Tay Street, Perth: the excavation of an early harbour site

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ABSTRACT

Excavation in Tay Street has confirmed the site of the New Haven, a 16th-century and later harbour. Remains of two successive harbour walls were found, which can be related to plans of 1715 and 1774. The Tay Street harbour was the second of three known in Perth, the first being at the foot of High Street. The Tay Street basin was infilled early in the 19th century, and the harbour moved downstream to its third site, at Friarton. These successive relocations of the harbour can be related to the expansion and changing needs of the town.

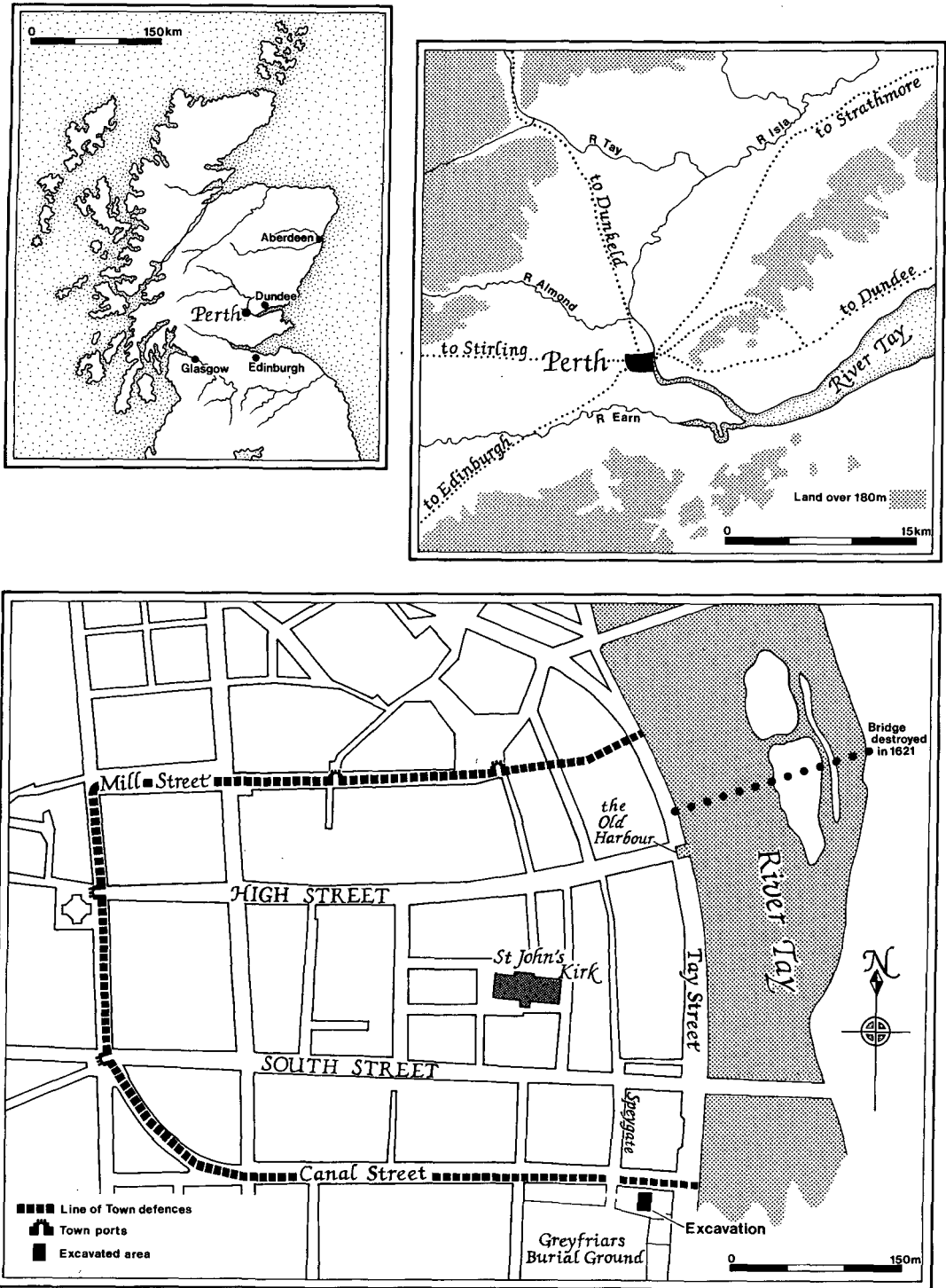## INTRODUCTION (ILLUS 1–4)

