenty-one more steps lead down from the main quay, on which stands the ruin of the harbour house, to what is now open shore near the head of the inlet (illus 18). At least as late as 1905, there was a third flight of smaller steps, nearer still to the head of the inlet, and descending to the tide line. The OS maps of 1868, 1871 and 1905, though far from clear, seem to indicate that there was, for some time, structure at a lower level than that of the surviving quay. Levelling of the shore between this quay and the head of the inlet would have had obvious advantages, and may perhaps have been the first of the improvements to have been achieved, possibly even at the same time as the main steps were built. Even more difficult to interpret is the mapping of the area, now also reverted to open shore, below the long face of the main quay. None of the early maps distinguishes clearly between the line marking mean high water springs, and that denoting structural improvement of the shore line along this stretch, but the angular shape indicated at the tip of this area appears to contrast strongly with the natural conformation of the neighbouring shore lines. It may be that an originally natural or slightly improved rock slip along this face of the main quay was at one time paved. The main flight of steps is the only structure which was certainly built before 1850. The surviving 20 ft (6 m) high warping post, the base of which has completely disappeared from the rocks in which it is set, and the iron rings, one in the sea-face of the harbour house, and at least three more in offshore rocks, may be early features or successors of such, since it must always have been exceedingly difficult to obtain safe passage into the inlet. The remains of two winches, probably of much later date, one at the head of the inlet and one at the foot of the steps, witness to the same struggles. The two niches and the open chimney in the supporting wall of the lowest flight of the main steps may have been used for lights. One feature of the main quay, suggesting that parts of it, at least, are later than the steps, is the iron basin set in the broken end nearest the open sea. Part of an iron ladder may be seen projecting from the stonework beneath the basin. The steps themselves are as impressive a structure as any harbour work of the 18th or early 19th century in Scotland. The achievement of building them illustrates the strength of the contemporary need to work the fishery of this coast, and a large house, Whaligoe Square, near the head of the steps shows that wealth did accrue, to some. The place-name has an early Christian origin (Holy goe), but whales' jawbones are set up locally and this latter association has overlaid the former.

SARCLET ND 352 433 (illus 20, 21)

An early mention of Sarclet harbour occurs in the papers of James Sinclair in Sarclet (otherwise Thrumster), who died in 1816 (Sinclair 1802), together with the information that there were also salt pans at Sarclet. Local availability of salt may be one reason why this 'goe', a narrow U-shaped inlet in the cliffs, was considered so promising as a fishery harbour that efforts were made from the beginning of the 19th century to protect boats calling there, in spite of its restricted entrance, and rocks in the fairway.

Sarclet village and Thrumster House were built by David Brodie of Hopeville, a son-in-law and tenant of the Sinclair proprietor (Mitchison 1962, 192), and the harbour is known today as Brodie's Haven, on account of his efforts to build a breakwater at the entrance, before the estate reverted to a Sinclair proprietor in 1817. Brodie spent £950 on the operation, which soon failed (Henderson 1812a).

The next proprietor of Thrumster was James Innes, whose son Robert was one of the first three proprietors in Scotland to obtain a Treasury grant for harbour building by contributing a proportion of the cost of works surveyed, estimated and organized by the Fisheries Commissioners as described in their Report for the year ended 5 April 1829 (Reports Commissioners 1830, 5, 15 & 21). Early in 1828, the Commissioners having secured Treasury agreement under the Act (48 Geo III c 110 s 7 and c 94 s 4), appointed J Mitchell to the post of engineer. His plans for Sarclet, Rockfield and Hilton of



ILLUS 20 Sarclet: J Mitchell's plans illustrating the increase in complexity of the harbour project from 1828 to 1843, Herring Fisheries Commission, 1830 V15, 182-3

Cadboll are included in the 1830 Report. Correspondence between the Commission's Secretary and Robert Innes (kindly made available by Mrs I Macleod), reveals details of the negotiations, and of the work of building with its many setbacks and difficulties, up to 1844. Even then, though the Commissioners regarded the work as complete, Robert Innes remained highly dissatisfied. He had spent far more than his initial contribution of one-third of the cost, estimated by Mitchell at £1106 13s 4d, and had seen the destruction of the work by storms in 1831 and 1833. James Bremner claimed to have

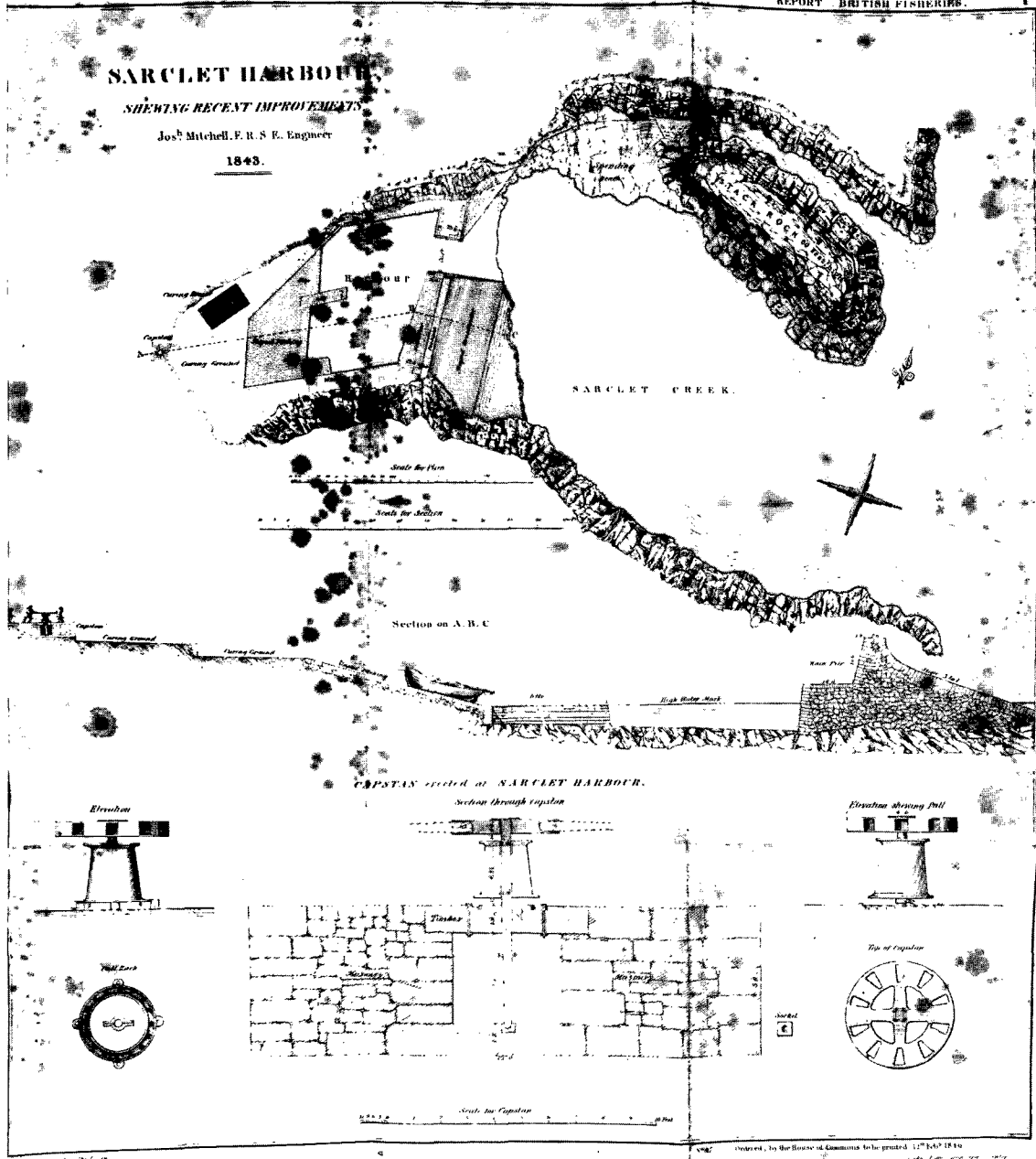
REPORT BRITISH FISHERIES.

SARCLET HARBOUR

SHOWING RECENT IMPROVEMENTS

Jos^{ph} Mitchell, F.R.S.E. Engineer

1843.



Printed, by the British Government, to be printed. 127147-1843

ILLUS 21 Sarclet; from Herring Fisheries Commission, 1846 V23, 20-1

rebuilt Sarclet harbour between 1834 and 1841 (Bremner 1845, 23–5 & app 5, 47). His biographer (Mowat 1980, 9, 10) describes his use of barges to bring stones from Wick and lay them directly from these transports onto the sea bed, and, in the final stages, of cranes with jibs extending 120 ft (36.5 m) out over the cliff top. Some of the cranes used, though probably not these innovatory types, belonged to Robert Innes, whose letters reveal bad relations with Bremner about this and the delays in the work. The breakwater and other improvements are shown in detail on a plan (kindly made available by Mrs I Macleod), drawn by Mitchell in 1843. A feature of interest is the powerful capstan sited at the head of the inlet, beyond the fish curing ground, essential for manoeuvring boats in the narrow creek, and into the minute harbour with its 35 ft (10.6 m) entrance. This plan differs substantially from the one Mitchell made in 1828, which shows no capstan, no pier on the north side of the entrance and no sloped pitching either on the sea face of the main pier or on the beach at the head of the harbour basin. The *New Statistical Account* (NSAS 15, 157) records that by 1841 the cove had been converted at great expense, into a ‘pretty good harbour for fishing boats’. Not until 1845, however, could Mitchell report to the Fishery Commissioners that the harbour, with additions specified in 1842 and costing £569 0s 9d, of which a quarter was paid by Robert Innes, was complete. The Harbour Commissioners in 1847 considered Sarclet one of the best fishing stations, though the harbour was ‘very uneasy’ due to the lack of a spending beach, and with room for only 33 boats in its half acre of sheltered water (*Harbours*, xl).

Structure

The remains of a breakwater across the mouth of the inlet are clearly visible, and are presumably those of the structure designed by Mitchell and erected, before 1844, by Bremner, which fell in 1880. The facing of the head of the inlet with grey stone and its paved shore are probably of similar date. The remains of the great capstan, or possibly a successor to that of 1843 can be seen. The harbour is approached by a very steep track rounding the head of the inlet from the north and descending to what may be a natural or partially rock-cut quay at the foot of the cliff to the south.

wick ND 370 506 (at entrance to harbour of 1831) (illus 22–4)

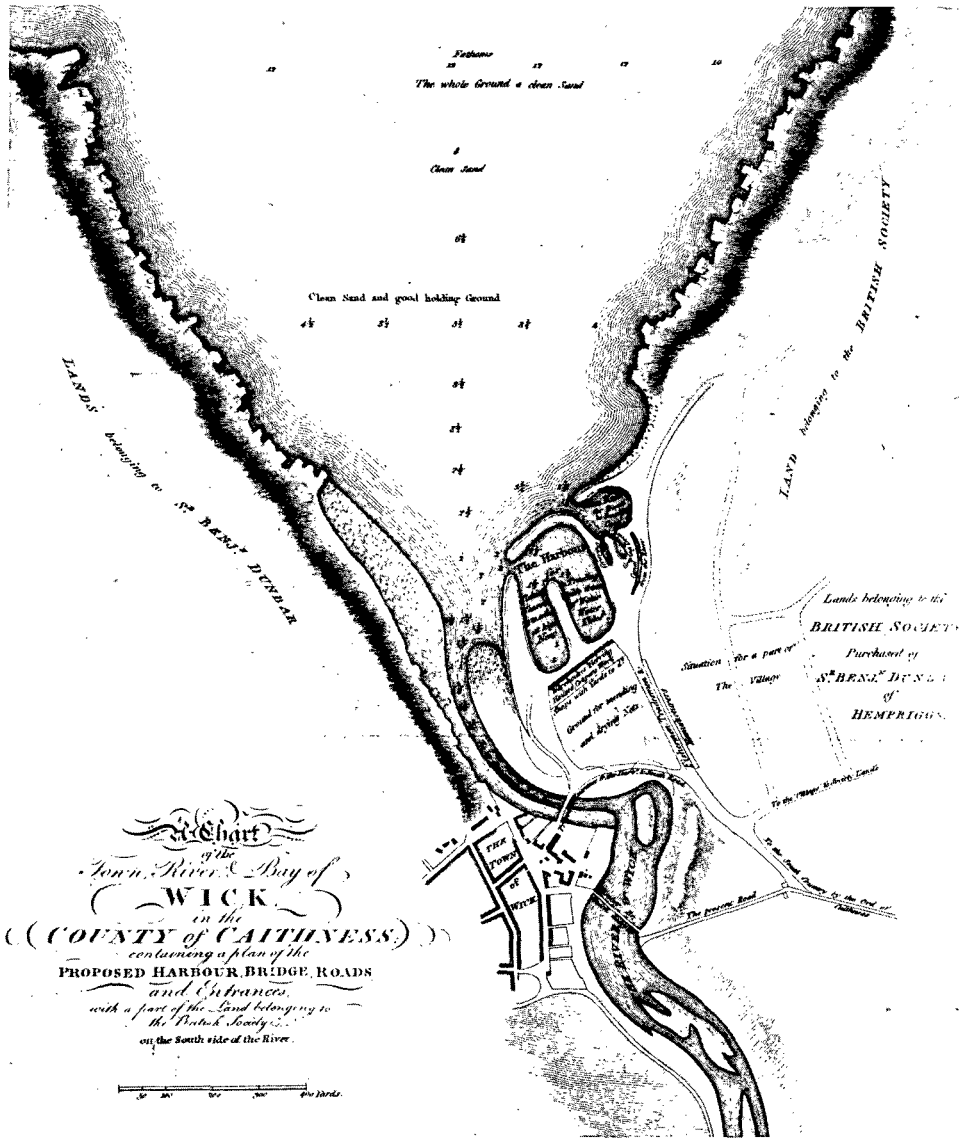
The old part of the town of Wick stands on the left bank of the river of the same name, close to its mouth and well within the tidal range. Bishop Leslie, writing in the 1570s, describes Wick as the chief town of Caithness (Brown 1893, 142) but makes no mention of a harbour. Although the Bay of Wick is the first opening in the coastline to the south of Duncansby Head to receive the outfall of a river of any considerable size, harbour development there has always been difficult. Shelter from the east is lacking, and it is from that quarter that some of the worst storms blow. Even today, no extensive area of the bay can be enclosed behind heavy protective works, because the sea bed is of clay, in which foundations tend to shift. (Information by courtesy of Mr A Barry, Scottish Development Department.) Sand from the sea and silt from the river choke the head of the bay so that the better sheltered areas require constant dredging. On Bishop Leslie’s map (Brown 1893, 114) a long narrow inlet of the sea is shown in place of the stretch of river above the town, and this strikes inland along a line corresponding with the strip of low-lying and partially mossy ground that extends almost to Loch Watten. Shipping in the late 16th century used the town’s waterfront, whether this was simply a beach or some kind of wharfage. In 1589 the Royal Burgh of Wick had a charter of King James VI, after Sutherland’s men had plundered the possessions of a merchant, including his ships (Calder 1887, 33–5). At least one ship was seriously damaged (NSAS V15, 155). A Macfarlane document, datable to the early 17th century, (Macfarlane *Geog Coll*, 2, 243) describes Wick as a safe harbour for ships to call at (*oppidum . . . portu appellandis navibus tutum*) while another mentions it as a harbour for the coasting trade in imports and exports (*ibid* 3, 84). In 1654, however, the Cromwellian Commissioner

Tucker reported no vessel belonging to Wick (Calder 1887, 33–5). By 1701 the description of Wick by the Reverend John Brand shows that a revival had begun (Brand 1883, 226):

Wick is a Royal Burgh . . . by the side of which runneth a small river, at the mouth of the River is a harbour for Boats or Barks to ly in, which they come in at full sea, but this harbour is not so much frequented as another, about a Mile to the North East of Wick, where they judge the boats do ly safer.

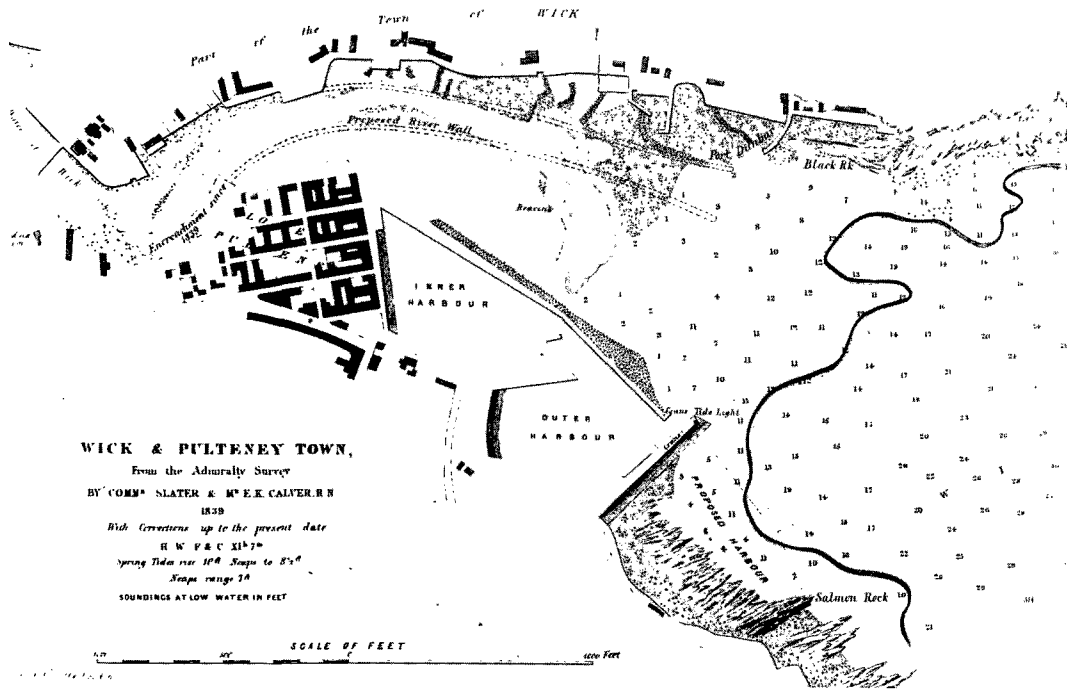
Sutherland relates this development to legislative changes beginning with the Act of 1661 (Sutherland 1982, 18) the first to encourage the setting up of a company to establish fishing stations. Sutherland further relates harbour development at Wick to the associated change from the use of large ships, ‘herring busses’, to much smaller craft. Legislation provided in 1750 for a bounty on herring fishing boats of 20 to 80 tons, and in 1756 for the free use by fishermen of any suitable harbour or shore. Staxigoe, the inlet north of Wick where Brand heard that ships could ‘ly safer’, adjoins the farm of Field, from where, in 1757, Alexander Miller with two partners fitted out two sloops on the bounty and began to fish, Wick having then no harbour ‘only a rough quay, as most of the small trade it had was taken over the sandy shores of its river’ (Sutherland 1982, 21). Miller and his neighbours prospered. The first local station of the British Fisheries Society, incorporated in 1786, was at Staxigoe, the owners of smaller boats participating in greatly increasing numbers after 1785 when bounty was made payable on herring caught. Bounty was paid on 32 sloops in 1790 when 200 small boats worked out of Staxigoe, Wick, and Broadhaven which is a rather less snug inlet between the two. Of the 230, 44 vessels wintered in the ‘ship pool’ at Wick (*PCFC* 1869). In 1793 J Rennie approved a plan, attributed in the Report of the Washington Commission on gale damage in 1849 to J Henderson, made a survey and estimated for the British Fisheries Society that to build a harbour at Wick would cost £14 441 9s. Henderson had planned a harbour in the natural bed of the river near the town to be excavated to the level of low water at spring tide and to have a canal leading to it on the west (ie the right bank) side of the estuary. By 1801, however, when the Society sent T Telford to acquire a harbour site, the ‘natural harbour’ area was required for the development of the Society’s settlement (Washington 1849, viii), and the harbour was sited, perhaps more economically, in the north-west corner of the bay (illus 22). The first, inner or north harbour was planned and laid out by Telford in 1803 (Bremner 1845, 7). The society obtained a grant of £7500 under the Fisheries Act of 1806 and the foundation stone was laid on 6 September in that year. The grant accrued from the work of the Commissioners for the Forfeited Estates (Dunlop 1952, 49). Half the initial cost of the harbour was in this way derived from one of the major operations which changed land ownership and management in the Highlands at this time and caused many people to seek work especially in coastal areas including Wick. The harbour was not completed until 1811. Feus on the right bank of the river had been acquired from the estate of Hempbriggs, to which Alexander Miller was factor. Telford designed the new settlement for the fishing community, named Pulteney Town after the chairman of the society. The resident population of Lower Pulteney Town grew from 15 in 1790 to 2300 in 1830, and there was also a very large seasonal increase. Piped water, however, did not reach the harbour area until 1844. The resulting epidemic cholera merely checked further expansion periodically (Sutherland 1982, 30).