THE SITE

The excavated site (NO 120 233) lies beside the River Tay, just outside the south-east corner of the historic core of the town, at the junction of Canal Street and Tay Street. Canal Street and Tay Street bound the site on the north and east, while on the south it is bounded by Greyfriars Burial Ground.
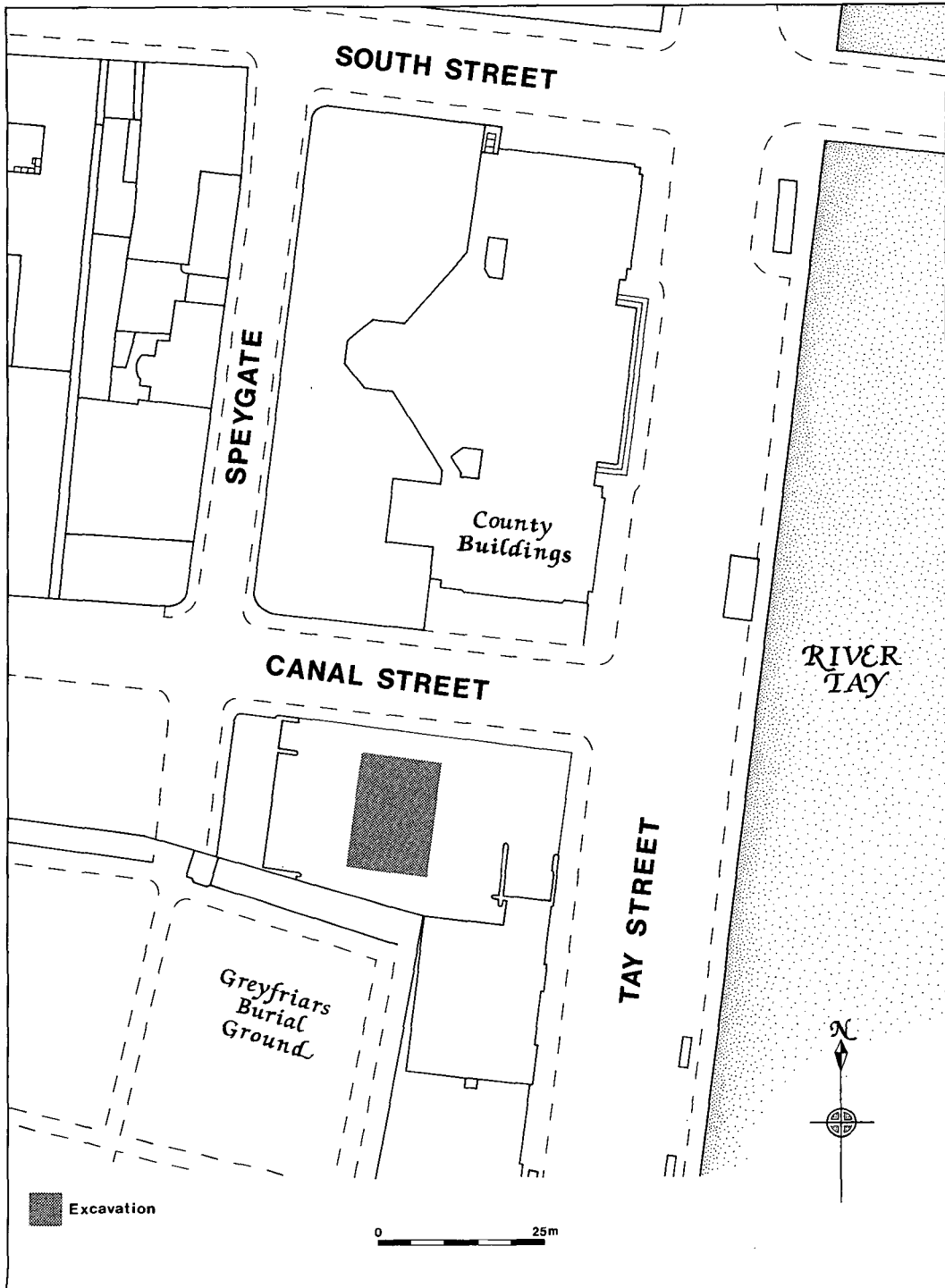
Until 1984 the site was occupied by a large stone building, built in 1888 as an Opera House, but for many years used as the Baptist Church. On the evening of Sunday 1 July 1984 this building was destroyed in a spectacular fire, and the ruins demolished during the following week. In August 1984, the Scottish Urban Archaeological Trust opened up three trial trenches and confirmed the presence of stone structures under the remains of the church.

The site was eventually acquired by Bield Housing Association Ltd for development as sheltered housing (now called Quayside Court), and was then excavated by the Trust, between September 1987 and February 1988. Excavation was funded by the Manpower Services Community Programme and the Scottish Development Department (Historic Buildings and Monuments), now Historic Scotland, with additional help from the Perth Archaeological Support Group.

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ILLUS 1   Site location

SOUTH STREET

SPEYGATE

County
Buildings

CANAL STREET

RIVER
TAY

TAY STREET

Greyfriars
Burial
Ground

N

◼ Excavation

0   25m

ILLUS 2   Trench location. *Based upon the Ordnance Survey map © Crown Copyright.*

HISTORICAL BACKGROUND (ILLUS 3 & 4)

Because it is bounded to the south by the extant Greyfriars Burial Ground, the Tay Street site can easily be located on Petit's map of 1715, and on Rutherford's Map of 1774. These and other early maps show that beneath the site lay a harbour basin, where the 'canal' opened out into the Tay.

This canal was the medieval town ditch which formed the southern boundary of the medieval and early modern town, and also served as the tailrace from City Mills. It survives as a dry culvert, running underground along the south side of Canal Street, diverting slightly southwards to run under the excavation site, and on under Tay Street to empty into the Tay through a stone arch in the river wall. The site is now separated from the river by Tay Street, an artificial embankment built along the foreshore from about 1870 onwards.

Being at the mouth of the town ditch, the harbour lay outwith the town defences, which ran along the north side of the ditch to reach the river bank at the Monk's Tower; the latter is shown on Rutherford's map of 1774 and survived into the 19th century. The site was thus some 300 m downstream from the basin and the Tolbooth at the foot of the High Street, where the earliest harbour is thought to have developed (Simpson & Stevenson 1982, 8, 43; Spearman 1988). This relocation of the harbour, like the 19th-century removal to Friarton a mile further downstream, would have been influenced by the need for deeper water for ships, and for more space to unload them, the pressure of competing uses for land in the town, and by problems of silting in the river.

Immediately to the south of the site is the Greyfriars Burial Ground, site of the Franciscan friary until the Reformation of 1559, and in use as a public burial ground from 1580 (Simpson & Stevenson 1982, 32). Nothing now survives of the friary, and nothing is known about its layout. Farther to the south, under Marshall Place and the South Inch, lies the site of Cromwell's Citadel, built in 1652 and reused in the Jacobite Risings, but obliterated by the 1830s. This may have had a considerable influence on the post-medieval development of the Tay Street Harbour and what later became the South Shore.

EXCAVATION OBJECTIVES

The excavation had five objectives:

(1) To confirm the location of the harbour as shown on early maps.
(2) To examine the structure of the harbour.
(3) To investigate the development of the harbour through time. Work on waterfronts in London (Milne, 1981) has shown that successive quays tend to expand out into deeper water, each phase burying and preserving its predecessor, so a sequence of well-preserved harbour structures might be expected on the site.
(4) To recover the associated finds. Depending on the fill materials used, harbour works can produce large finds assemblages and waterlogged organic materials closely related to datable structures.
(5) To investigate any links with the adjacent Greyfriars Monastery. Greyfriars itself is unlikely ever to be available for excavation, and will in any case have been severely disturbed by its use as a cemetery from the 1580s until the 1970s. However the friary probably had access to the harbour, so the harbour site might contain materials from the construction, occupation and demolition of the friary.
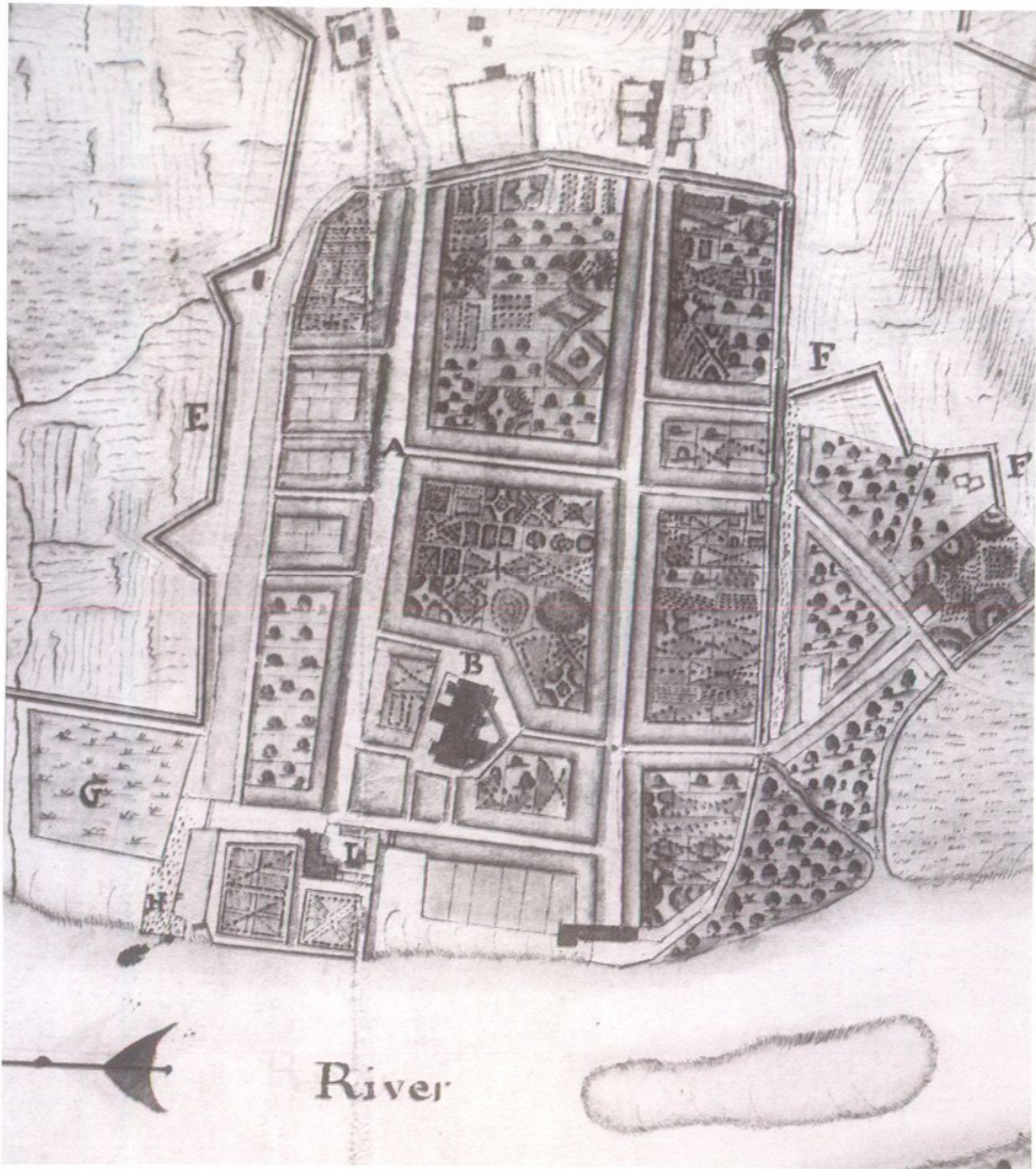
ILLUS 3   Extract from an Exact Plan of the Town by L Petit?, 1715 (*Crown copyright. Reproduced by permission of the Trustees of the National Library of Scotland*): (A) The Town of PERTH; (B) The Great church; (E) Lines thrown up by the Rebells; (F) Two Small Redans made by the Townsmen; (G) The Church Yard; (H) The Kay; (I) The Duke of Athols Houfe & Garden

ILLUS 4   A Plan of the Town of Perth by A Rutherford, 1774 (*Courtesy of Perth Museum and Art Gallery*)

THE EXCAVATION

The site was too large to excavate fully, and was surrounded by standing structures. A trench measuring 17 m by 12 m was opened approximately in the centre of the site, as far as possible from all surrounding buildings; it was positioned so as to cross the line of the harbour wall indicated on the early maps, and so as to include any earlier structures behind it.

The debris of the 1984 fire and demolition was removed by machine, together with some Victorian construction rubble. On the south side of the trench, one of the concrete foundations (Phase 5) of the Baptist Church was uncovered about 0.2 m below street level. As this was immensely solid, it was left in place; in consequence, the trench was immediately reduced by about 2 m in the south.

Machine clearance stopped about 1 m below street level, when a hard layer was encountered, which proved to be the cobble surface (Phase 3) of the later harbour. Stratigraphic excavation then proceeded by hand. Before excavation began beneath the cobbles, the trench was stepped in 1 m all round to ensure stability, except in the south where the concrete foundation formed a very solid limit.

On the north side of the later harbour wall (Phase 3) the trench was excavated down to a stone culvert (Phase 4), but no attempt was made to break into this. On the south side of the wall, once the cobble surface and bedding layers had been removed, it was decided not to excavate the deep and largely featureless infill layers (Phase 3) in full. Instead, they were sampled by digging a north-south trench initially 2.5 m wide, subsequently reduced to 0.75 m at the bottom. This trench was partly dug by machine.