This expansion necessitated the provision of an outer harbour, planned in 1824, surveyed by Mitchell in 1825, partially destroyed by a storm while under construction by Bremner in 1827, and completed, together with modifications of the inner harbour including the closing of its original entrance and the opening of another into the new harbour, in 1831. The Secretary to the British Fisheries Society gave 1834 as the date of final completion in his report (BFS 1848). In 1842 Gibb, the Aberdeen engineer, was being consulted about sand accumulating in that harbour. The recommen-



ILLUS 22 Wick: J Henderson's plan, 1812, from his *General Survey of the Agriculture of Caithness*. Here, his recommendation of a harbour in the natural bed of the river has given way to the Rennie-Telford-Bremner scheme of harbours on the south shore of the estuary. But Henderson is vague as to their shape, and has retained a vestigial section of canal

dition was then that Salmon Rock, further out along the same shore of the bay, would be a suitable site for a steamer pier. A proposed harbour between Salmon Rock and the east pier of the outer harbour is marked on the 1839 Admiralty Survey plan published by the Tidal Harbours Commissioners in 1847 (*Harbours*, App C, 376). Instead, the outer and inner harbours were deepened in 1847 and 1848. From then until the terminal date of this study in 1850, the harbour facilities at Wick were



ILLUS 23 Wick: plan accompanying the Washington Report, 1849, in which the river was still acknowledged to offer the most sheltered refuge, but Pulteneytown had encroached upon the only possible site in its bed

continually overcrowded, and their deficiencies felt. In particular, the inadequacy of Wick as a harbour of refuge, with its narrow, north facing entrance at right angles to the river mouth, led to the loss of 37 lives in sight of the harbour, in a storm in 1848 (illus 23). The Salmon Rock proposal was therefore reconsidered. In view of the failure of Stephenson's later massive breakwater, the society was probably right in rejecting the scheme on the advice of their Secretary and Law Agents in 1848 (Mitchell 1883, 304-6).

Small harbour works along the north shore of the bay are shown on the OS 1:2500 map of 1903, having grown in response to the overcrowding of the 1811 and 1831 harbours. Though none of the later 19th century attempts to render Wick safe as a harbour of refuge succeeded, its vast trade in herring declined only recently.

A fortnightly steamer began to ply to Leith in 1833, and later a weekly one ran to Lerwick, Kirkwall, Aberdeen and again Leith. Sand in the harbour interrupted steamer services in 1860, no doubt with adverse effects on the traffic in freight, which in 1841 amounted to 30,000 tons (NSAS V15, 152).

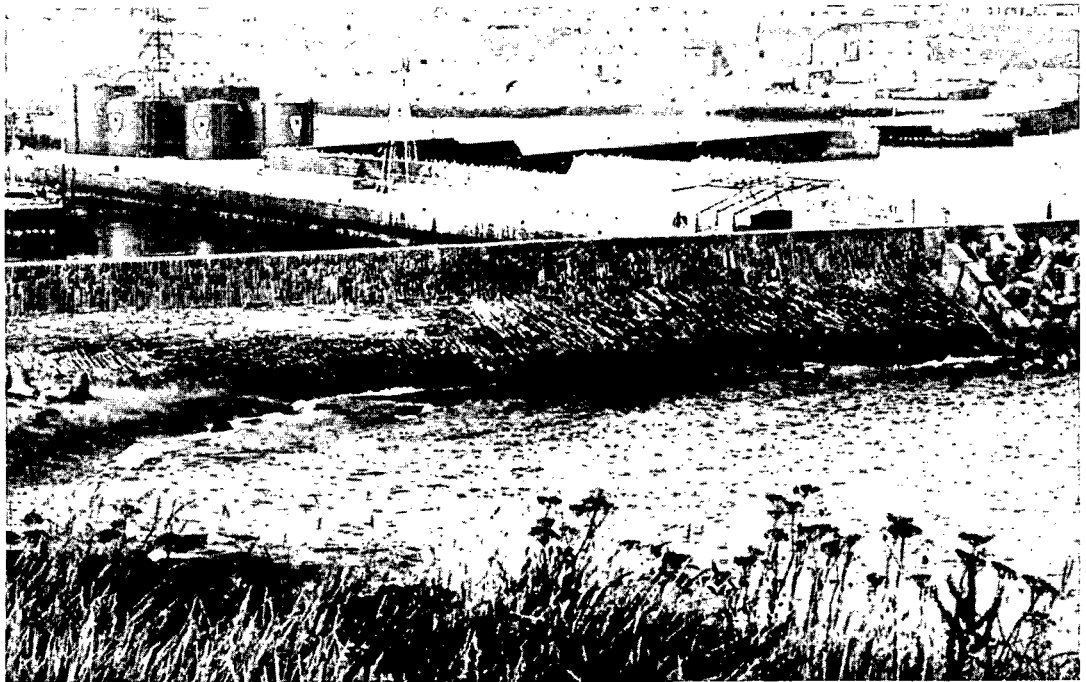
Structure

The harbour area of Wick lies in a narrow cleft between the old town on the left bank of the river and a steep slope up from the right bank to the high ground from which upper Pulteneytown overlooks the estuary. The location of the 'ship-pool of Wick', in use in 1791, has not been identified. A plan of the town in Henderson's *General View of the Agricultural of Caithness*, printed in 1812, differs from the plan of 1789, referred to in the Washington Report, in many ways including the lack of an exit, with piers and sluices, for

the proposed canal. On a stretch of the river below the (A9) road-bridge are the words '... vessels ... lie in this part of the river'. It is not a pool, but above the bridge and the next bend in the river there is a wider stretch which might be so described. This is marked 'THE RIVER OF WICK' and was crossed by a timber bridge. An oil painting of the period shows boats beached on the left bank where the river narrows, below an area still known as the Drying Green. (Information by courtesy of Mrs I Macleod.)

The layout of the harbours as completed in 1831 is little changed today, though largely covered in by modern surfacing. The entrance to the outer harbour consists of an opening between the tip of a breakwater running out north-eastwards into the bay, and a pier, the north pier, which extends north-westwards along the edge of the tideway on the right hand side of the estuary to join the river bank just below a bridge which now spans the mouth. At the entrance to the 1831 harbour the breakwater pier originally extended well out into the tideway beyond the opening. A further extension was added in 1883. The 1831 harbour had originally a paved slope along its south-west side (*Harbours*, 1847 App C, 376). A wharf was built out over this before 1920 (Sutherland 1982, 71). The present entrance to the inner, 1811, harbour is an opening between its north pier and the eastern arm of the outer harbour. Slabs of grey stone, laid laterally, are visible from about half way along the inner face of the 1811 north pier to its eastern tip, which could be those laid in place by Bremner when he closed the original entrance and built the outer harbour. A slight change in the alignment of the north pier inner face before it reaches the opening of the outer harbour suggests that the original opening of the outer harbour may have been at about this point. Vertically laid flagstones, which Bremner used in so much harbour construction (Bremner 1845, 20) are still readily visible only on the outer face of the 1834 harbour's east breakwater pier (illus 24).

The very recent construction of the north and south river piers and works along the left bank of the estuary have completely altered the river mouth, now a river basin, and the north shore frontage. A model of the estuary prior to these works is in the Wick Society's museum, and shows the names of some of the old small landing places, such as Reid's Harbour, and a projection called the Dicky.



ILLUS 24 Wick: vertical flagstones laid by J Bremner in the sea wall of the outer harbour in 1831. Photographed from near the Town's memorial to Bremner (1856), as one of its greatest benefactors

Broadhaven ND 380 513

Described in 1794 as a 'fine bason' where herring boats were laid up in off season, and classed with other coastal creeks (SAS, V10, 5). A fishing station in 1841 (NSAS, V15, 157).

STAXIGOE ND 386 525

Although essentially a fishing station, incorporated in 1786 before the British Fisheries Society began to develop Wick, Staxigoe must be credited with an even earlier history as a port. The *New Statistical Account* (V15, 157) recorded in 1841 two storehouses built in 1600; and at a date probably early in the 17th century it was described as a harbour for vessels engaged in the coasting trade (Macfarlane *Geog Coll* 3, 84). In 1794 it was noted as a creek to which ships could resort in summer but where they could not lie safely in winter, and as a 'kind of port' for the export of local produce (SAS V10, 5). Another note of 1841 classed it as a tolerably good harbour for boats (NSAS V15, 157). The Report of the Tidal Harbours Commission, 1847, appears to confuse it with Broadhaven, listed above. Harbour works were carried out at Staxigoe, whereas Papigoe and Broadhaven, though nearer to the town of Wick, were less developed. One reason for this may have been that Alexander Miller, who was the first to succeed at the herring fishing with small, four-man, eight-net boats, lived at the farm of Field, adjacent to Staxigoe.

Structure

Both sides of the creek or goe are revetted with vertically set flagstones. The stack, for which the place is named, is a jagged rock pillar, rising to a height of about 25 ft (7.6 m) from the shore of the goe, above low water mark on the west side. The lower part of the stack is scored round with the wear of mooring ropes and chains. Beside and below the stack, and nearer the middle of the harbour, the tops of vertically set flagstones form rough steps in the course of their incline to seaward. These steps are carried on by ridges which may have been cut, or perhaps merely improved by cutting, in the surface of the natural rock incline below. The natural rock sides of the goe show signs of having been artificially smoothed, and the tops of several rocks bear rings, still in use for lines and chains. Two rough stone pawls are in place on the east side. At the centre of the high bank across the head of the harbour stands a wooden post 15 ft (4.5 m) high and 9 in (23 cm) in diameter. This seems more likely to have carried a light than to have been a mooring post. It may not be in its original position as the harbour has recently been cleared of much original construction.

Ackergill ND 349 545

Described by the Tidal Harbours Commissioners in 1847 as a valuable landing place (*Harbours*, xl), where a pier would be useful. Bremner had planned, surveyed and estimated the cost of a harbour here before 1845 (Bremner 1845, 32). The OS 1:2500 map of 1964 marks a jetty and slipway, also a ramp in Castle Haven to the west.

Keiss ND 351 609

The *New Statistical Account* (NSAS 15, 158) states that a harbour was built here in 1810, but Bremner gives 1818 as the date of his employment by the proprietor to build a harbour on the north side of Sinclair's Bay (Bremner 1845, 12). Bremner, born in 1784 at Stain, the southernmost house in Keiss, began the work using barges and cranes like those he had already adapted to move large stone blocks in the building of Wick Harbour. Keiss was the place where Bremner, according to his biographer (Mowat 1980, 4-5) first used vertically set flagstones, in accordance with his theory that stones with their narrower faces presented to the sea would not readily be lifted by wave action (Bremner 1845, 12). The work was interrupted by the illness and financial difficulties of the proprietor, but Bremner's unfinished structure remained intact from 1821 to 1833, when a govern-

ment grant was obtained by the Trustees of the Keiss estate, and the work was completed (*Harbours*, xli).

Structure

Immediately south of Tang Head, where the coastline turns west and then south, forming the northern horn of Sinclair's Bay, a slightly curved pier with a short return head projects southwards for 200 ft (60.8 m). Vertically set flagstones form the outer side of this eastern pier, rising to a parapet wall, the inner side of which is of red stone blocks. The pier protected by this heavy backing is itself built of vertical flagstones, fitted at their base on to natural rock, which continues beyond the end of the pier. Two rough stone pawls are in place near the sea end, and one half way along the pier. Two sets of steps are inset in the curved inner face, the further one from land descending, and the nearer one ascending shorewards. There is a slip descending at right angles from the inner shore end of the east pier. A quay of vertical flagstones, 150 ft (45.6 m) long, forms the shore embankment of the outer harbour, sheltered by the east pier. The quay curves at its south end where a short straight pier projects towards the return head of the curved western arm of the harbour. The short pier, also founded on natural rock, is of red stone blocks, paved with laterally set flagstones, and is lower than the adjoining quay, up to which it inclines. Beyond the short pier, the quay runs straight for 150 ft (45.6 m) before meeting, at an acute angle, the western arm of the harbour which curves round to protect the inner basin. This western pier has five sets of steps in its inner face, none of which reaches the base. Red stone blocks have been used for the construction of this inner side, and that of its parapet wall, but there is again a heavy backing of vertical flagstones. The head of the west pier returns at an acute angle to form a short pier, nearly in line with, and higher than, the short pier projecting from the shore quay opposite. Between these two is the entrance, no more than 30 ft (9.1 m) wide, to the inner basin. From the return head, there is a flight of steps up to the top of the parapet wall. Once inside this harbour, there is some shelter from all quarters, and many flights of steps to assist working in all weathers.

Freswick Bay ND 379 671

Mentioned in 1847 as a good anchorage in offshore winds (*Harbours*, xli). The shore of Freswick Bay is sandy, and the mouth of its river unsuitable for the working of boats. Nevertheless, Freswick House stands at the river mouth, which appears to have been modified for working purposes, possibly in connection with a mill. Flat rocks beyond the sands make the shore largely inaccessible. Across the Bay to the north there is, however, a small harbour at Skirza.

Skirza ND 387 680

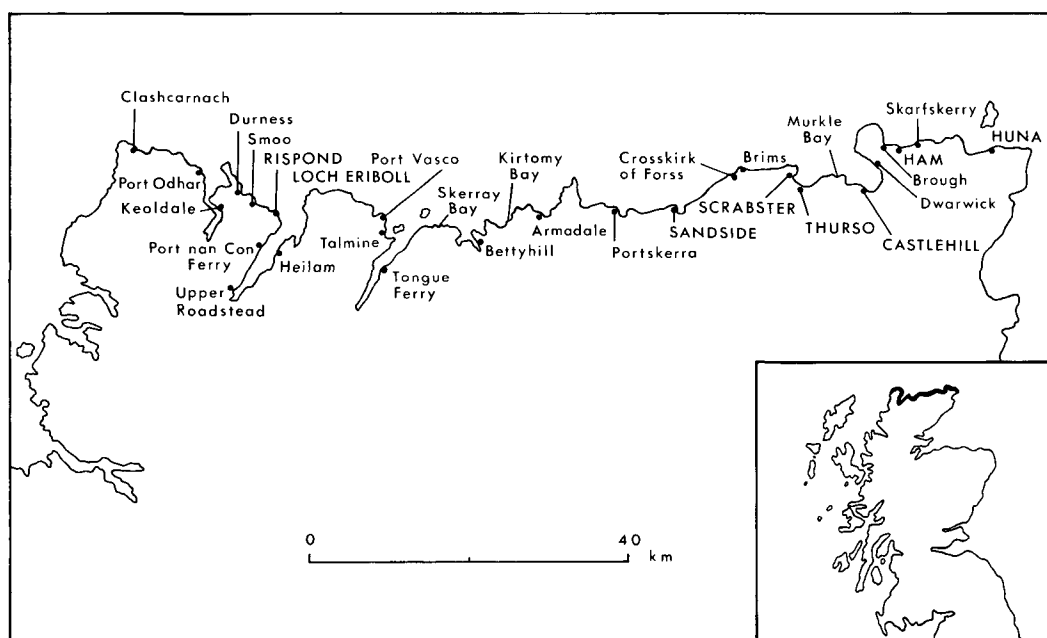
Nearly half way along the north side of Freswick Bay from Skirza Head, a small stone pier 150 ft (45.6 m) long and 20 ft (6 m) wide projects southwards, sheltering an inlet in the rocks of the shore. A road from Skirza House makes a right angled turn towards the head of this pier, which is approached down an incline roughly paved with worn stones. Very roughly stepped flagstones rise from the further side of the pier head to the front of a platform, the foundation of a small pier house. The inner face of the first 20 ft (6 m) section of the pier is of worn lateral flagstones with rounded edges. Steps are inset in the sea end of this section, descending seawards. Beyond the steps, the inner face of the pier is of neater flagstones, also laid laterally, rising to a modern kerb edge. Another flight of steps descends seawards near the sea end. The surface is paved with worn flagstones and a rough stone pawl is in place near the rounded tip. The rounding has been achieved by setting vertical flagstones fan-wise. The parapet wall is modern, but is backed with rough flagstones, narrow faces outwards, set at an angle of about 45° to the sea bed.

The entrance to this small harbour is between the mid-section of the pier just described, and the head of a modern pier extending towards it at right angles from the curved shore opposite. The channel, from the end of the modern pier outwards, is edged with large boulders, possibly debris from the wasting of the old pier, where this has been repaired and refaced. The gap in the rocks beyond the entrance to the artificial harbour is only 30 ft (9.1 m) wide at its mouth, but widens to 60 ft (18.2 m)

where there is a D-shaped embrasure on its east side, about half way to the pier head. This tiny alcove is marked 'Haven of Skirza' on the 1968 OS 1:2500 map.

THE NORTH COAST: DUNCANSBY HEAD TO CAPE WRATH (illus 25)

Apart from Thurso, the north coast contains few sites of more than local significance. The Parliamentary Report of 1847 states baldly that the fishing districts of Thurso and Tongue have an 'absolute want of piers and landing-places' (*Harbours*, xlii); while the *Statistical Account* of Canisbay parish had previously recorded (1793) that no harbours existed, but only bays. A navigational guide to part of this stretch of coast, which alludes to natural havens and customary landing-places, is given as an appendix to the article on Thurso parish in the *Statistical Account* of 1798 (*SAS*, Thurso, V20, 550). It is not to be supposed that the list set out below is in any sense exhaustive, as such a rocky, indented coastline must have provided numberless natural havens used on occasion by fishermen.



ILLUS 25 Map of the north coast

The havens of the north coast include many which have common features. The north-facing bays of Dunnet, Sandside (Reay), Melvich, Strathy, Armadale and Torrisdale are all drained into by rivers whose mouths shift when choked with sand and silt. Pools backed up, sometimes by large dunes, offered shelter for small craft near to river mouth settlements, from which access to deeper water was along roads still connecting such settlements with rock pocket landing-places in the bay sides, often where sands end and rocks begin. Thurso River and Scrabster, once known as the Rings, because ships tied up to rings set in the rocks of Holburn Head, together conform to the same pattern as the smaller, undeveloped havens of this coast. The large inlets of the Kyle of Tongue and Loch Eriboll are also comparable. The Kyle of Tongue ferry gives directly onto a road past the sands of its west shore to the roadstead sheltered by the Rabbit Islands lying off-shore from the rock-bound

havens of Talmine and Port Vasgo. Loch Eriboll is less choked with sand. An Upper Roadstead is marked just clear of the dunes and lagoons at the mouth of Strathbeag, and an old road connects Rispond Bay, among the rocks at the western opening of the loch with the main coastal route.

Another possible way to categorize some of the havens of the north coast relates to the alternative requirements for safe access according to the direction of winds. Because of these, a road, at least, to a natural haven may be looked for on each side of the north shore promontories. Thus, a coasting vessel making for Ham but deterred by easterlies from rounding Dunnet Head, might be able to creep into Dwarwick, not otherwise an attractive landfall, though better than Port allt a' Mhuilinn, similarly situated east of Strathy Point. Its associated settlement, Aultivulin, has a road to the site of a modern jetty on the west side, north of the complementary landing-place, Port an Uilt Ruaidh.

HUNA ND 357 736

Huna merits a brief mention as the point from which mails were ferried to Orkney. Taylor and Skinner (1776, pl 25) mark 'ferry to Orkney' with a road from Thurso to 'John Grots'; in 1841 the mail boat crossed twice a week (*NSAS Wick*, V15, 157), and in 1847 the report of the Parliamentary Commissioners on Tidal Harbours censure the chaotic conditions under which the service operated, there being no organized landing-place at either terminal.

Structure

Only a heavy chain survives. The open shore is stony, with sand further out. Some clearance, perhaps of boulders, is visible a little way east of the modern disused slip.

Skarfskerry ND 260 745

This place was recorded in 1794 as the terminal of a ferry to Orkney, and in another passage, as unsuitable for improvement (*SAS Dunnet*, V11, 246, 248). The Haven, so marked on modern maps, is a narrow inlet in the tidal rocks lacking shelter from the north west. Remains of moorings here may predate the modern slipway. The shanks of the double links of one chain exceed 3 in in diameter.

HAM ND 240 737 (illus 26; 27)

A Macfarlane document dating probably from the early 17th century mentions Ham as a smaller harbour, most likely a natural haven, for local trading vessels (Macfarlane *Geog Coll*, V2, 84). In 1714 a ferry from Ham to Melsetter (Snelster) in Hoy was marked on Herman Moll's map of Scotland (Mowat 1938, 35). The *Statistical Account of 1794* (*SAS Dunnet* V11, 248) notes it as one of several havens for small craft in Dunnet parish, adding that it had a 'superficial pier', that some clearance had been made, presumably of obstructions to the fairway, and that, in spite of a bar, it was suitable for vessels of under 100 tons. By 1847, a small pier had been built by the proprietor (*Harbours*, xlii).

The 'superficial pier' may have been associated with the large house which dominates the site, its name, 'Sir John's Castle', suggesting a connection with John, eldest son of Walter Bruce of Ham who had a charter of Ham Wester and Brough in 1663 (Henderson 1884, 267). But it was the Sinclairs of Barrock, directly to the east, who were proprietors of Ham by the time of the construction of the 19th-century harbour, and through whose improved lands of Filloway and Hollandmake Loch Heilen drains, partially canalized, to the sea at Ham.

Mowat (1980, 10) states that Bremner constructed the harbour at Ham using boom gates to close the entrance and allow excavation of the pumped-out basin.



ILLUS 26 Ham: the harbour mouth. Flagstones laid fanwise at rounded tip of the parapet



ILLUS 27 Ham: ruins of the south-west pier and parapet

Structure

The narrow inlet at Ham faces out to sea north-eastwards. The burn draining Loch Heilen runs into the left side of the head of the inlet, outside the 250 ft (76.2 m) long south-west pier of the harbour. There is a line of masonry in front of the left bank of the burn at its mouth, running obliquely seaward to meet the outer face of the south-west pier. This pier is built of vertical flagstones, except its rounded tip, where flags near the base have been laid laterally (illus 26). The north-east pier curves round from the north shore to enclose a roughly triangular small harbour, opening due south. Again, the only stones bedded naturally are those set to form the tip of the pier. This pier has been breached, characteristically, in its middle section, of which only debris remains. Nearer the shore, a section of lateral flagstones, backed by others laid vertically, still stands, but there is a break between this section and the shore, where a roadway paved with lateral flagstones descends towards harbour. Damaged only by the sea, and perhaps by the removal of some of its stone for other building, the harbour of Ham probably preserves evidence of early 19th-century construction methods unobtainable where development has continued (illus 27).

Brough ND 221 740

In 1794 Brough was described as a secure haven for small craft, where a pier was needed (*SAS Dunnet*, V11, 248). There is an old road leading to a modern slip. This is partially sheltered by the reefs of Little Clett. (See Dwarwick as complementary refuge across the neck of Dunnet Head.)

Dwarwick ND 207 713

Besides being sheltered from the east and north, and thus complementary to Brough, Dwarwick has small rocky inlets where boats could be worked better than over the sands of the head of Dunnet Bay. An old road leads steeply down to a pier which has been modernized, but in the shoreward end of which courses of large stone blocks are visible. To the east, rocks appear to have been flattened to improve the usefulness of a small inlet.

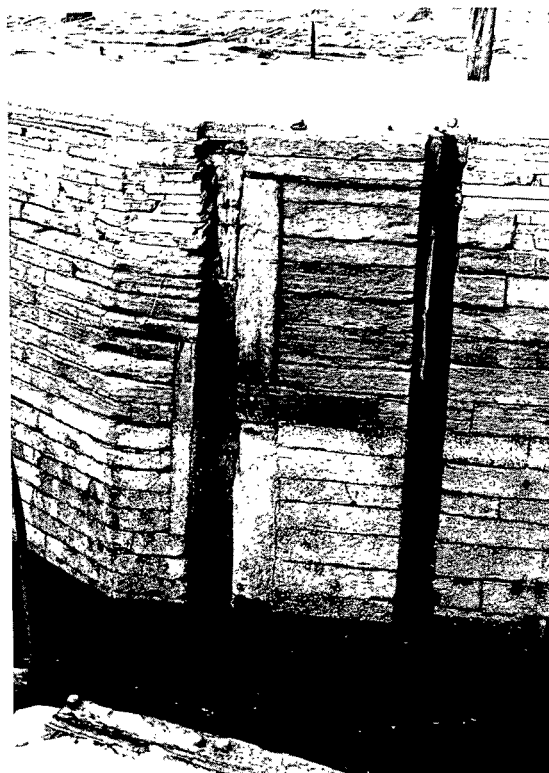
CASTLEHILL ND 198 687 (illus 28–31)

This small harbour was paid for by the proprietor, an exporter of paving stones from the Castlehill quarries, and other local sources (*Harbours*, xlii; *NSAS Olrick* V15, 60). The second authority describes it as 'neat and commodious', and states that it was being used in 1840 by other craft as well as the proprietor's own. Coal was likewise being imported (*ibid*, 67). Design and construction of the harbour were by Bremner (Mowat 1980, 10), and if Mowat is correct in stating that Bremner's first use of vertically set flagstones was at Keiss (*ibid*, 4), then Castlehill harbour was begun after 1818. The first export of paving stones from Castlehill is said to have taken place in 1825, the harbour having been constructed of the same material it was to export (Waters, 4). (The same coincidence occurred at Easdale and Laroeh in Argyll.) Boom gates were used to enable excavation of the pumped-out harbour basin (Mowat 1980, 10) (illus 28).

Structure

A short distance west of House Head where the sands of Dunnet Bay give way to the rocks of its south-west side, a pocket in these rocks has been made into a small harbour (illus 29). At low tide, the rock foundations are exposed. On these, immense flagstones, the largest showing a face 14 ft 6 in (4.4 m) long and 6 in (15.2 cm) high, have been laid (illus 30). The north-west pier, 300 ft (91.4 m) long, is of lateral flagstones, backed by others packed upright, side by side, presenting (in accordance with Bremner's theory of resistance to wave action) narrow faces to the sea (illus 31).

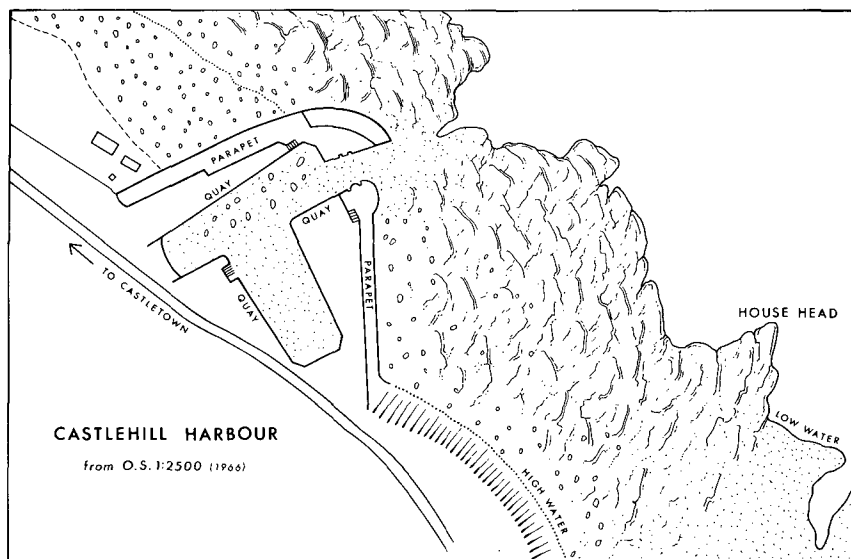
These vertical flagstones are of uneven size, some being over 5 ft (1.5 m) high, and are set up in three consequently uneven courses or tiers, the fitting together of which to achieve a level top and a consistently battered face is a remarkable product of pragmatic engineering. The parapet, less affected by recent reconstruction at the sea end than it is nearer the shore, consists of more vertically laid flagstones, packed against the inner face of the upper tier of those already described. The tops of the parapet verticals form a



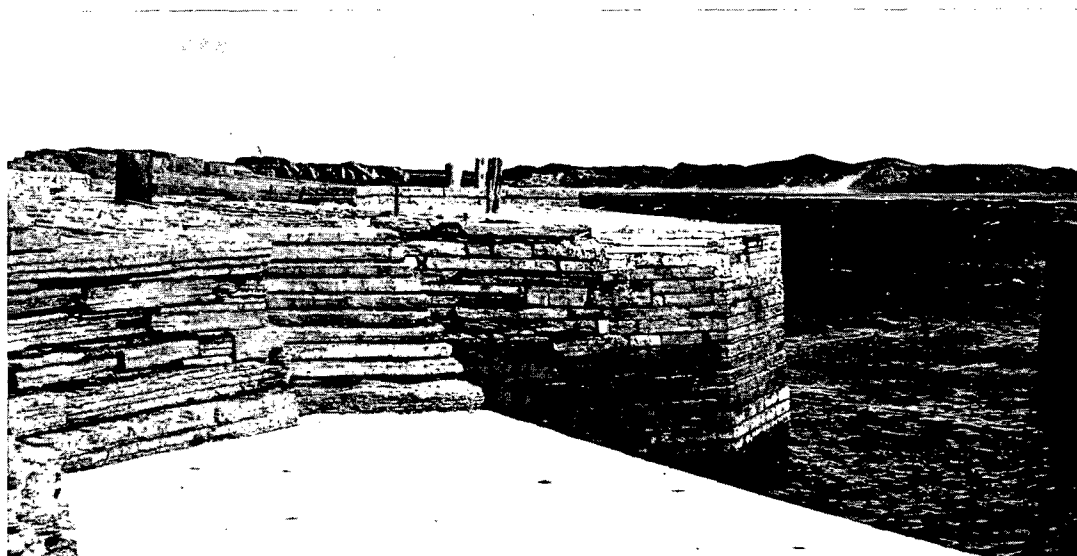
ILLUS 28 Castlehill: double boom slots in head of north-west pier. The handrail at the top of the iron ladder in the corresponding inner slot on the south-east pier is just visible at the extreme left

breast work which slopes gently inwards, and is held in place by a wall of lateral flagstones resting on the pier surface. This heavy parapet turns southwards, crossing the pier surface, from which its own upper level, here flattened, is reached by a flight of steps over a yard (0.914 m) wide, and continues providing the upper courses of the return head. Two further angles are seen on this side of the harbour mouth, and the lateral flagstones used in the construction have been shaped with very great skill. The two final courses of the outer side of the return head make a low platform with a concave curved front facing towards the harbour entrance. On this stand one rough wooden pawl and one mushroom-shaped one of a pale granite. Another wooden pawl and one of dark flagstone are set on either side of the steps up to the return head.

The shore end of the north-west pier is flanked on the inner side by a beach 50 yd (45.7 m) wide beyond which a quay built of large stone blocks on natural rock foundation projects 60 ft (18.3 m) from the shore. Its east end is recessed, and here sand has accumulated round a slipway. The south-east pier, which also presents to seaward a tiered face of vertically set stones, many over 3 ft (0.914 m) high, extends from the end of the shore quay towards the narrow opening between it and the angled tip of the return head of the pier opposite. The inner face of its parapet has also been reconstructed, but an apparently original flight of steps rises, as on the north-west pier, from the lower pier surface to the platform made by the end of the parapet overlooking the harbour mouth. Some of the flagstones which pave this platform are over 15 ft (4.6 m) long. The slots or grooves for the boom gates have been most carefully built into the faces of the sides of the harbour mouth. On each face there are two such slots, the outer ones containing, now, narrow iron ladders. Hoop-shaped hand rails survive at the top of the ladder on the south-east side. The visual effect of the harbour as a whole, while perhaps too geometrical to be aesthetically pleasing, is highly impressive.



ILLUS 29 Castlehill: plan from OS map



ILLUS 30 Castlehill: the harbour mouth, with steps to head of parapet left of centre, and, from left to right, flagstone, granite and wooden pawls

Murkle Bay ND 158 700 (The Haven)

A Macfarlane document (Macfarlane *Geog Coll*, V3, 84) mentions a harbour for trading craft, but whether this was Murkle Bay, or the Haven marked on modern maps due north of the farm of West Murkle, is uncertain. The prehistoric population responsible for Methow Hillock, which is between the sandy bay and the rocky haven, perhaps used both.



ILLUS 31 Castlehill: sea wear on the tiered vertical flagstones, some five feet high, set by Bremner to form the slightly battered outer face of the north-west pier. The whitish patch (centre top) is repair work in cement to characteristic mid-section damage

THURSO ND 121 684 (illus 32)

The harbour of Thurso lay in the mouth of Thurso River. Two sloops were recorded here by the Cromwellian Commissioner Tucker in 1656, the next to the south being one of 16 tons at Cromarty. According to a Macfarlane document of 1726, the harbour could be entered by barks of 60 tons, though pilotage was necessary on account of a dangerous rock (Macfarlane *Geog Coll*, V1, 172). Once inside, they could lie in safety. A companion document (*ibid*, V2 243) alludes to a trustworthy anchorage (*portu quoque et statione fida*). At the time Thurso was engaged in import and export trading (*ibid* V3, 84). A customs establishment for the whole coastline from Helmsdale to the Point of Stoer had been set up at Thurso in 1707, and the port legalized, but still in 1734, an Inverness merchant wrote to John Sinclair of Ulbster, the superior, 'Mr Brody was much wrong to impose on me by assuring me that here was a convenient harbour in Thurso River, whereas there is none fit for a vessel' (Waters, 1). In 1798, though the river was busy with overseas trade, the main anchoring ground seems to have been off Scrabster, though the harbour there was 'indifferent' (*SAS Thurso*, V20, 493, 521). In 1800 the first bridge was built over the river to Thurso town, on the west bank, then being developed by Sir John Sinclair. His efforts to enable Thurso to participate profitably in the rise

of the herring fishery, as at Wick, failed. Though an Act of 1802 authorized the building of a harbour for ships of up to 800 tons at spring tides, a weir, a graving dock and a slip for ship-building, and the BFS would have paid £1000 towards the £7000 cost of a plan produced by Telford, the required £6000 could not be raised locally. By 1825, however, Thurso had 17 vessels totalling 1035 tons, and was building three more (Waters, 3), and successfully resisted an attempt to remove the customs establishment to Wick. The first shoremaster was appointed, and pawlage charges of one penny a ton were fixed for the use of mooring poles in the river mouth, the proceeds to be used for dredging the channel. The export of Caithness flags for paving stones, begun in 1825 from Castlehill, led to increased use of Thurso River harbour facilities. In 1835 the Board of Customs laid off and apportioned the use of all river banks within the boundaries of the port of Thurso, construction of harbour works was inhibited by expense until after 1850. In 1840 the limit of draught for ships in Thurso River was said to be 12 ft (3.65 m). At that date 14 ships were owned in the port and others traded there (*NSAS Thurso V15, 7, 9*). The paving stone merchants modified the right bank of the river progressively from 1825. A succession of five walls on the river frontage, behind which, partly by deposition of chips from the stone yards, land was built up, reclaimed an area of 30 to 40 acres before 1876. Ships tied up to the rough quays so formed, and at low tide were grounded upright (Waters, 6, illus). On the left bank, however, it was still possible, in the hunger of 1847, for two sloops and a larger vessel to be dragged up the beach by a mob, to stop carts in Shore Street arriving to load bread corn for export. (Information by courtesy of Mr J Humphries, Thurso.) *The Report of the Parliamentary Commission on Tidal Harbours of 1847* provides a plan covering the whole of Thurso Bay, including Scrabster (*Harbours App C, 376, xlii*).

Structure

On the right bank, further up than the present left-bank harbour, one stretch of stone revetment appears older than adjoining modern works. Still further up, there is a square quay of very rough masonry. From each bank, just below the bridge, there is a ridge of wasted masonry projecting towards the middle of the river, and retaining a pool at low tide even when the river itself is very low, which could have been used by boats in early times (illus 32).

SCRABSTER ND 100 703 (at corner of bay)

This note should be read in conjunction with the one on Thurso, for which port Scrabster served as the main anchorage. The harbour here too was indifferent, though safe when the bar was passed;



ILLUS 32 Thurso: the pool in Thurso River corresponding perhaps to the ship-pool of Wick

but it only admitted vessels of 10 ft draught, and that only at high water (*SAS Thurso*, V20, 496). Loading and unloading were possible only at high water for lack of a stone pier or breakwater; rings set in the rocks, and mooring poles seem to have been ineffective. The quality of the anchorage had already been noted in 1726, and the shelter provided for it by Holburn Head (*Macfarlane Geog Coll*, 1, 172).

Structure

Between the sea and the road from Thurso, before this reaches the modern inner harbour of Scrabster, the foreshore of the corner of the bay is revetted with masonry, the blocks being smaller than those used for the adjoining harbour works. At the harbour end of this embankment there is a slip serving a boat-repairing yard. These works appear to predate the main inner and outer harbours, but may be later than 1850.

Brims ND 039 710

Port of Brims is the natural haven to the east of Brims Ness and served Brims Castle. See Crosskirk of Forss for complementary haven.

Crosskirk of Forss ND 029 700

This haven, sheltered from the east, served the early settlement at the mouth of the Forss Water, and the later quarry operations on and near the shore.