At the south end of the site, an earlier harbour wall was found (Phase 2). Here a larger area was opened up by hand, to reveal as much of the wall as possible. To the south of this early wall, early surfaces and levelling fills were exposed by hand; these were also seen in section where the wall had been robbed away, but it was not possible to excavate fully this part of the site because of the nearness of the southern trench edge, and because beyond this lay the wall of the burial ground.

After the end of the excavation, the Trust continued to observe and record the site during the building contractor's works. The culvert (Phase 4) was dismantled and replaced with a steel tube, and new areas of the site were excavated by machine. The results of these observations are incorporated into the account of the site which follows.

Phase 1: Natural deposits

The natural deposits on the site were layers of sand, sandy gravel, and banded silts and sands.

Phase 2: The early harbour (illus 6, 7 & 8)

The first harbour on the site was represented by the bottom of the basin, the southern harbour wall and surfaces, the mouth of the culvert, and the north wall of the basin.

The bottom of the basin consisted of layers of sand and clay, at approximately 2.3 m OD. The remains of the harbour wall extended across the southern part of the site. It was 1.4 m wide at its widest point, standing to a maximum height of 1.77 m, and was built of clay-bonded sandstone. In the east this wall consisted of a south face (951), a north face (952), and a rubble core (953). In the western part (954), the core had been omitted and the faces merged together. (A further wall portion (959) was seen west of the excavation during the watching brief.) The north face was extensively robbed away, but included some ashlar blocks, perhaps reused, as they were not of uniform size. The base of the north face was seen at 2.38 m OD, but it was not possible to investigate the foundations.
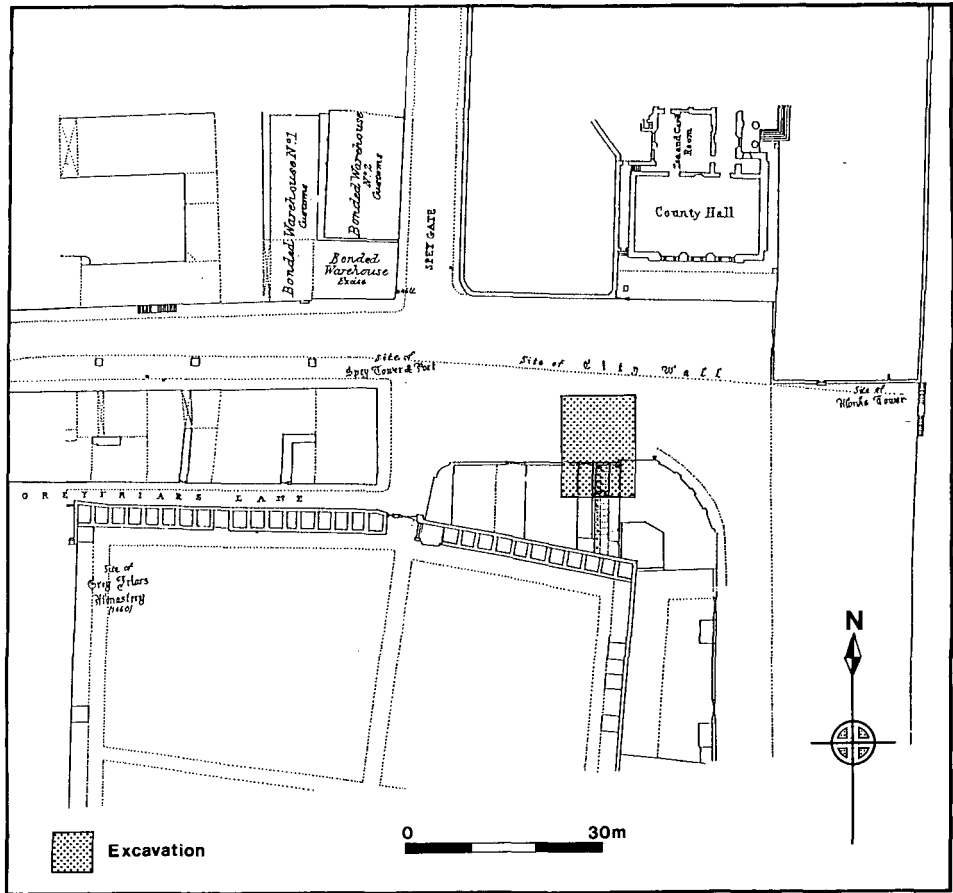
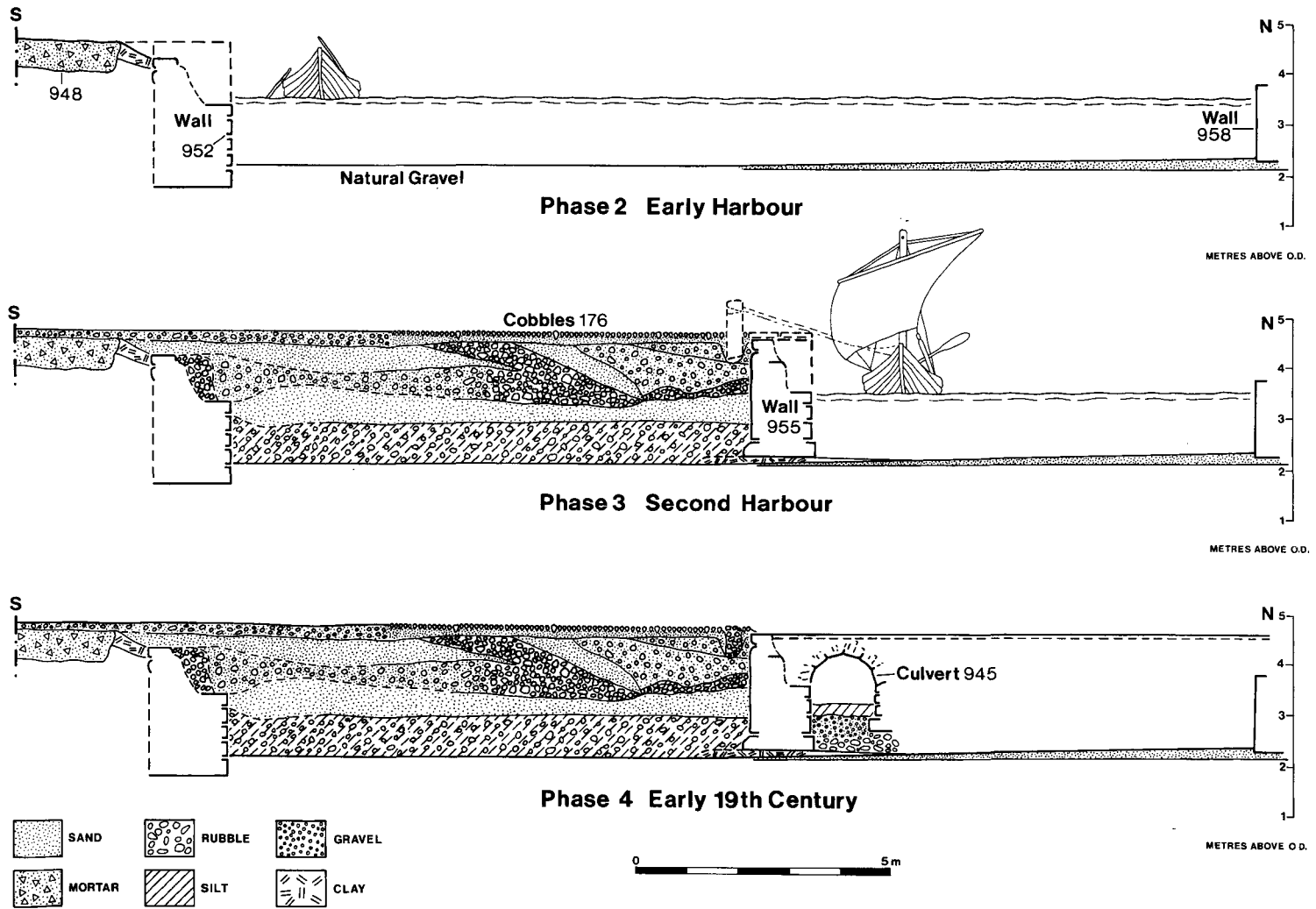ILLUS 5   Detail from OS 1:500 Perth and its Environs 1863

Butting up against the southern face of the wall were deep layers of sand, gravel and stones (227 & 228), and a dump of sandstone blocks (225). Over all these was a mortar layer (948 & 949), up to 0.55 m thick. The wall and the layers together formed a large solid platform with its working surface level with the wall top.