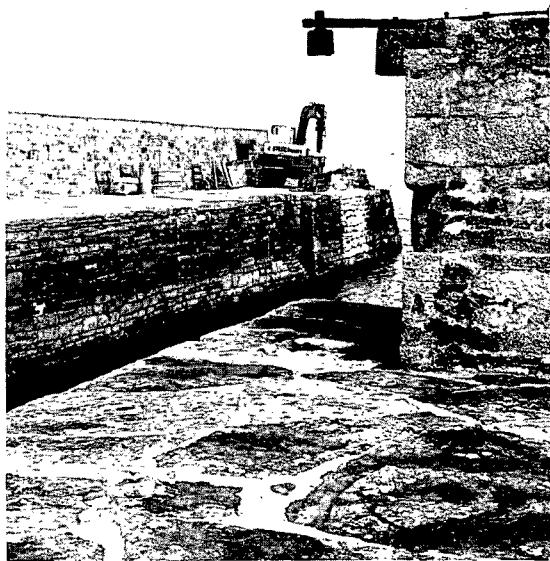
A plan dated 1840 (RHP 1222), probably the work of J Mitchell, shows a pier 285 ft (86.8 m) long and 15 ft (4.6 m) wide with a return head of 108 ft (33 m) on the right bank of the Forss Water mouth. A parapet wall and foundations and protective sloped backing of equal width to the pier surface are also shown on its east side and northern end, but it is not known whether this pier was ever built. No trace remains on modern maps. Quarry debris is strewn over the area to which the plan relates and almost smothers a raised roadway across the head of the inlet leading to a 19th-century house.

SANDSIDE NC 958 660 (illus 33)

This site, though primarily a fishermen's landing used also for local coastal trade, is worth notice here for its 'very neat and commodious harbour' referred to in the *New Statistical Account* (*NSAS* Reay, V15, 20). The proprietor who paid for the building of the 'small artificial harbour' (*Harbours*, xli) was William Innes of Sandside. His letter of 5 December 1835, expressing his satisfaction with the completed work was published by Bremner in 1845 (*Bremner 1845*, App 5, 47). Bremner secured the harbour by the use of boom gates (illus 33).

Structure

The joint mouth of the Sandside and Brackside Burns is backed up by dunes in the head of Sandside Bay sufficiently to have afforded, in early times, a pool or pools to shelter small craft, between the village of Reay and the sea. About half way along the west side of the bay, rock shelves lying at right angles to the shoreline have been flattened and the inner end of one shelf cut back to form a primitive quay. A short distance to the north, the two piers of Bremner's harbour have improved a pocket in the rocks, making a small harbour with a very narrow entrance to the north-east. Both piers are backed with vertically set flagstones. The north pier is constructed throughout mainly of these, but the surface has massive lateral kerb stones. It extends out to sea beyond the narrow entrance, the head returning southwards at an oblique angle. The outer tip is stepped. Near the end of its heavy parapet, there is a shelter recess. Eight cylindrical stone pawls are set in the surfaces of the pier and shore quay. Unlike Castlehill where the boom closure required two slots on each side of the harbour mouth, Sandside has only a single pair. There are remains of the machinery for working the gates on both sides.



ILLUS 33 Sandside: the harbour mouth, with remains of boom machinery. The slot is just visible as a nick in the kerb edge below and to the left of the iron bar. The tip of the north pier is under repair

TONGUE

The Kyle of Tongue is a narrow inlet of the sea, nearly eight miles long. It was marked on the chart used by French ships in 1745–6, *Le Neptune Francais*. The sloop, *Le prince Charles*, was trapped on Melness Sands on the west shore near the mouth of the Kyle, while trying to land men and money before Culloden (Gibson 1967, 2). Tidal sandbanks diminish the utility of the inlet as a whole, but it was mentioned as a place of shelter in 1847 (*Harbours*, xlii). The individual landings that it contains are listed below.

Melvich Blay and Portskerra NC 882 657

The mouth of the Halladale River was recorded in 1793 as the best harbour in the parish (*SAS Reay*, V7, 571). Small decked craft could lie there at the south-west corner of Melvich Bay in safety. Pools backed up by blown sands are characteristic of this site. The bay itself is exposed to the north. The modern harbour below the village of Portskerra is approached by an old road, which descends steeply to the west shore of the bay, at the point where the sands give way to a rocky foreshore. Some debris of an older pier remains at the angle between the road and the head of the modern pier. When Bremner remarked that, 'at Portskerry [*sic*] an excellent and convenient harbour may be constructed . . . at a moderate expense of from £7000 to £8000 . . . with a depth of 36 ft of water at the lowest ebbs' (Bremner 1845, 31), the reference may have been to this site or, perhaps more probably, to Skerray Bay.

Portskerry

An older form of the name 'Portskerra' (see last entry), used in 1847 (*Harbours*, xliii) for this fishing village. The 'port' may have been, originally, the bay between the rocky promontories of

Rubha Bhra and Rubha na Cloiche, or any of the inlets in the heavily indented shores about Rubha Bhra, which provide, at most some shelter in fair weather.

Armadale NC 783 651 Kirtomy Bay NC 745 643 Skerry Bay NC 660 631 Talmine NC 588 632

In 1845 Bremner wrote that the harbour building he had been employed by the Duke of Sutherland (on Telford's recommendation) to plan for these four places had not been carried out, due to 'posterior adventures in the herring fishery' (Bremner 1845, 31).

Armadale resembles Portskerra as to natural features, but lacks a pier, having only a track to the shore at Port a Chinn so steep that fish boxes are today winched up the cliff.

Kirtomy Bay is rock bound, exposed to the north, and only partially sheltered to the west by a long narrow island, which forms the western horn of the bay.

Skerry Bay has a modern pier, 200 ft (61 m) long and 20 ft (6 m) wide. This may preserve the shape of Bremner's planned construction. Its 70 ft (21.3 m) return head is at the 25° angle to wave impact which he preferred (Bremner 1845, 13). There is an old kerb at the shore end of the new slip beside the inner south side of the pier. The roadway reaching the pier round the south-west curve of the bay is supported by a wall of rough stone blocks rising about 5 ft (1.5 m) from the beach. The north-east horn of the bay ends in a spur of low rocks, Carn Mor, in which there is an opening so straight as to appear likely to have been man-made or modified, and through which at high tide a small boat could pass in or out of the channel, Caol Beag, south-west of Neave or Combe Island and in its shelter.

Talmine looks out to the Rabbit Islands, about a mile off shore. These afford some shelter from the north-east to its wide-mouthed bay. Eilean Creagach rises from tidal rocks very near the north end of the bay, and is now joined to the shore by a pier.

Port Vasgo NC 585 651

This place is less than two miles from Talmine, near enough, perhaps, to suggest that developments here may have been substituted for proposals originally relating to the Bay of Talmine. (See last note.) On the west side of the rocky north-facing inlet of Port Vasgo, beds of flagstone have been quarried as near to the sea as at Castlehill. Small houses built of this stone stand at the head of the bay. A roadway, much broken, formed of the same stone, rises very steeply across the face of the precipitous south side of the bay. A map of 1833 (Burnett & Scott 1833) shows a quarry on the headland to the north-east, possibly connected to the haven by this road. The only sign of harbour work is a channel, about 4 yd (3.6 m) wide, providing a passage between the rocks from the shore out into deeper water. This is still used by fishing boats.

Bettyhill NC 695 620 (Centre of Torrisdale Bay)

The village of Bettyhill occupies the neck of a promontory between Farr Bay and Torrisdale Bay, and has old roads to places on the rocky shores on each side, beyond the sands of the bay heads. Torrisdale Bay receives both the Naver and the Borgie Rivers. The ridge of Druim Chuibe between the river mouths is surrounded by an extensive accumulation of dunes and flatter sands. Remains of an early settlement in the sands on the left bank of the Naver, a broch on the ridge above, and a chambered cairn on its west side are evidence that the river mouths attracted population in early times to an area capable of sheltering small boats as required.

Tongue Ferry NC 581 585

Bremner records that he erected four passage-boat piers for Tongue Ferry. He refers also to a plan to connect 'the Island of Tongue with the mainland, by an earthen mound, whereby a chain boat

might pass with safety' (Bremner 1845, 31), a scheme also mentioned in the *New Statistical Account* (NSAS Tongue, V15, 180).

There are still two piers on each side of the Kyle. On the east bank, Tongue House has its own pier, and there is a slip facing south where a modern causeway runs on westwards from the end of an apparently natural promontory. This slip is of large stone blocks, with a kerb providing a long-short-long key for the pavement of similar blocks. Large old iron rings are in place in the pavement. The two west bank piers are close together in the shallow bay of Achuvoldrach, to the south of the sands of Achuvoldrach Burn mouth. The Island was near the west shore, and is now beneath the causeway. The unrealized plan was to have connected it with the *east* shore, 'the mainland' to anyone approaching from Thurso and points south.

LOCH ERIBOLL

This is a major inlet of the sea, between eight and nine miles long and narrowing from a wide entrance. Already in 1726 it was regarded as an excellent roadstead for ships of the largest burden, in which the whole British Fleet could ride safely – as was exemplified by the Battle Fleet from Scapa in 1914. Today, fishing boats may be seen at anchor off Port nan Con whenever gales interrupt their working off the north shore. The good anchorage was noted in 1847 (*Harbours*, xlii). Individual minor landings within the loch are listed below.

Upper Roadstead NC 396 554

The name, which appears on OS maps, suggests that vessels may once have sheltered here, as they do at present off Port nan Con pier, and among the islands in the mouth of Loch Eriboll; also correspondingly in the shelter of the Rabbit Islands in the mouth of the Kyle of Tongue.

Heilam–Port nan Con Ferry NC 447 596

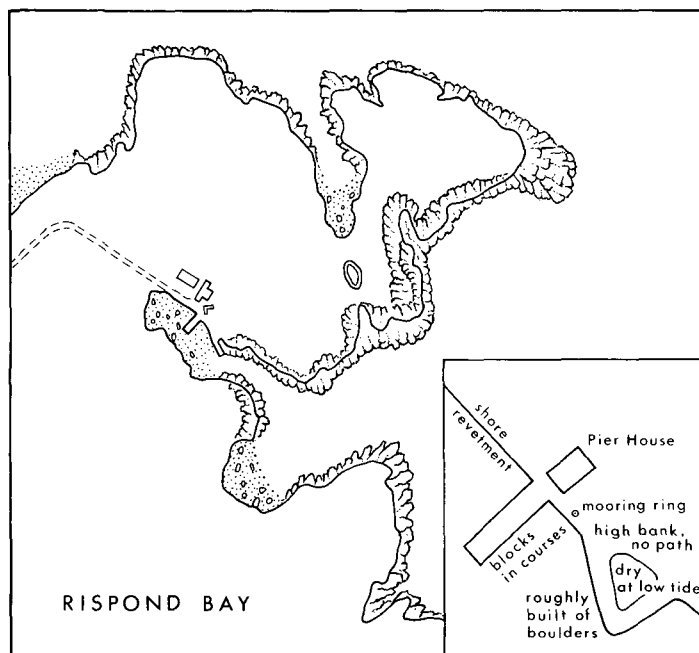
The A838 road descends steeply to the shore of Loch Eriboll about a mile south of Heilam. An old road branches off northwards, makes a hairpin turn near the foot of the slope and turns again westwards crossing to Ard Neackie on what may be an artificial causeway. The terminal of the former ferry is a slip projecting south-east into the sheltered water between Ard Neackie, the causeway and the shore.

Port nan Con NC 427 603

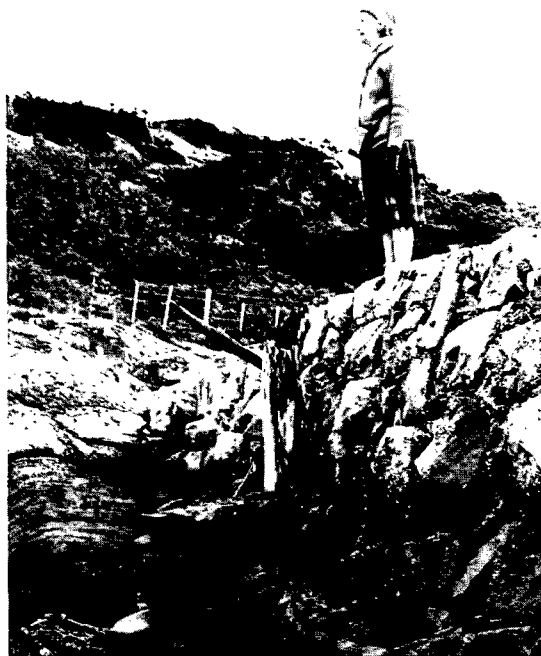
Formerly the terminal of a ferry from Heilam. The modern pier may be connected with a disused quarry.

RISPOND NC 451 652 (illus 34; 35)

Of Rispond, which stands on the west side of the mouth of Loch Eriboll, some modest developments are recorded (illus 34). Thus, in 1792 two sloops, presumably largish fishing vessels, which had been built in 1788 and 1789 in the neighbouring Bay of Durness, were working out of Rispond (*SAS Durness* V3, 581). Again in 1834, the harbour contained a basin and a pier at which sloops could load cargo, with mooring rings set in the adjoining rocks; but it was not considered very safe in north-easterly gales or at spring tides (*NSAS Durness*, V15, 94). Bremner lists Rispond with Talmine and three other small havens as sites of harbour works for which he made plans for the Duke of Sutherland (Bremner 1845, 31). In 1845, however, the prospects of the fisheries on this coast were so bad that no harbour building was being done.



ILLUS 34 Rispond: plan



ILLUS 35 Rispond: large rough blocks in the outer wall of the closed pool of this harbour. Below the figure, the stump of a wooden post is set in a bulge of even rougher masonry, possibly the remains of one side of the former entrance, with its pawl

Structure

One large iron ring set in the face of a rock is the only feature of Rispond harbour which is easy to recognize from the foregoing account. The land approach to the narrow tidal inlet is by a side turning from the main coastal road, making a steep descent south-eastwards to a small area of level ground on the left bank of the head of Rispond Bay. The bank of the inlet is revetted to form a low quay, from which a straight pier of neat stone blocks projects at right angles. All this dries out at low tide. A pier store house is built into the bank which rises steeply from the rocky shore just beyond the head of the pier, blocking the way further along the shore to all but agile pedestrians. Beyond this, the one large ring is set in the face of a rocky outcrop, in which there is an embrasure, possibly man-made. The outer basin, to which there is no trace of a path, consists of two arms of very rough masonry, at least 5 ft (1.5 m) thick. These meet, enclosing an area of the foreshore. The basin dries out at low tide. The rough masonry is of various kinds, some clearly modern, and may once have been quite differently shaped (illus 35). The OS 6-inch map of 1906, surveyed in 1878, marks the inner pier as it is today, but further out only a narrower projection, at or near the site of the inner (western) arm of the existing basin, but apparently rather longer. The basin mentioned in 1834 can have been defined only by the, mainly natural, indentation in the shoreline between the two piers, where rings were noted, and survive. The outer pier may have disintegrated or been dismantled, and the boulders of which it was built reused in the present structure, possibly a pool serving the lobster fishery.

Smoo NC 420 675

Noted in 1726 as having a harbour suitable for large boats at the mouth of the burn (Macfarlane *Geog Coll*, 1, 192). The burn, however, runs out into a very narrow crack in the precipitous cliffs surrounding a well-known cave. The old road descends to a point on the west side, about half-way to the narrow entrance of the inlet. Large boats would always have been at risk here.

Durness

The Kyle of Durness was noted, but only as a natural inlet, in 1847 (*Harbours*, xlii). A ferry is marked on the OS map at Keoldale NC 380 661.

Port Odhar NC 358 710

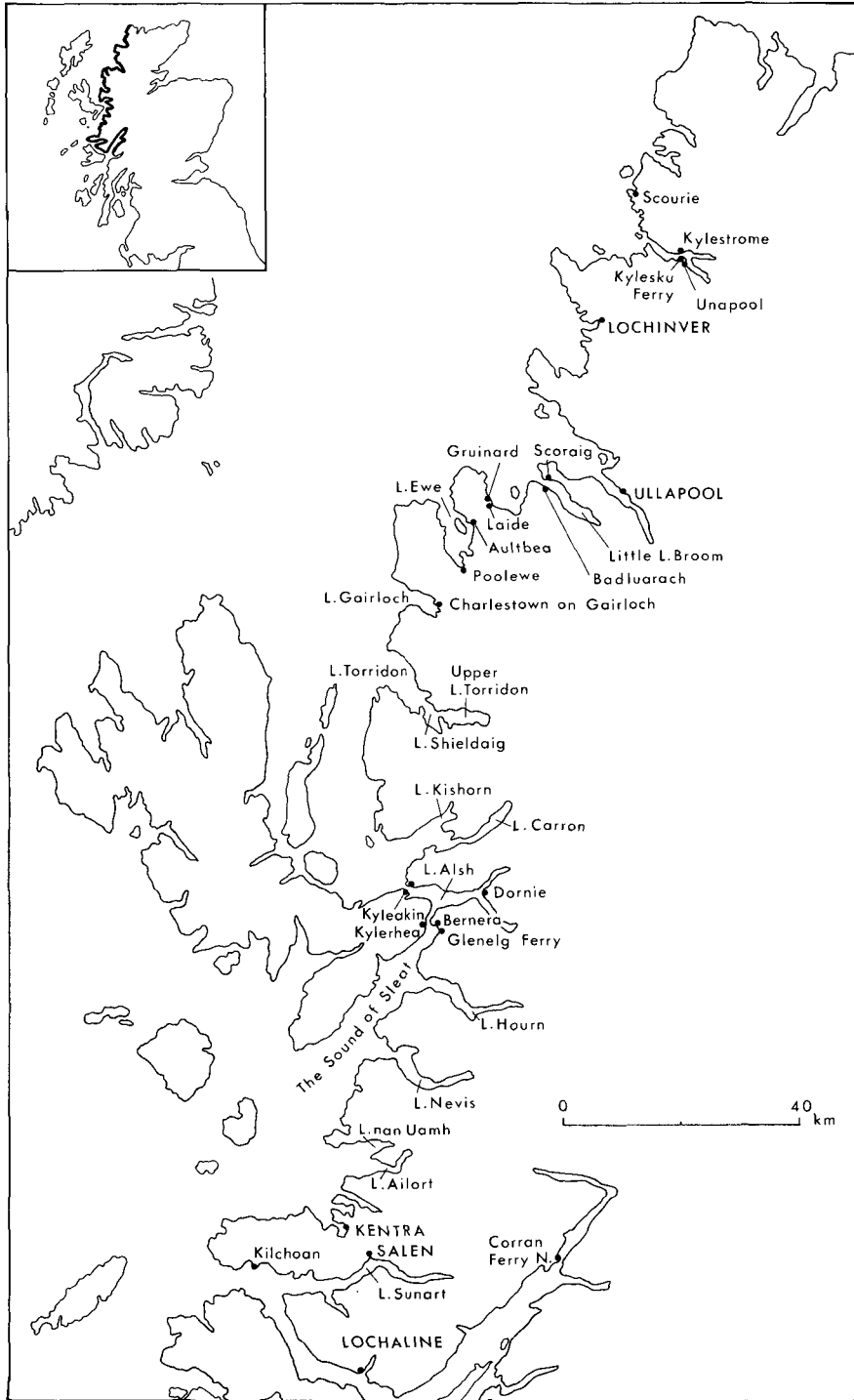
Shelter from the north-west, which could be much needed here in the mouth of Balnakiel Bay is available at Port Odhar, though far from any inhabited place (*NSAS Durness*, V15, 94).

Clashcarnach NC 272 736

A slip, apparently for the service of the Cape Wrath lighthouse, noted in 1834 (*ibid*).