The mouth of the culvert (956) was found approximately 16 m west of the main excavation, and still exists underground. It is a well-finished arch of finely tooled stone set into a stone retaining wall which extends on either side of it. A rebate has been made around the opening of the arch, and holes have been cut into the wall face, probably to accommodate a grill and fastenings.
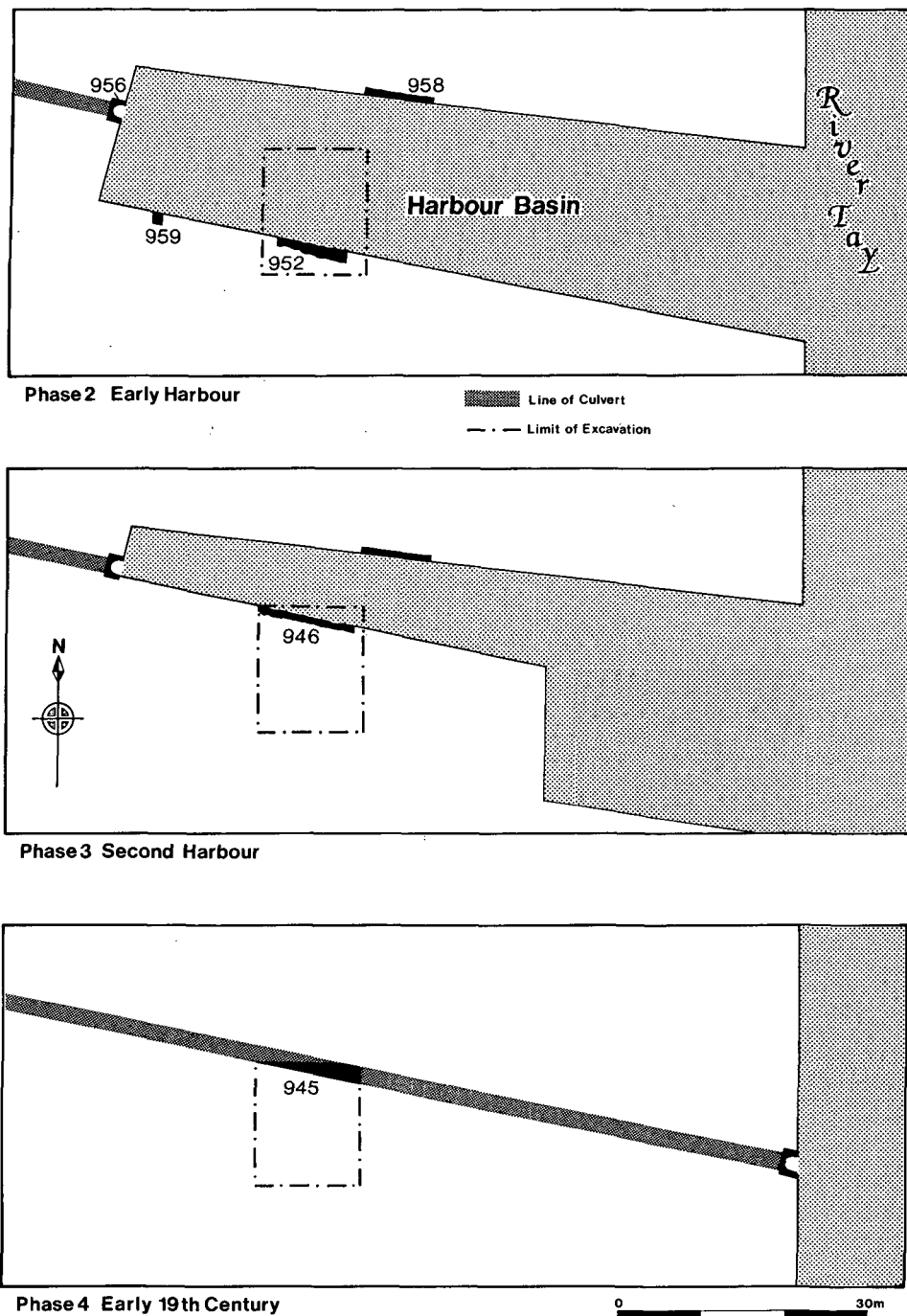
The northern wall (958) was found approximately 18 m north of and nearly parallel to the harbour wall (952). Only the southern face was seen, built of clay-bonded sandstone blocks, and standing about 1.5 m high.

The harbour wall, the culvert mouth and retaining wall, and the northern wall together define three sides of a basin about 17 m wide.

These elements were seen in three separate archaeological and contractor's excavations, so no direct stratigraphic or structural link could be between them. However, it seems clear from their

S

948

Wall
952

Natural Gravel

Phase 2 Early Harbour

N 5
4
3
2
1

METRES ABOVE O.D.