THE NORTH-WEST COAST: CAPE WRATH TO LOCH LINNHE (illus 36)

This stretch of coast is treated here as a unit on account of the general similarity of natural characteristics which obtains throughout its length, and also of its general lack of important sites. It is to this region, in particular, that the warning given in the Introduction chiefly applies, regarding the large number of natural refuges and landings in common customary use that the broken and deeply indented shore-line provides. Another point of similarity emerges if the character of the sources is considered. These consist in the main of the two *Statistical Accounts*. It will be found that, in their treatment of the parishes of Durness, Edderachillis, Assynt, Lochbroom, Gairloch, Applecross, Loch Carron, Kintail, Glenshiel, Glenelg, Arisaig and Moidart, Ardnamurchan, Sunart and Ardgour all the authors concerned invariably use 'harbour' of any protective inlet, without the least intention of suggesting, as in modern usage, the presence of artificial works. Such major natural features as, for example, Loch Laxford and Loch Ewe are included by name among the harbours of their respective parishes. This may well confuse a reader, while again some of the names mentioned



ILLUS 36 Map of the north-west coast

cannot now be identified at all. The descriptive notes and list entries given below are accordingly designed to apply only to those landings or, for that matter, sea lochs, about which some facts of positive interest are recorded.

Of these, Ullapool stands out because the history of its development by the BFS is comparatively well documented. The origins of this development preceded by two decades the Society's adoption of Wick and the east coast fisheries, where achievements in the 1830s and 40s so far surpassed those in the west.

Highland cattle-drovers made use of certain customary landings, though here, as on the south-west coast, few piers were built for that trade. Ferry terminals where surviving structures datable before 1850 have been found are also very few, in spite of the once-great dependence of communications in this area upon ferries.

Scourie NC 155 450

The setting-up of a fishing station at Scourie was 'contemplated' (Henderson 1812b, 126). The *New Statistical Account*, however, includes the statement that, in the parish of Edderachillis there were natural harbours only (NSAS Edderachillis, V15, 118).

Kylestrome-Kylesku Ferry NC 230 338

The pier on the north shore of the narrows where Lochs Glendhu and Glencoul open westwards into Loch Chairn Bhain shows no old work, but some courses of old stone blocks may be seen below the modern coverings of the south bank pier.

Unapool NC 238 327

For a few years before 1820, marble quarried at Ledbeg was brought down to Unapool on 'tracts for the heavy waggon', and exported by a native of Newcastle (NSAS Assynt V15, 114). (On early waggonways, see Broad 1981, and, for a much shorter 'railway', Brora *supra*.)

LOCHINVER NC 093 223

The fishing station of Lochinver was owned by Macdonald of Skeabost who, from 1816 to 1848 also owned Isle Ristol, formerly the property of the BFS (Dunlop 1952, 272). Consequently, the *New Statistical Account* (1837-40) includes references not only to safe anchorage here, but also to a small convenient harbour, where 'a pier has been erected' (NSAS Assynt, V15, 115). Lochinver had been one of the 'maritime villages' where development was earlier contemplated (Henderson 1812b, 143), and on a map from Dunrobin (Burnett & Scott 1833) its roadstead is shown with several ships.

Structure

The new pier (1969) has covered over the site beyond the mouth of the River Culag to the south of the village where older OS maps marked a pier. The embankment of the road from Culag Bridge along the shore is of medium-sized blocks, quite neatly set, and may preserve the type of the masonry of the old pier. The shoreline of the head of the Loch contains several well smoothed rock landings, the best being in a small inlet below the church.

ULLAPOOL NH 128 938

The town of Ullapool in Coigach occupies a triangular promontory projecting nearly half a mile southwards into Loch Broom about one-third of the way along its south-western shore. The anchorage south-east of the town is thus the safest in the whole loch, the whole of which affords much valuable shelter. The pier is a mere adjunct to a natural harbour very similar to others in the sea lochs of this region.

Ullapool and its harbour reflect in their development a wide historical spectrum, partly because the route of the present A835 is the easiest land exit from any point on the north-west coast towards Inverness, Edinburgh and London. By 1745, a proprietor from the east, the Earl of Cromarty, had already replaced the local MacNicol. Loch Broom was the furthest north point of the voyage of the French ship *Le Hardi Mendiant*, which bore to France the news of Culloden (Gibson 1967, 42). The Loch was the scene of several naval actions during the Rebellion and its aftermath. In the accounts of these quoted by Gibson there is no mention of any pier or jetty, or even of a settlement at Ullapool. George, third Earl of Cromarty (a descendent of the pier-builder of Portmahomack), was a more active Jacobite than some of his west coast neighbours. The attention consequently paid to the area by the Commissioners for the Forfeited Estates (Dunlop 1952, 60), and especially their encouragement of road-building, may, though their settlement of 12 veterans at Ullapool failed, as did their linen industry nearby at Lael, have been among the reasons for the inclusion of Ullapool in the itinerary of the BFS tour of 1787. This was undertaken by representatives of the Society for the purpose of selecting a site for a fishing port on the north-west coast. As Dunlop, whose account of Ullapool will be followed from here on, says (Dunlop 1952, 7), economic theorists at that time favoured bringing people together in large villages, where division of labour might make possible production of goods for market. Hoping, apparently, to attract elements of the reduced and unsettled Highland population into such a village in preference to the migration which so many chose after American Independence in 1783, the Society purchased, in 1787, 1300 English acres at Ullapool from the proprietor of Cromarty, by then Lord Macleod. The nearest Customs House was then at Fort William, with an outpost on Isle Martin near the mouth of Loch Broom, which became independent in 1789. Isle Martin was mainly a fish curing station, and the Collector and Surveyor lived at Ullapool. It may be an indication of wider trading interests in this area that the Commissioners for the Forfeited Estates had granted a 41-year lease of Isle Martin to John Woodhouse, a merchant of Liverpool.

Another significant incomer at this time was Robert Melville, nephew of a fish merchant in Dunbar, who chose to settle at Ullapool in preference to the West Indies, and in 1788 contracted to build the village for the Society to house its settlers. Melville angled for every advantage available to him from his experience of the different way of life of the south and east of the country. Visiting London in 1789, he achieved the siting of a pier and breakwater half way along the south-facing shore from the Point of Ullapool, immediately opposite his own store house. (The jetty shown on the OS 1:2500 map of 1968, at the east end of the village, may have occupied the site of the landing place for droved cattle from the islands, for which Haldane records Ullapool as one point of entry (Haldane 1952, map).) Melville contracted to build a structure designed by Call, a director of the BFS, which was to be 136 ft (41.4 m) long, 20 ft 9 in (6.3 m) broad, with a T-head 24 ft 6 in (7.5 m) broad. The sides, battered one in six, were to rise to 8 ft 10 in (2.7 m) above the level of high water at the land end, and 21 ft (6.4 m) from the mud at the pier head, where 4 ft (1.2 m) would be clear of the water at the highest spring tide. Further out, beyond the head of the pier, and parallel to the shore, a breakwater 137 ft (41.7 m) long, 15 ft (4.6 m) wide, and 1 ft (0.304 m) higher than the pier, was to be built. No preliminary survey was carried out, and the foundations spread outwards on the soft sea bed, so that the finished pier was larger, and the breakwater had to be built further out than had been intended. Telford, appointed engineer to the BFS in 1790, was nevertheless satisfied with the pier, only criticizing the breakwater for being too big. Shingle soon began to be washed up against the pier, so that modifications were made, with some success, in 1794. The completion of the pier and breakwater, as originally planned, in 1790, was announced by the BFS in an advertisement for settlers, printed in May of that year, which described the existing amenities, firstly 'An excellent HARBOUR, which is now improved by the addition of a Pier and Breakwater, at the Society's expense'. (Original kindly made available by Mr A Paterson, Ullapool.) Until the herring left Loch Broom, and

migrated, at the turn of the century, round the north coast into the North Sea, ships came to buy the salted fish, many from Ireland having nothing to bring except ballast. This was used to make up the ground of the Society's village, and is still traceable in its gardens. (Information by courtesy of Mr A Paterson.) But the settlement did not thrive. Ullapool boats followed the herring to Caithness, but they were not built for deep-sea fishing. In 1846 the harvest also failed, and in 1847 the Destitution Fund Committees took over at Ullapool from the BFS, itself in decline ever since the institution of the Board of Commissioners for the British White Herring Fishery by the Fisheries Act (48 Geo iii, c 110) of 1808. The Customs House was removed, and in 1847 the BFS sold all its western settlements, including Ullapool which fetched £5250. This money was used partly to finance improvements to the harbour of Wick.

No structure datable before 1850 is visible. Recent harbour works have extended over the site of the 1790 breakwater, which was formerly connected to the pier by a bridge.

Little Loch Broom: Scoraig NG 999 962 Badluarach NG 996 937

Jetties are marked on OS maps at Scoraig on the north and at Badluarach on the south shores, near the mouth of this Loch, suggesting a former ferry.

Laide NG 906 912

Boulders have been cleared from this rocky shore, and the landing place known as Laide Jetty is, in fact, a pier of large stone blocks, much altered in modern times. Droved cattle from Lewis came ashore at Gruinard, perhaps most usually at Laide, where there is also a chapel (Haldane 1952, map).

Gruinard NG 900 925

A place on the itinerary of the BFS tour of 1787 (Dunlop 1952, 57). Gruinard Bay had been visited by French ships in 1745 (Gibson 1967, 93). It is not clear whether the BFS considered the landing place near Gruinard House, where a jetty is marked on OS maps, or the outfall of Little Gruinard River, or the site of Laide Jetty.

Loch Ewe

The head of Loch Ewe was described as a 'big, beautiful bay' by the Chevalier Dupont, who landed at Kinloch near Inverewe in 1745 on the fourth attempt to rescue Prince Charles Edward (Gibson 1967, 84). The advantages of Loch Ewe as a natural harbour led to its use as the terminal for the packet boat to Stornoway by which the BFS party travelled in 1787 (Dunlop 1952, 57). Landing places in Loch Ewe are listed below.

Aultbea NG 868 888

The BFS tour in 1787 inspected Aultbea as a possible site for a fishing port, but found landowners unwilling to sell (Dunlop 1952, 56). Droved cattle from Lewis were landed at Aultbea (Haldane 1952, map).

Poolewe NG 858 808

The place-names suggest that small craft sheltered within the tidal reach inside the mouth of the River Ewe, between the farm of Shore on the right bank and Pool Crofts on the left. Droved cattle from Tarbet, Harris, were landed at Poolewe (Haldane 1952, map). The BFS tour in 1787 visited Poolewe, but considered it unsuitable as a site for a fishing port. The advantage of its being nearer than Ullapool was to Tain was outweighed by the greater distance of Poolewe from the open sea, and its lack of a suitable site for a village (Dunlop 1952, 57). In 1836, the *New Statistical Account of*

Gairloch parish (*NSAS* Gairloch, V14, 99) mentioned the harbour of Poolewe, and also the need for a road from Loch Maree to the bridge over the River Ewe near its mouth.

Loch Gairloch

Shelter is available for small craft among the islands lying near the sharply indented shore line of the head of this loch, and evidence of early settlement here survives. Cod and ling fishery was being operated as a private scheme in 1782 by Sir Hector Mackenzie of Gairloch (Dunlop 1952, 148). The place was visited by the BFS tour in 1787 (*ibid*, 56).

Charlestown on Gairloch NG 810 750

About a mile north of the head of the loch, the Flowerdale River runs into a small, sandy inlet, sheltered by a rocky promontory. A short pier extends south from a triangular quay which fills an oblique angle in the shoreline, where sand ends and rocks begin. The pier is built of rough courses of medium-sized blocks, with the unusual feature of a raised kerb. On the opposite shore, there is a slip, rising to an embankment below a 19th-century house.

Loch Torridon, Loch Shieldaig and Upper Loch Torridon

The head of Upper Loch Torridon is the site of a settlement, Annat, with a chapel, characteristically well placed to benefit from shelter for small craft in the sandy pools at the mouth of the Torridon rivers. Several piers are marked on OS maps on both sides of the loch, beyond these sands. None of the traditional landing places on this whole arm of the sea has, however, been developed by the building of a harbour. Land access is more difficult even than to Gairloch to the north or Loch Carron to the south. It is an indication of the strength of the movement for the development of fisheries in the late 18th century that there was, in 1788, a Torridon Company which, since 1783, had built a wharf and stage, salt curing and storage houses at Torridon (Dunlop 1952, 146). The place was visited by the BFS tour in 1787 (*ibid*, 48).

Loch Carron and Loch Kishorn

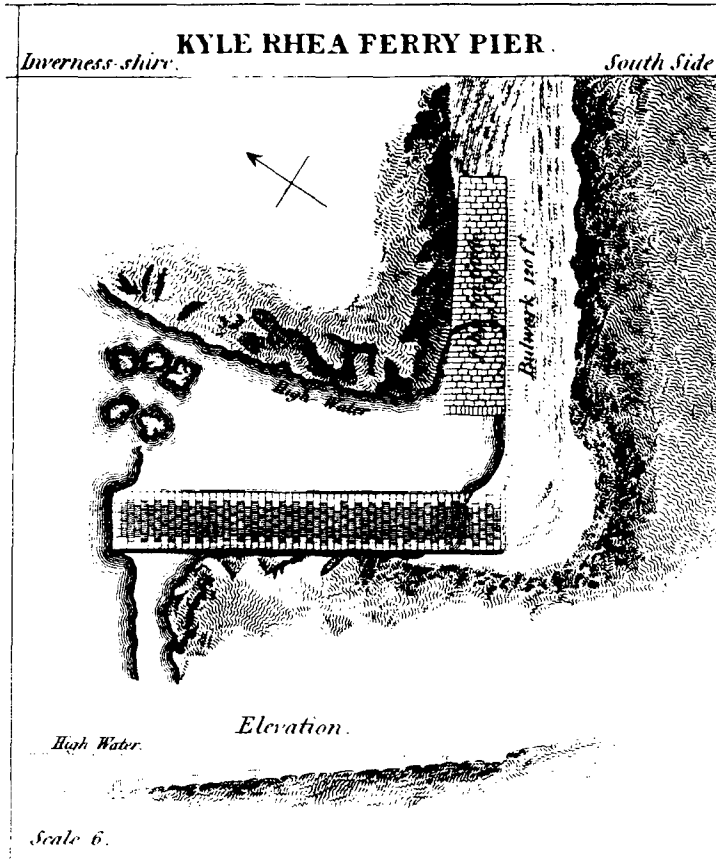
These lochs contained traditional landing places only. Even at Strome Ferry (NH 863 353) no terminal works had been built in 1841 when Lord Cockburn described it as 'picturesque, . . . and as well managed as mere hands without proper boats, piers, or any apparatus, can ever manage a ferry' (Cockburn 1888, 129). Strome Castle commanded the northern access to the ferry.

Loch Alsh ferry to Kyleakin and Bernera-Glen Elg ferry to Kylerhea (illus 37)

Telford built piers for both these Skye ferries before 1821 and published plans (Telford 1821, 100) (illus 37). At Loch Alsh, a curved breastwork along the shore 375 ft (114.3 m) long gave on to a pier continuing the curve for a further 125 ft (38.1 m). The shoreline at Bernera was also embanked but with a straight bulwark 120 ft (36.6 m) long alongside which descended a 90 ft (27.4 m) slip for cattle. The 125 ft (36.6 m) pier projected at right angles from the southern end of the bulwark. By 1836, steamboats plying from Glasgow to Skye were providing 'almost all the respectable inhabitants . . . with all articles of home consumption' (*NSAS* Kintail, V14, 178). In 1841, Lord Cockburn, having crossed from Skye, described

'the Kyle, itself beautiful, . . . made gay by fishing boats. It was intended, it seems, to have been a small metropolis, but like other over-grand building plans, has stuck at about a dozen of two-storied houses. The ferry is ill-provided with a boat and machinery for carriages' (Cockburn 1888, 128).

The Skye ferry across Kylerhea met the end of the military road from Glenshiel. Drove cattle were landed here at Bernera, in the 'good open south country pasture' described by Lord Cockburn in



ILLUS 37 Bernera-Glenelg Ferry to Kyclerhea: Telford's meticulous plan (1821)

1841, when he crossed the ferry 'claimed to be the best in Sky' but 'detestable, at least for carriages, and as ill-conducted as possible' (*ibid*, 114–15).

Dornie NG 880 260

Telford built a pier 182 ft (55.5 m) long for the Loch Long ferry at Dornie before 1821 and published a plan (Telford 1821, 100).

The Sound of Sleat, Loch Hourn and Loch Nevis

The coastline here had none but traditional landing places. Naval activity in the area during the Rebellion is described by Gibson (1967, 15, 49, 119).

Loch nan Uamh and Loch Ailort

These natural havens at the head of the Sound of Arisaig saw the landing and re-embarkation of Prince Charles Edward, and in 1746, the last battle of the Rebellion (Gibson 1967, 14, 15, 33–41).

KENTRA NM 634 701 (illus 38) and SALEN, LOCH SUNART NM 688 643 (illus 39)

'A plan of Loch Sunart &c . . . surveyed by Alexander Bruce' and dated 1733 is stated in the *New Statistical Account* (NSAS Morvern V7, 170) to have included harbour plans. Improving developments by the proprietor of Strontian at this time (*ibid*, 154) resulted in stone, 'a fine micaceous rock', being carried 50 miles by sea for the building of Corran Ferry piers. The herring left Loch Sunart in 1818, but it was the BFS which enabled construction of the piers at Salen and Kentra by contributing two-thirds of the cost of £1175 (*Harbours*, xliv). The project is explained by the writer of the *New Statistical Account* of Ardnamurchan in 1838 (NSAS Ardnamurchan V7, 152, 157),

Two piers were, a few years ago, erected by the British Herring Fishery Society, one-third of the expense being contributed by Sir James Milles Riddell, and the whole of an excellent road through the Moss of Kintra, by which both are connected. One of the piers is still of some use. . . . The piers being situated on the north and south shores of a neck separating Loch Sunart and the Bay of Kintra, it was fancied that, as the point of Ardnamurchan would thereby be avoided, the intercourse between the northern isles and the south would be drawn to this line of communication.

Structure: Kentra

The pier referred to in 1838 (*ibid*) is almost intact. It extends about 750 ft (228.6 m) south from the rocky shore of an inlet on the north side of the Bay of Kentra, then bends about 30° eastwards and continues for about 220 ft (67 m) of a plain rectangular end. It is about 20 ft (6.1 m) wide, and its 16 courses of stone blocks rise to a height of about 20 ft (6.1 m) at the angle. A kerb of irregular blocks, each about 1 ft (0.304 m) long, keys into a surface paved with narrow blocks, vertically set, in the centre of which, at the place where the angle occurs, there is one large iron ring. Original features intended to strengthen the structure include a slight batter on the east side wall, and neatly contrived sections of breastwork, some of which is of narrow blocks set at an angle of about 45°, by which the west side is fitted on to natural rock support. At and around the obtuse convexity on the west side, the breastwork is breached, and the interior masonry can be seen breaking up (illus 38).

Structure: Salen

A quarter of a mile south-west of the mouth of the burn at Salen, the pier extends about 300 ft (91.4 m) along the west side of a small bay and out into the deeper water beyond the rocks on its west side which form the horn of this bay. For the first 50 yd (45.7 m) out from the shore, the pier top which is level, and about 20 ft (6.1 m) wide, is set on an infilled natural rock base (illus 39). The kerb of large rectangular blocks keys into a surface made up of narrow blocks vertically set, crosses the width of the structure at this point. Beyond this, the pier top inclines gently towards its head. There is no batter on the east wall of the pier, usually well sheltered and provided with a set of steps descending outwards towards the tip. The west side of the pier is fitted into the natural rock with sections of gently sloping breast work and nearly flat infill, made of narrow blocks vertically set, for the whole of its length, which is greater than that of the east side. The pier end is slanted, making an acute angle with the rock supported west side and an obtuse angle from the outer end of the steps on the east. An unusual feature is the survival of three very large iron hooks, one at least 1 ft (0.30 m) long, secured by rings to the flat-topped rocks beyond the west side of the pier. There were also five rings, of which three are intact, inset along the centre line of the pier surface.

Kilchoan NM 494 627

Droved cattle from Barra were landed at Kilchoan (Haldane 1952, map). In 1838 the writer of the *New Statistical Account* (NSAS Ardnamurchan V7, 156) recorded that cattle were driven south by Fort William and by Corran Ferry, and added that Kilchoan needed both a pier and sea marks.

LOCHALINE NM 679 447 (illus 40)

Droved cattle from Fishnish, Mull, were landed at Lochaline (Haldane 1952, map). In 1843 it was recorded that 'Underneath the village, a substantial pier has been constructed by the proprietor' (NSAS Morvern V7, 190), this being the only such work noted in the parish of Morvern.



ILLUS 38 Kentra: broken breastwork on the shore side of Telford's ferry pier. The dressed stone has probably been put to other use



ILLUS 39 Salen, Loch Sunart: the courses of Telford's ferry pier are neatly fitted on to the natural rock foundation, which has not been levelled or stepped. Contrast Portmahomack south pier



ILLUS 40 Lochaline: the quay

Structure

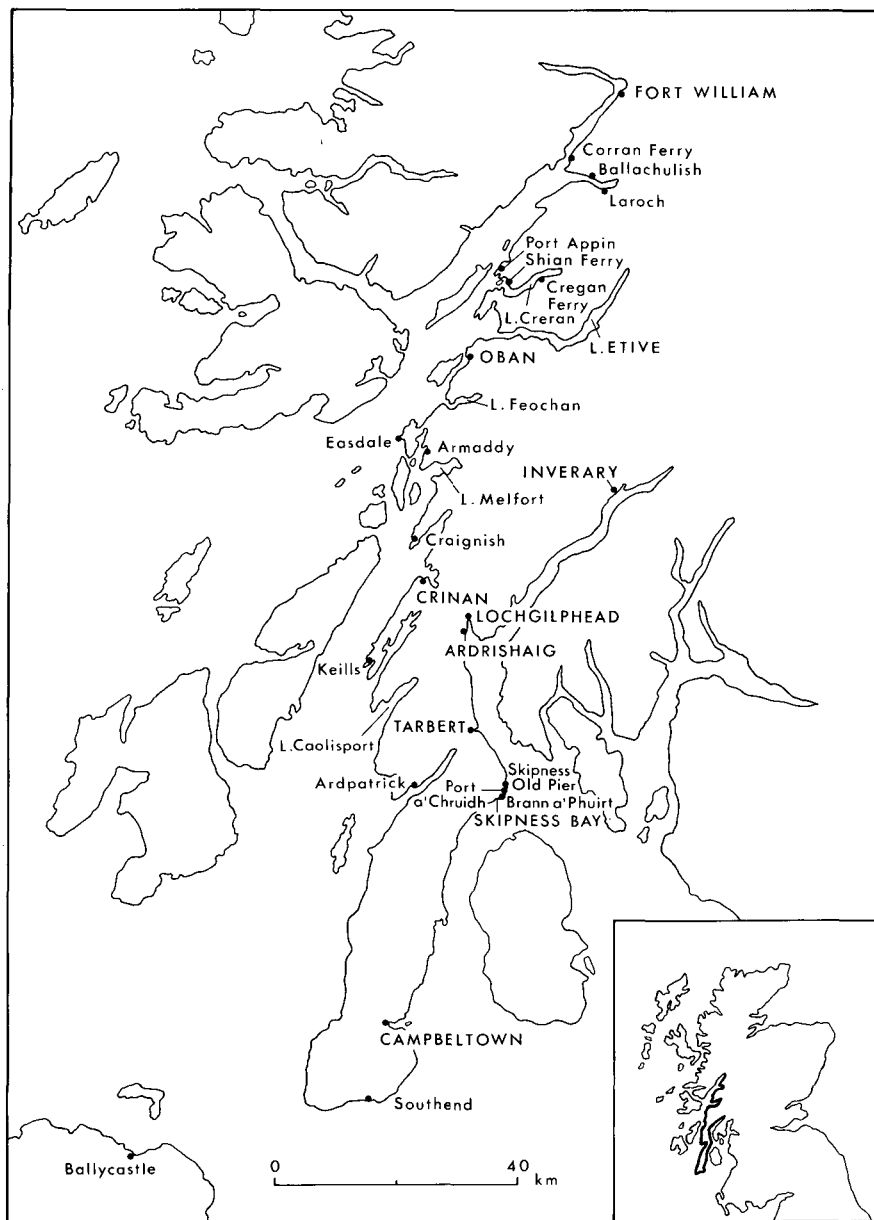
The pier faces east across the narrows at the mouth of the loch. From the south, it is approached along 32 ft (9.7 m) of quay, in the north end of which a flight of nine steps descending towards the pier is inset (illus 40). From this point, the quay curves outwards through 90° to form the south side of the 54 ft (16.4 m) square quay. An 18 in (0.46 m) long block in the kerb is cut to the shape of the curve. A large iron ring is set in the surface of the quay, about 2 ft (0.6 m) back from the curve. The south-east corner of the pier head is also curved. Near the north-east corner, there is one old wooden pawl. A slip about 20 ft (6.1 m) wide rises along the north side of the pier. Across the mouth of the loch another, less developed, landing place is visible, perhaps for a ferry.

Corran Ferry North NN 016 637 See Corran Ferry South

THE SOUTH-WEST COAST: LOCH LINNHE TO LOCH FYNE (illus 41)

The point of division between the northern and southern sections of the Atlantic-facing coast is here set at the head of Loch Linnhe. As a result, the whole southern section, apart from Fort William and Lochaber, falls within the former county of Argyll; and where historical matters are concerned, it is the old Argyll that has been kept in mind throughout, and not today's system of Regions and Districts, as the former possesses associations with bygone conditions which the latter naturally lacks.

The material found in the southern, or Argyll, section of the coast resembles that in the northern to a certain, but limited extent. Inlets of sea still have a part to play south of the dividing line, though except in the case of Loch Fyne they are smaller than their northern counterparts and in general less important. The *Statistical Accounts* are still a main source of information, with the authors of their articles persisting in their inveterate habit, mentioned above as liable to lead to confusion, of describing as 'harbours' purely natural inlets when these were used for anchorage, or by local fishermen for shelter. On the other hand, the two sections differ greatly in some important respects. A better hinterland backs the Argyll section, and its social and political history has been somewhat less unfortunate than that of the far north-west. Opportunities for development followed



ILLUS 41 Map of the south-west coast

naturally from proximity to the Clyde and to the Lowland area, so that fishing was not the sole productive use of coastal waters and harbours. In the 19th century, and to some extent even earlier, stone and charcoal were being carried by sea between the quarries, stances and ironworks of Argyll (RCAMS 1975, 251).

FORT WILLIAM NN 099 738

The 'Port of Fort William' is mentioned in the 1793 *Statistical Account* (*SAS Kilmalie*, V8, 428), but no particular connection with the Fort seems to be implied. In fact, a purely civilian status seems likely, as the place possessed a Customs House. A considerable list of imports is given, and wool is noted as an export. In 1835 a quay had 'quite recently' been built (*NSAS Kilmalie*, V14, 125), more exactly dated in the *Report* of the Tidal Harbours Commission to 1832 (*Harbours*, xlv), the cost being met partly by subscription and partly by the BFS. An oil painting by S Bough (1822–1878) in the West Highland Museum shows a pier, with a timber extension beyond the return head. The word 'quay' was applied to piers on some contemporary plans, but it is possible that the pier in the picture was not built until about 1871, the date of a plan in the West Highland Museum on which it is shown, and that the quay of 1832, about which Mitchell was consulting Telford in 1833 (Gibb 1935, 256), may have been a different structure, possibly on another site.

A very safe anchorage is noted in the *Statistical Account* between Fort William and Corpach, at Camusnagaul.

Structure

A pier like the one shown in Bough's painting survives projecting north-westwards from beneath the modern bypass near its southern end. If the quay of 1832 was a shore embankment connected with this pier, it is now under the road. Of the north-east, inner, face of the pier, about 24 ft (7.3 m) remains visible, from the head of a flight of stone stairs, descending seawards, to the obtuse angle inside the return head, which is of about the same length as the exposed section of pier. Courses of neatly cut red stone blocks, each about 1 ft (0.304 m) by 8 in (0.2 m), are set without visible mortar. The kerb stones are not differentiated, except that some are longer, and some are secured with iron cramps. Old large wooden props support the inner face of the return head. Later additions obscure all but the inner faces.

Corran Ferry NN 021 636

Corran is the northernmost of a series of ferries which served the littoral settlements (and those of the off-shore islands) of Loch Linnhe and the Firth of Lorn. Of these, many have disappeared, Connel and Ballachulish have been replaced by bridges, and only Corran has continued, with few interruptions, to run up to the present. No early construction is visible at either terminal. Telford was concerned with the building of the piers in 1817 (Gibb 1935, 309) and published plans (Telford 1821, 100). Stone from Strontian was brought by sea for the piers, possibly at an earlier date (*NSAS Ardnamurchan*, V7, 154).

Ballachulish NN 054 509

The sloping ferry piers which were in use until the recent opening of the bridge are of stone blocks under modern coverings and extensions. In 1898 each pier was 100 ft (30.5 m) long and at most 20 ft (6.1 m) wide as shown on the OS 1:2500 map. Mitchell (1883, 183) remembered seeing, in August 1837, at Ballachulish, 'In a cove or harbour immediately below the quarries . . . a number of sloops and vessels, attesting the bustle of business and commerce even in this calm solitude of the mountains'.

Laroch NN 08 58

A small harbour has been formed out of banks of quarry waste at East Laroch (RCAMS 1975, 277).

Port Appin NM 902 453

The ferry to Lismore from Port Appin was mentioned in a Macfarlane document of about 1630 (Macfarlane *Geog Coll*, 2, 154), and in the two *Statistical Accounts* (RCAMS 1975, 283).

Cregan Ferry (Loch Creran) NM 978 443

A passenger ferry at the narrows since spanned by a (now disused) railway bridge was crossed by Lord Cockburn in 1845, but could not take a carriage (Cockburn 1888, 283).

Shian Ferry (Loch Creran) NM 914 431

The main ferry over Loch Creran was from North Shian (914 431) to South Shian (909 423). In 1845 Lord Cockburn took nearly two hours to cross, and mentions no piers (Cockburn 1888, 287).

LOCH ETIVE

Though it is not itself a harbour in the modern sense of the word, but a long narrow inlet of the sea, some sites of considerable importance in the present context are associated with Loch Etive. Dunstaffnage Castle, where there was a safe anchorage in the adjacent bay, was built at the mouth of the loch in the second quarter of the 13th century (RCAMS 1975, 179) and controlled the strategic route along the south shore and through the Pass of Brander. On the north shore, the Valliscaulian Priory of Ardochattan was founded in 1230 or 1231 (*ibid*, 110). The loch must consequently have seen a good deal of maritime traffic, even before the great Lorn furnace was opened on the south shore at Bonawe in 1753 (*ibid*, 283). The lower end of the loch is obstructed by a submerged rocky bar, over which the tides rise and fall with violence, but little serious interference seems to have been suffered as the Falls of Lora thus formed could be passed with safety at slack water. Connel Ferry, across this part of the loch, was not superseded by Bonawe. The Royal Commission's site plan of the Bonawe works shows a straight narrow pier about 460 ft (140 m) long, with a slightly expanded end. In 1845, Lord Cockburn found the ferry in operation, but, though 'tourist boats' were also kept on the south side, preferred to explore the loch in a boat 'found' and rowed by 'maritime quarriers' from the north shore (Cockburn 1888, 283–4).

OBAN NM 857 299 (South Quay)

Oban originated in the first quarter of the 18th century as a station established in the bay by a Renfrew trading company. A Customs House was built in 1760 and a ship-building yard followed. The south quay was built for the Duke of Argyll, the proprietor of South Oban, about 1814, at which date Henry Bell's 'Comet' was establishing a regular service to Oban from Glasgow (RCAMS 1975, 242). In 1843 the port of Oban was described as a safe and commodious harbour, with good quays (*NSAS Kilmore & Kilbride*, V7 529, 532). Drove cattle from Mull, headed for Oban, were landed on Kerrera and swam across the narrow sound (Haldane 1952, 86).

A plan of the Burgh of Oban by R Stevenson dated 1846 (RCAMS 1975, pl 76), shows the south and north piers, both marked 'quay', the shoreline between the two much modified, and a wood yard and some wharfage around the sea frontage of Argyll Square. A slip is marked rising from the base of the head of the north pier straight along its south-east (inner) side. A slip is visible also in A Stanley's view of Oban in 1857 (*ibid*, pl 77), curving back, as at the present day, towards the head of the bay, away from the line of the pier. A timber extension, like that in Bough's picture of the pier at Fort William, is shown standing in deeper water, beyond the pier head.

Loch Feochan

A long inlet of the sea, with the entrance obstructed by a sand-bar and only accessible to craft of up to 60 tons (*SAS Kilniver & Kilmelfort*, V10, 316). Stone from Ardentallan quarries was used in the construction of the Caledonian Canal, and there are remains of a roughly formed jetty (RCAMS 1975, 277).

Ardmaddy NM 783 155

Of two stone-built jetties, one may be the pier known to have been built in 1748 by the company that worked the nearby Caddelton marble quarry and the Easdale slate. Both are shown on a plan of 1787 (RCAMS 1975, 251, 278).

Easdale NM 740 170

A harbour was built in 1826 (RCAMS 1975, 279). It is constructed of slabs, some vertically set, of the slate it was to export. (Compare Castlehill, p 312.)

Loch Melfort

A long inlet of the sea, considered a safe roadstead in 1794. No landings are mentioned (SAS Kilninver & Kilmelfort, V10, 316).

Craignish NM 763 005

Droved cattle from Kinuachlach in Jura were landed on the north side of the Craignish peninsula, close to the mouth of Loch Beag, in the shelter of an off-shore rock to the south-west (NSAS Jura V7, 534, 541). The landing slip, now ruined, was, according to local stories, for men and boats. The cattle were tipped out and swum ashore.

In 1793, open 'birlinns' were being used by Craignish people for trading voyages to the Clyde. To avoid the dangerous passage round the Mull of Kintyre, these craft would use the portage from West to East Loch Tarbert (*ibid*, 449).

CRINAN NR 783 940 (illus 42)

The *Statistical Account* of 1793 (SAS Kilmartin, V8, 93), points to Loch Crinan as the best harbour in a long stretch of the western coast, stating that 'vast' numbers of craft from both Britain



ILLUS 42 Crinan: the head of the quay. Even the rough boulders have been set to flare slightly at the base and are battered on both the seaward faces of this structure. Compare the masonry of the Beilding (Tarbert Loch Fyne)

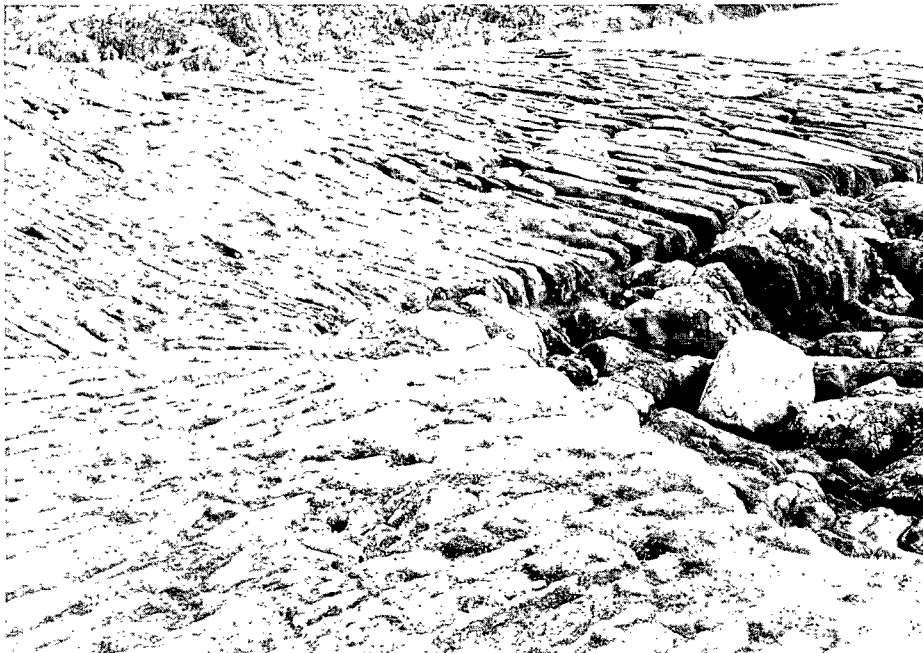
and Ireland were often detained there as they waited for a wind to take them to the Mull of Kintyre. The writer mentions two anchorages, one below Duntroon and the other behind Eilean da Mheine; near the latter position a small harbour exists today. This state of affairs no doubt changed materially eight years later, when the Crinan canal opened, as thereafter Crinan's main function must have been to form that work's northern terminal. Steamers from Oban, Fort William, Inverness and the Outer Islands were calling at Crinan at least as early as 1844 (*NSAS South Knapdale*, V7, 270).

Structure

The harbour, sheltered by Eilean da Mheine, consists of a roadway along a quay, which has been built out from the foot of a cliff about 100 ft (30.5 m) high. The rock spurs characteristic of this shoreline may have been cut or blasted away. The very slightly battered quay front is made of huge, rough, dark grey stone blocks, some measuring 2 ft (0.6 m) by 3 ft (0.9 m), of irregular shapes, fitted together with small stones (illus 42). No old mortar is visible. Large rough blocks, keyed back at 3 yd (2.7 m) intervals, form a very uneven kerb. At the north-east end of the quay, there is a projection 30 ft (9.1 m) square, from which a flight of stone stairs, nearly 6 ft (1.8 m) wide, descends back along the face of the quay. One step consists of a unique slab.

Keills NR 688 807 (illus 43)

Droved cattle from Lagg in Jura were landed at a jetty at Keills (Haldane 1952, 95). This, according to Gibb (1935, 309) was one of the ferry piers with which Telford was concerned in 1817. The landing slip resembles two 50 ft lengths of exceptionally well-made road, one sloping seawards from a low bluff, the other turned at right angles and continuing to slope down the face of the rocky shore to the left. The outer corner at the turning point is built up to 8 ft (2.4 m) from the seabed and



ILLUS 43 Keills: narrow blocks on edge in the pavement of Telford's slipway. The herring-bone arrangement at left gives way to fanwise setting of the kerb, which in turn receives lateral support from larger flat blocks rammed into the angle. Road building technique is evident

tipped with a kerb block measuring 52 by 21 by 16 in (1.3 by 0.53 by 0.4 m). This and the entire outer edge of the slip has been secured with an iron strap set in a channel in the kerb blocks, the final section being notched into the natural rock in which the left side of the slip is itself inset. The slip is paved with narrow blocks, of up to 42 by 10 in (1.06 by 0.25 m) set on edge and forming a herring-bone pattern at the turn, where the surface tips inwards to the shore (illus 43).

About 100 yd (91.4 m) to the right of the slip, as one faces the sea, is a curved pier, now ruinous due to recent vandalism. The stone-work of the pier was never as neat and strong as that of the slip, and it would be interesting to know whether Telford built them both. His own record mentions only that he improved the ferry pier in 1808, and again in 1818 (Telford 1821, 50).

Loch Caolisport

The parish minister of 1797 comments on the 'port' place-name (*SAS* South Knapdale, V19, 310), and his successor of 1840 notes an anchorage (*NSAS* South Knapdale, V7, 259).

Ardpatrick NR 760 596

A natural haven in the mouth of West Loch Tarbert, where it was recorded in 1847 that, sheltered by the island of Trien, 'revenue cruizers will be found riding safely when the heaviest westerly gales blow in the Sound of Jura' (*Harbours*, xlvi).

Southend NR 690 080

In 1794 it was recorded that a ferry boat was always waiting here to make the crossing to Ballycastle in Antrim (*SAS* Southend, V3, 363).

CAMPBELTOWN NR 722 204

Campbeltown was founded by Archibald, seventh Earl of Argyll, in or about 1690, from which time there dates a Macfarlane document which alludes to a safe harbour (Macfarlane *Geog Coll*, 2, 527). By this expression the bay as a whole was evidently meant, together with the adjacent water in the shelter of Davaar Island. The place became a burgh of barony in 1697 and a Royal Burgh in 1700. From 1750 to 1786, Campbeltown was the statutory 1 September rendezvous for herring-fishing vessels, the large 'busses' then in common use and qualifying for bounty in terms of the *Act*, 23 Geo ii cap 24 (Dunlop 1952, 14, 38). The Old Quay, a pier near the foot of Main Street, was begun in 1722. The New Quay, on which work began in 1754, was 800 ft (244 m) to the south-east. A plan of 1760 shows the outer ends of these two piers, each at least 600 ft (183 m) long, curving towards one another to form a harbour basin in the shape of a capital D, with an opening of about 150 ft (45.7 m) near the centre of the curve, where there was a depth of 15 ft (4.6 m) of water at high tide (RCAMS 1971, 184, pl 73). Dalintober, on the north shore of the bay, lay outside the burgh until incorporated with it in 1832, and had acquired a pier of its own about 1767 (*ibid*, 184). In 1794, Campbeltown's 'excellent harbour' was mentioned (*SAS* Campbeltown, V10, 552); but again the reference is evidently to the whole bay rather than to the artificial works. A more explicit account, of 1843 (*NSAS* Campbeltown, V7, 455), notes that the bay obtains shelter from the land and, on the south, from a bar running out towards Davaar Island. A very safe anchorage was formed by this conjunction of natural features, and entrance was gained from the north by a deep, narrow channel. At the date in question, 33 sloops and schooners were owned in the town, together with fishing boats and one large vessel trading to Canada for timber. Other craft served the import and export trade, and steamer connection with Glasgow had been established. The *Report* of the Tidal Harbours Commission of 1847 describes Campbeltown 'Loch or bay' as a 'well known harbour of refuge', and publishes a plan.

Structure: Campbeltown

Red stone block masonry is visible underlying and disappearing beneath modern coverings at the 30 ft (9.1 m) wide shore end of the New Quay (south-east pier). A slip, double with width of the pier itself, of the same stone work, descends parallel with its inner side.

Structure: Dalintober

A slightly sloping pier, 200 ft (60.9 m) long and 20 ft (6.1 m) wide, extends into Campbeltown Bay from its north shore. The top three courses of red stone blocks are neater than those near the base. The west side bulges badly, while the east side is composed of several different kinds of masonry. Near the sea head, the corners of which are curved, a set of steps is inset in the east side, descending seawards. There is a slip at right angles to the shore end of the pier, descending eastwards along the sea wall to the beach. The surface of the slip is of large cobble stones or setts.

SKIPNESS BAY NR 905 575

No less than four landing-places fall under the general heading of Skipness. These are, the Bay, lying immediately west of the Point, and facing south upon Kilbrannan Sound; Brann a' Phuirt, just north of the rocks that form the Point and facing east towards the Sound of Bute; Port a' Chruidh, about a mile to the north, with the same exposure; and the Old Pier, about a quarter of a mile northwards again.

The bay, in the first place, is an even sandy crescent backed by a storm beach, and while providing an easy landing for small boats in fine weather, except when the tide is too low, provides no protection from the frequent storms that sweep up the Sound of Kilbrannan and offers only inconvenient anchorage on account of a wide strip of tidal foreshore. In view of these drawbacks, the siting of Skipness Castle, less than a quarter of a mile from high water mark, seems surprising, but the policies that influenced its builders are quite unknown. On the other hand, a large burn, which now debouches by a mouth broken through a storm beach only about 1950, previously ran out at the western corner of the Bay, as is shown on contemporary OS maps, and there it formed a tidal pool which still, in the 1880s, was acting as a base for three or four herring smacks. About 1814, a wherry was built, for the laird, Mrs Campbell of Skipness, presumably in a boatyard occupying this same pool (Campbell 1813-14).

Brann a' Phuirt NR 913 574

Features of interest in this small inlet, in no proper sense a harbour, are the cutting back of a rock face so that a boat could lie beside it, and the drilling of three holes at the lip of the rock for the passage of mooring ropes (Graham & Collingwood 1923, 285).

Port a' Chruidh NR 920 585

Local tradition has it that from this small inlet in the rocks, which shows at least one hole bored for the passage of a mooring rope, droved cattle from Islay used to be re-embarked for shipment to the mainland. Mrs Campbell of Skipness once landed here in 1813 (Campbell 1813-14).

Skipness Old Pier NR 920 589

In 1838 Port a' Chruidh was superseded by a regular harbour, built about a quarter of a mile further to the north. The purpose of this work was to provide a harbour of refuge for the large number of boats engaged on the herring fishery. The Herring Board met one-third of the original costs, as well as of the additional sum needed for repairs. The plan and specifications published by the Board (Reports Commissioners 1840, vol 13, Opp p 17) show that the work consisted of an angled breakwater pier starting out eastwards from the rocks and then turning north to form a partially

enclosed basin measuring some 250 ft by 200 ft (76.2 m by 60.9 m). The masonry was of dressed stone with a hard packed rubble core; there was a parapet on the outer edge, and a good deal of rock was cut away along the landward side of the basin. Though sheltered from the west, the site was, of course, totally exposed to the east. The structure was in ruins long before the end of the century, and the last of the well-dressed red stone work was demolished by a gale in 1911.

The new pier, dating from the 1870s, falls outside the scope of this study; but it may be worth while to record, as a point of general interest in industrial archaeology, that it was built of reused iron rails from the old broad gauge line of the Great Western Railway.

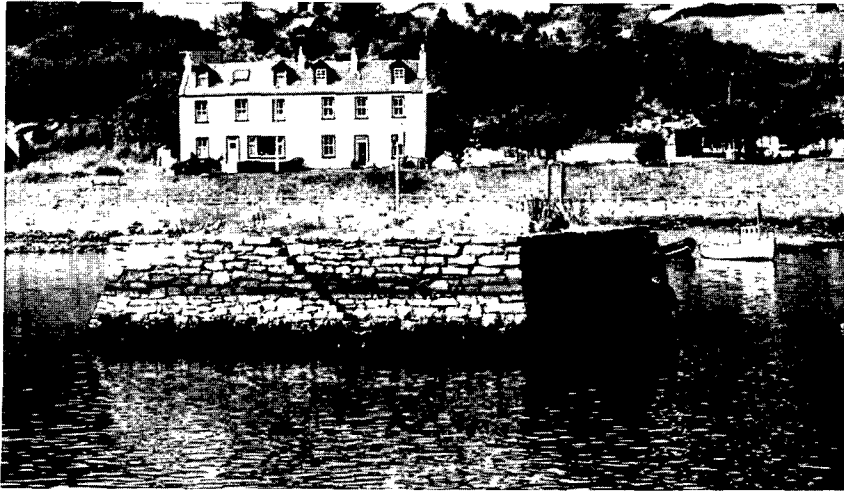
TARBERT, EAST LOCH NR 865 686 (illus 44)

Kintyre is attached to the mainland of Scotland by a very narrow neck of land, and for rowed or sail-driven craft navigating these south-western waters the existence of a portage here was a matter of considerable importance. The distance between the heads of East and West Loch Tarbert is, as the crow flies, just under a mile, while the detour round the Mull of Kintyre involves a voyage of close on 100 miles. The highest point of the neck is 43 ft (13.1 m) above sea level, and a project for a canal was already being ventilated in the 1770s (*Harbours*, xlv). The rounding of the Mull, moreover, involved very serious dangers, which are eloquently set out by Bishop Leslie. His translator, Father Dalrymple, compares the Mull to a 'nuik or elbock of land, quhair is committed lyke a battel among ye surges of ye maine Sey fleiting and flowing thairout'. The distance to the Irish coast he puts at only 16 miles, 'bot lykewyse for the concurring of ye troublous ebbing and flowing of Sey, surges and wais with uthiris, is verie perilous to the seymen and marinlies' (Brown 1893, 133). Tarbert on the East Loch was thus a place of importance for fishing and coastal trade; and in periods when trouble was expected from Ireland or the Western Isles it had military significance as well. Tarbert Castle in fact stands as evidence of the strategic aspect of the site, and the oldest part of its remains is dated tentatively to the 13th or early 14th century (RCAMS 1971, 180).

The *Orkneyinga Saga* (ch 41) records that in 1098 King Magnus II of Norway had a skiff hauled over the portage, with the rudder set, in order to prove that Kintyre was an island, and as such part of his Scottish domain. A legend likewise exists that Robert I, King of Scots, tried to repeat this performance to overawe the western chiefs, but that his ship overturned in the hollow known as Lag na Luing, near the existing Church Hall. In the 16th century the portage was evidently in common use, G Buchanan recording that mariners frequently dragged their boats across in order to shorten their voyage (Brown 1893, 226). A later note shows that this was still being done in 1793 (*SAS Craignish*, V7, 449).

The same is true today, of small local craft and yachts, which may readily be lifted straight from the water onto lorries, and thrown back in at the other side. (Information by courtesy of Miss Campbell of Kilberry.)

The building of the harbour in East Loch Tarbert in 1812 confirmed the alteration of the shape of the settlement from that of the burghal nucleus near the Castle (RCAMS 1971, 191), focusing it, as today, on the Loch, with the 'curve of twenty or thirty small houses drawn round its upper end' which was admired by Lord Cockburn in 1843 (Cockburn 1888, 198). Telford was engineering improvements to piers and breastworks in both East and West Lochs between 1809 and 1813 (Gibb 1935, 311). The 'convenient quay' of 1812, built at the joint expense of the proprietor and the government, with a bridge and road of approach, served Tarbert as the headquarters of the Loch Fyne herring fishery (*Harbours*, xlv), when as many as 700 boats used the harbour in the season. The configuration of this 'singular and almost land-locked natural harbour' (*ibid*) made entrance against the prevailing westerly winds very difficult. The structure known today as the Beilding was built by Telford in 1812-13, and described by him as 'an insulated rock', shaped to form 'a station for capstern apparatus'



ILLUS 44 Tarbert Loch Fyne: the Beilding

(Telford 1821, 47). It was used for warping vessels into the harbour when the wind was contrary (RCAMS 1971, 191), and for drying nets (Cockburn 1888, 191).

(See Jamieson (1818) on various uses of 'beilding', normally connected with shelter.) In 1847 an additional quay was recorded as having been erected for the accommodation of steam traffic. (*Harbours*, xliv).

Structure

The Beilding is the least altered remaining structure (illus 44). Modern quays have been built out further and further into the bay from the original frontage, the line of which is, however, preserved by the houses facing the Loch along the street beside the harbour.

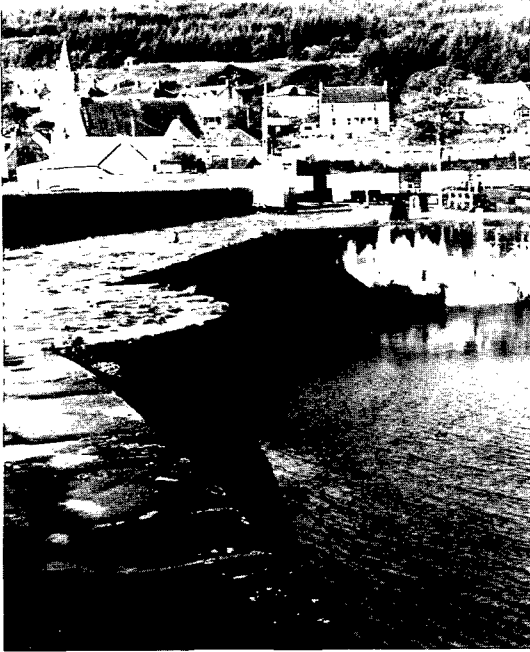
Modern construction at West Loch Tarbert is probably on the same site where Telford worked between 1809 and 1813, but has obscured all traces of earlier building.

ARDRISHAIG NR 850 850 (illus 45-7)

The site, on the west shore of Loch Gilp near its opening into Loch Fyne, where the sands of Loch Gilp give way to a stony and rocky foreshore, resembles in these respects many others in the north and west. After 1801, its development was assured by its position at the southern end of the Crinan canal, which was described by the Parliamentary Commissioners for Tidal Harbours in 1847 as 'a material link in the chain of communication which connects Glasgow and the Clyde with Inverness and the Highlands' (*Harbours*, xliv). Ardrishaig was then, independently of the canal, 'the most important steam-boat station on Loch Fyne' (*ibid*), with wharfage popularly considered insufficient. The Commissioners noted a stone pier 520 ft (158.5 m) long sheltering the south side of the harbour, with a light at its head, and on the north a steam-boat pier, about 135 ft (41.1 m) long, built in 1836. Besides passenger traffic, cattle and sheep were shipped, and the herring fishing added to the congestion in its season. It was recommended that the pier be lengthened and the harbour deepened (*ibid*, xlv).

Structure

The site is dominated by the terminal works of the Crinan canal, immediately inside the shelter of the south pier. From this point, the inner face of the south pier, 550 ft (167.6 m) in length, appears to have been



ILLUS 45 Ardrishaig: south pier and seat of light. The final lock of the Crinan Canal is visible upper right



ILLUS 46 Ardrishaig: design of beacon for Ardrishaig, 1833. This document is behind permanent glass in a frame on the wall of the entrance hall of the Crinan Canal Office, and is deteriorating

constructed of three distinct types of masonry, presumably at different times. The 130 ft (39.6 m) section nearest the shore is built of neatly dressed grey stone blocks of moderate size, set in straight courses matching some of the faces of the canal basin. At the sea end of this section there is a bulge (illus 45). The surface here is paved with large blocks, in five of which large iron rings are set. Stone steps, about 3 ft (0.914 m) wide descend from the land side of the bulge, back along the inner pier face. The outer (south) face of this section is also much like some of the canal works in general appearance. This slightly battered outer face is of large reddish rusticated blocks, of which five courses are visible at half tide. Above these, one flat-faced course is surmounted by a string course, and a further three flat-faced courses forming a parapet wall, which culminates in a rounded top-course, once secured by iron clamps. The parapet wall of the next section to seaward is of rougher construction. This second section, 270 ft (82.3 m) long, is aligned a few degrees more northerly than the first, and ends where there are remains, possibly of a return head, or perhaps merely of a bulge to accommodate a light or other pier-head equipment (illus 46). In the third section, 150 ft (45.7 m) long and ending at the lighthouse, the pavement matches that of the first two sections, as if, in a final phase of construction, the pier, and the extension called for in 1847, had been much modified and repaved.

The north pier, beyond the north side of the canal mouth, is largely covered in by a modern extension at its sea end. The shore end, still visible for about 60 ft (18.3 m), shows fewer signs of periodic modification than is the case with the south pier. Both sides of the north pier, which lacks a parapet wall, are slightly



ILLUS 47 Ardrishaig: the boatyard slipway from the north pier

battered. Ten rough courses of very large irregular blocks measuring up to 4 ft (1.2 m) by 1 ft (0.304 m) match the construction of the sea wall at right angles to the north side of the pier. The large kerb blocks have rounded edges and key into the much damaged and, in some places, absent surface at irregular intervals. Between the inner face of the north pier and the canal mouth, the shore has been stabilized with small, rounded blocks.

Outside the harbour of Ardrishaig, to the north of its north pier, there is a large boat-slip or apron, about 60 ft (18.3 m), sloping down about 160 ft (48.7 m), nearly to low water level, and with an extension at its southern corner ending in a flight or at least five steps, at the foot of which a small boat can still ride at low water (illus 47). The surface of the slip consists of flattish blocks, showing faces of from 4 to 9 in (10 to 23 cm) wide, some being vertically set. Two lines of larger, square-faced blocks, perhaps kerbs of older, narrower forms of the structure, divide the surface, running from shore to sea. One large iron ring survives half-way up the south edge, and there are remains of two more.

LOCHGILPHEAD NR 863 876

Lochgilphead is not favoured by nature as a site for a harbour, as it is totally exposed to the south and tidal sands extend half the length of Loch Gilp. In early times, there was, beyond these sands, a loch with islets and marshy edges stretching inland nearly as far as Cairnbaan, and capable of affording shelter to small craft. Taylor and Skinner (1776, pl 17) mark the road from Inveraray to Tarbert following the present shoreline, but give no direction for reaching Oban by turning north at this point. Lochgilphead, as it developed after the building of the Crinan canal, was served by a small quay, built by the proprietor in 1813, apparently without grant-aid, and 'useful to a limited extent to the inhabitants of this thriving village' (*Harbours*, xlvi). The problem is to identify the remains, if any,

of this structure. The 1899 OS 1:2500 map marks a slip directly in line with the foot of Argyll Street, on the shore of the market stance.

The word 'quay' could well have been used to describe this, or an earlier structure on or near this site, but the Tidal Harbours Commissioners also stated that the quay could have been made accessible to steamers by straightening and deepening the river. Though the bends in this stretch of the river could have been straightened, it would still have been necessary for steamers to negotiate a turn through nearly 90° from their course up the river channel in the length of Loch Gilp. Moreover, the task of dredging would always have been exceedingly onerous. An alternative location may be suggested if consideration is given to the possibility of the first of the surviving structures described below (both on the left bank of the river below its main turn, and thus on the east shore of the loch), having been the 'small quay' of 1813, and the second the 'larger pier' built in 1844, and, according to the writer of the *New Statistical Account* of the parish (NSAS Glassary, V7, 693), 'capable of accommodating herring wherries and coal smacks'. Straightening and deepening of the river, as called for in 1847, may indeed have enabled steamers to reach this pier.

Structure

(i) Very rough blocks form an enclosure about 100 ft² (30.4 m²) in the mud on the left bank of the river, just below its main bend to the south-east of the town. Faces of short sections only, looking downstream, still rise to two or three courses. An old iron upright, perhaps a marker, is set in the downstream corner, beside an opening to the river front, possibly an entrance.

(ii) About 50 yd (45.7 m) further down the left bank of the river than (i), the pier of 1844 appears to survive intact. It is about 30 ft (9.1 m) wide and extends north-westwards some 120 ft (36.5 m), with a return head of half that length at an oblique angle upstream, that is, due north. The rough block masonry, battered much more on the downstream than on the upstream and river front faces, rises in very rough courses to a line of uneven kerb stones. These have been secured with iron cramps, of which only slight traces remain, most of their sockets having been reused for modern alloy cramps. Near the downstream outer corner of the pier head, one mushroom-shaped metal pawl survives. There are three large iron rings in the surface of the pier, near the upstream edge. A flight of nine stone stairs, 3 ft (0.914 m) wide, descends from the inner angle of the pier to within about 2 ft (0.6 m) of the base along the inside of the return head.

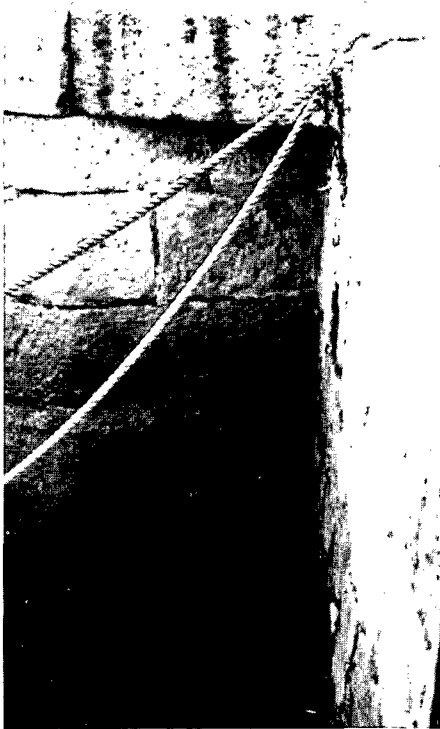
INVERARAY NN 099 089 (illus 48)

Until the middle of the 18th century, the mouth of the River Aray, on the west shore of Loch Shira at its opening into Loch Fyne, was used to shelter small craft. This landing place served Inveraray Castle, on the left bank of the river, and its associated settlement, and was overcrowded with over 400 herring boats in the season. In 1709, the ruinous condition of this harbour was the subject of a petition by the burghers to the Duke (Lindsay & Cosh 1973, 23). A drawing by T Sandby in 1746 shows boats, one with three masts, beached in the mouth of the Aray. In another Sandby drawing, of 1747, one boat and some timber wharfage appear in the river mouth, with another boat nearer the present town. With the removal of the burgh to its present site, west of Foreland Point, came a need for a new harbour. In 1754, a project to build a pier at Foreland, or Fisherland, Point, previously the site of the town gallows, was being discussed. In 1756 the Duke authorized the use of stone from ruined cottages on the site of the new Court House for harbour building. A modest jetty 100 ft (30.4 m) long was built by J Adam in 1761, at a cost of 10 shillings and sixpence. A year later, Adam completed the building of a pier to his own plan, but by 1765 the height of the structure had to be raised (*ibid*, 267, illus). Thus when the fifth Duke of Argyll, as president of the BFS, led that Society's tour in 1787 to select a site for a fishing port in the north-west Highlands, he could draw on long family experience of the difficulties and costs of harbour building and upkeep. At Inveraray, the harbour wall was built in 1790, and the pier was extended in 1805 under the superintendence of J Gillespie (*ibid*, 267), and again in 1836, when an outer slip was built. It was not clear whether it was

in 1836 that a return head was added for the first time. The Tidal Harbours Commissioners stated in 1847 that

Inveraray has a small pier, reaching offshore 90 yards to the north-east, with a short return head to the north-west; it was extended into a depth of 5 ft at low tide, with an outer landing slip built in 1836, at a cost of £1435, two-thirds of which sum were paid by the Fishery Board.

Inside the present return of the pier head, there are two changes of alignment, the first making a right angle with the north-east side of the pier, the second an angle of over 100°. The plan is thus consistent with the possibility that a return head at right angles, built in 1805, was replaced in 1836 by the present oblique structure (illus 48).



ILLUS 48 Inveraray: the change of alignment at the inside angle of the return head, with kerb block laid across the resulting niche

From Inveraray, a ferry plied to St Catherines (NN 100 058), where Telford built a pier 90 yd (82.9 m) long (Telford 1821, 50).

Structure

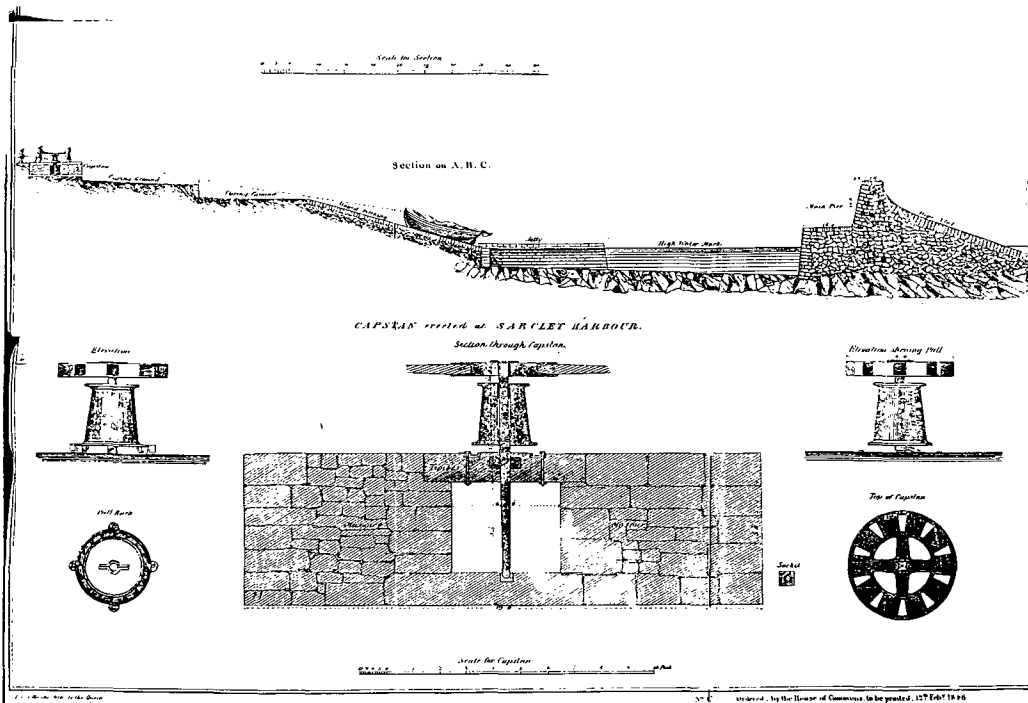
For about half its 180 ft (54.8 m) length, the pier is a rectangular structure of stone blocks in neat courses, 20 yd (18.3 m) wide and 7 yd (5.5 m) high. Its surface is slightly tipped-up towards the outer side. The grey stone kerb blocks, none above 2 ft (0.6 m) long and 18 in (0.45 m) deep, are smaller than those in the lower courses, and their edges are worn to roundness. The offshore end is of similar dimensions, but the blocks are redder, and those in the kerb sharp-edged and twice the size of those nearer the shore. The

return head projects obliquely westwards for 23 yd (21 m) and is 6 yd (5.5 m) wide. Beyond it, the pier head turns and descends, forming a slipway adjacent to its outer face. Two stone pawls are set back in niches in this face to serve the slipway, an arrangement not seen elsewhere in the course of this study. There are three flights of steps, two on the inner side, one at the foot of the slip. Near the shore, 14 steps, each made of a single 3 ft (0.914 m) stone slab, with its (Roman) number cut in its surface, is inset in the pier face, descending seawards. Another 14 steps, only 2 ft (0.6 m) wide, are inset in the same face, descending near to the angle of the return head. (This angle, as noted above, is a double one. The blocks in all the courses except the kerb have been shaped so that the return head starts out at right angles to the pier before taking on its oblique alignment.) The third set of steps occupies nearly half the end of the slipway, which is $4\frac{1}{2}$ yd (4.1 m) broad where it ends at the foot of the outer face of the return head. The five steps are inset in the end of the slip, beside the face, so that the outer corner of the end of the slip has required to be secured by an iron strap 3 in (7.6 cm) wide embedded in a channel in the surface of the kerb blocks (see illus 55). Much of this survives, whereas little of the rather similar iron strap-work on other parts of the pier is still to be seen.

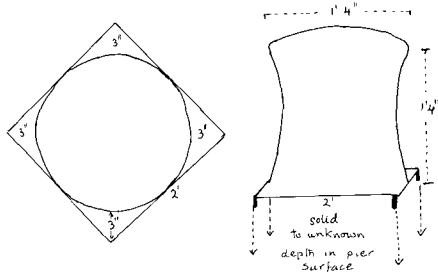
APPENDIX 1

CAPSTANS, MOORING POSTS AND IRON FITTINGS OF PIERS (illus 49–56)

The harbours of Sarclet (p 299) and of East Loch Tarbert (p 339) were dependent for their efficient operation, at the time of their building during the 19th-century herring fishing boom, on what was then called capstern apparatus. That of Tarbert, ensconced upon the Biolding (see p 340), warped the boats into shelter, while at Sarclet boats were warped up sloped pitching on to the curing grounds. No doubt similar arrangements were quite common, though the capstans have disappeared.



ILLUS 49 Sarclet: the capstan 1843, from J Mitchell's plan (Herring Fisheries Commission 1846, 23, 20–1). Pall and pall rack enabled the small figures at left to stop and start warping in safety (see also illus 21)



ILLUS 50 Portmahomack: squat stone pawl, the set of six of which on the north pier (1816) much resemble stools



ILLUS 51 Inverness: uprooted stone pawl on Thornbush Quay. Length approximately 4½ ft (1.37 m). Date probably 1817, about 60 years before the word 'bollard' came into use for moorings on shore



ILLUS 52 Inveraray: pawls in niches beside the slipway used by the ferry to St Catherines, which took carriages



ILLUS 53 Salen, Loch Sunart: hook 21 in (0.53 m) long, set in natural rock beside the pier

But the apparatus for ordinary mooring of boats at the quayside usually consisted of what we now call bollards. The word bollard has, however, changed its meaning in the course of the 19th century. From its re-appearance, after a gap of centuries, in 1844 it was used exclusively of baulks of timber or metal fittings to which ropes could be secured *on board ships*. Hardy, in *The Trumpet Major* (1880), used the phrase, 'a bollard farther up the quay' (OED), and this usage has become current. Thus, the moorings described in this study were not contemporarily called bollards. Graham in earlier papers consistently called them pawls. But as the primary meaning of pawl is the brake bar at the foot of a capstan, such as Mitchell illustrated so carefully on his plan for Sarclet (illus 49), its continued use for mooring posts in this paper calls for explanation. Graham's usage has been continued, firstly for consistency, and secondly because of two indications, admittedly slight, that a more general meaning



ILLUS 54 Rockfield: kerb block loosened after rusting away of run-bar



ILLUS 55 Inveraray: run-bar in channel, securing the end of the slipway and the top of the steps



ILLUS 56 Keills: run-bar and straps bolted to pier surfaces, without channels; those on the nearby slipway were set in channels on the seaward sides only

may have been current at the material time. At Inverness, as early as 1729, five palls are marked on the left bank of the river, and at Thurso a century later, palling was being levied in an attempt to raise funds for improving the harbour. In both cases there could have been capstans for warping ships into position in the rivers, but it does not seem very likely that the term pall would have taken over as the name for the whole apparatus. A maritime vernacular use of pall may be suggested as connecting it, on grounds of shape, with its meaning in Swedish, pall: a stool (illus 50). The root meaning, being the same as that of the bole of a tree, could have given rise to a sense of 'pall' relating to a mooring pole or post, which did not survive the introduction of the obviously expressive and popular word bollard (illus 51, 52).

Ropes and chains were caught and secured by hooks, loops and rings, the components of which were often 3 in (76 mm) or more in diameter (illus 53). Ferry piers are especially rich in such fittings. At Huna (p 310), there is no remaining pier, only a chain, the double links of which are 3 in (76 mm) in diameter.

The other main use of iron in harbour construction was for the cramps, straps and run-bars with which efforts were made to keep in place the blocks forming quay margins and parapet tops (illus 54). Even where these have rusted away, it is sometimes possible to see the channels in which they were set (illus 55). In other instances, it is the stone which has eroded, leaving the iron bar exposed. Where, however, sea wear was expected to be less, or where construction was less careful, the run-bars were simply bolted to the surface (illus 56).

APPENDIX 2

ALPHABETICAL INDEX OF SITES

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REFERENCES

- AM 1792 *Plan of Inverness*, INVMG 244, Inverness Museum.
 APS *Acts of the Parliaments of Scotland*. 12 Vols, 1814–75. Edinburgh.
 Avery, J 1725–30 County maps for the Governor and Directors of the York Building Company. *Map of the inner Moray Firth*, Inverness Public Library.
 BFS 1848 Report to the Governor, Deputy Governor and Director of the British Fisheries Society on their estate at Pulteneytown. Edinburgh.
 Brand, J 1701 *A brief description of Orkney, Zetland, Pightland Firth and Caithness*. Edinburgh (reprint 1883).
 Bremner, J 1845 *Treatise on the planning and building of harbours*. Wick.
 Broad, H 1981 *Rails to Ayr: 18th and 19th century waggonyways*. [=Ayrshire Collections, 12/6, Ayrshire Archaeol Natur Hist Soc.]
 Brown, P H 1893 *Scotland before 1700 from contemporary documents*. Edinburgh.
 Calder, J T 1887 *History of Caithness*. Thurso (reprint 1971).
 Caledonian Canal Commission. Eighteenth Report by the Commissioners for the Caledonian Canal, 10 (1821).
 Cameron, A D 1975 'Communications (d) Water', in *The hub of the Highlands*. Inverness Field Club, centenary vol. Edinburgh.
 Cameron, G 1847 *History and description of the town of Inverness*.
 Campbell, Mrs, of Skipness 1813–14 Diaries.
 Carruthers, R 1967 *Old Inverness: A collection of prints*. Inverness.
 Cockburn, H 1888 *Circuit journeys 1837–1854*. Edinburgh (reprint 1983).
 Collins, G 1689 *Great Britain's coasting pilot*. London (edn of 1776).
 Dunlop, J 1952 *The British Fisheries Society*. Unpub thesis, Univ Edinburgh.
 Fraser, J 1910 'Cromwell's Citadel and the harbour of Inverness', *Trans Inverness Sci Soc Fld Club*, 6 (1899–1906), 93–102.
 Gibb, A 1935 *The story of Telford*. London.
 Gibson, J S 1967 *Ships of the '45*. London.
 Graham, A 1968 'Old harbours of Dunbar', *Proc Soc Antiq Scot*, 99 (1966–7), 173–90.
 Graham, A 1969 'Archaeological notes on some harbours in eastern Scotland', *Proc Soc Antiq Scot*, 101 (1968–9), 200–85.
 Graham, A 1979a 'Old harbours and landing places on the east coast of Scotland', *Proc Soc Antiq Scot*, 108 (1976–7), 322–66.
 Graham, A 1979b 'Some old harbours in Wigtownshire', *Trans Dumfriesshire Galloway Natur Hist Antiq Soc*, 3 ser, 54 (1979), 39–74.

- Graham, A 1984 *Old Ayrshire harbours*. [= *Ayrshire Collections*, 14/3, *Ayrshire Archaeol Natur Hist Soc*.]
- Graham, A & Truckell A E 1977 'Old harbours of the Solway Firth', *Trans Dumfriesshire Galloway Natur Hist Antiq Soc*, 3 ser, 52 (1976-7), 109-42.
- Groome, F H 1901 *Ordnance Gazetteer of Scotland*. Edinburgh.
- Haldane, A R B 1952 *The drove roads of Scotland*. London.
- Harbours 1847 *Parliamentary Commission on Tidal Harbours*. Second report of the Commissioners in Reports, Commissioners, 32. London.
- Henderson, J 1812a *General view of the agriculture of the county of Caithness*. London.
- Henderson, J 1812b *General view of the agriculture of the county of Sutherland*. London.
- Henderson, J 1884 *Notes on Caithness family history*. Edinburgh.
- Herring Fishery Commission. Reports by the Commissioners for the Herring Fisheries. For 1828, 15 (1830); 1833, 36 (1835); 1843, 23 (1846).
- Highland Roads and Bridges Commission 1821 *Ninth Report by the Commissioners for Highland Roads and Bridges*, 1816-21, 10 (1821).
- Hume, J 1774 'Plan of the river Ness etc: Judicial plan for the cause of the feuars of Inverness, decided 1776', *Trans Inverness Sci Soc Fld Club*, 2 (1883).
- Inverness Field Club 1978 *Old Inverness in pictures*. Edinburgh.
- Jamieson, J 1818 *Etymological dictionary of the Scottish language*. Edinburgh.
- Leslie 1846 *Plan of Inverness*. Inverness Museum.
- Leslie, Bishop 1578 *De originis, moribus et rebus Scotorum*, in Brown, P H, 1893, *Scotland before 1700*. Edinburgh.
- Lindsay, I & Cosh, M 1973 *Inveraray and the Dukes of Argyll*. Edinburgh.
- Macfarlane Geog Coll *Geographical Collections relating to Scotland made by Walter Macfarlane*, Mitchell, A (ed), 3V, 1906-8. [= *Scot Hist Soc*, 51-3].
- Macrae, N 1923 *The romance of a Royal Burgh*. Dingwall.
- Marwick, J D (ed) 1866-90 *Records of the Convention of the Royal Burghs of Scotland*, 6V. Edinburgh.
- Matthew Paris *Chronica majora*. Rolls edn.
- Ministry of Transport; RHP 1843-4 *Plan of Inverness*. Edinburgh.
- Mitchell, J 1883 *Reminiscences of my life in the Highlands*. Edinburgh (1971 reprint).
- Mitchison, R 1962 *Agricultural Sir John*. London.
- Mowat, J 1938 *Old Caithness maps and mapmakers*. Wick.
- Mowat, J 1980 *James Bremner, wreck-raiser*. Thurso (reprint).
- Mowat, W G 1936 'Chronicle of Wick harbour', in *John O'Groats Journal centenary supplement*, 7 Feb 1936. Wick.
- Mowat, W G 1938 *The story of Lybster*. Wick.
- NSAS *New Statistical Account of Scotland*, 1845, Edinburgh.
- Parliamentary Accounts and Papers (Blue Books), see Caledonian Canal; Harbours: Herring Fishery; Highland Roads and Bridges.
- PCFC 1869 *Proc Caithness Fld Club* (1869), Report of a visit to Papigoe and Staxigoe.
- Pennant, T 1979 *A tour of Scotland in 1769*. (Reprint 1979, Warrington.)
- RHP Register House Plans Series, West Register House, Edinburgh.
- Ross, A 1883 'Old Inverness', *Trans Inverness Sci Soc Fld Club*, 2 (1883).
- Roy, W 1747-55 *Military survey of the Highlands of Scotland*, MS British Library map library, xlvi, 25-1bc.
- RCAMS 1971 Royal Commission on the Ancient and Historical Monuments of Scotland. *An Inventory of the Ancient Monuments, Argyll 1: Kintyre*. Edinburgh.
- RCAMS 1975 *An Inventory of the Ancient Monuments, Argyll 2: Lorn*. Edinburgh.
- Sinclair, J 1802 *Essays on miscellaneous subjects*. London.
- Slezer, J 1693 *Theatrum Scotiae*. London.
- SAS *The Statistical Account of Scotland*, Sinclair, Sir J (ed), 1792-7. Edinburgh.
- Sutherland, I 1982 *Wick harbour and the herring fishing*. Wick.
- Tacitus: Cornelii Taciti, *De vitae Agricola*, Ogilvie, R M & Richardson, I (eds), 1967. Oxford.
- Taylor, G & Skinner, A 1776 *Survey and maps of the roads of North Britain or Scotland*. London.
- Telford, T 1821 Appendix to ninth Report of the Commissioners for Highland roads and bridges. Accounts and Papers, 10 (1821). London.

- Telford, T 1838 *Life of Thomas Telford, Civil Engineer (with atlas)*, Rickman J (ed). London.
- Washington, J 1848 Lybster harbour, Caithness. Extract from next entry.
- Washington, J 1849 *Captain Washington's Report on the loss of life and damage caused to fishing boats by the gale of 19th August 1848*. *Accounts and Papers*, 22, 51 (1849), London.
- Waters, F *Thurso then and now*. Thurso.
- Waters, F *The story of Thurso*. Thurso.
- Wood, J 1821 *Town Atlas*. Edinburgh.
- Wordsworth, J 1982 'Excavations at Castle Street, Inverness', *Proc Soc Antiq Scot*, 112 (1982), 322–91.