Wall
958

S

Cobbles 176

Wall
955

Phase 3 Second Harbour

N 5
4
3
2
1

METRES ABOVE O.D.

S

Culvert 945

Phase 4 Early 19th Century

N 5
4
3
2
1

METRES ABOVE O D.

	SAND		RUBBLE		GRAVEL
	MORTAR		SILT		CLAY

0   5 m

ILLUS 6   Composite sections of the harbour basin

ILLUS 7   Schematic plans of the harbour basin

Phase 2 Early Harbour

0   10 m

Phase 3 Second Harbour
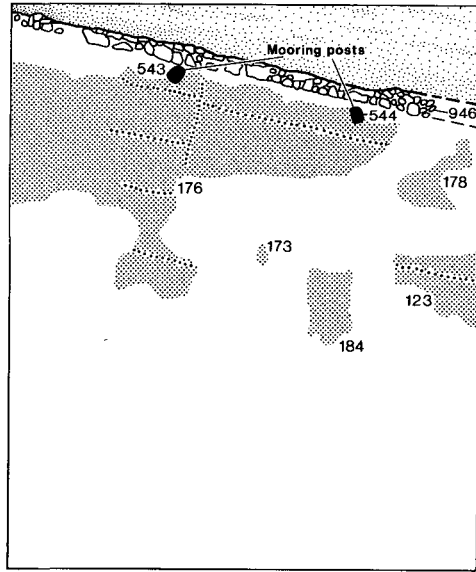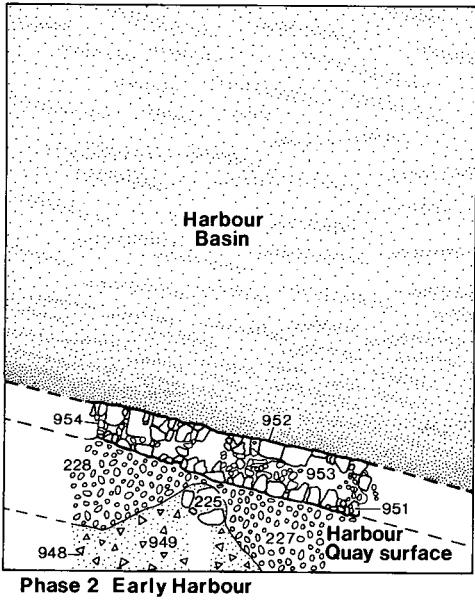
Gravel surface

Mortar surface

Cobbled surface

Buildings

Culvert

Phase 4 Early 19th Century

N
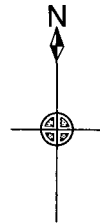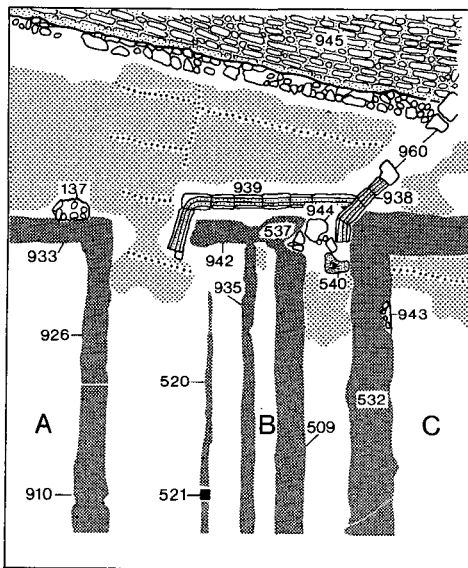
ILLUS 8   Plans of Phases 2–4

form and location that they all functioned together, forming a basin open to the Tay in the east, and filled from the culvert in the west, with the harbour wall and platform serving as a quay on the south side.

Modern high tides at Perth vary between 1.6 m and 3.6 m OD (information from Tay River Purification Board). Vegetation on the riverside wall indicates typical levels around 3.45 m OD, suggesting a maximum depth of 1.15 m above the harbour bottom at 2.3 m OD. The basin would have been deeper to the east of the excavated area, closer to the river. Where the culvert now empties through the 19th-century riverside wall into the Tay, its floor is level with the foreshore at 1.73 m OD. This would have allowed a draught of up to 1.72 m within the basin.

The basin as excavated compares closely in shape and location with *The Kay* shown on a plan of the Jacobite defences of Perth in 1715 (illus 3; Petit? 1715). This plan shows a rectangular basin at the mouth of the canal, with a working platform (the Quay) on its south side, up against the Greyfriars Burial Ground. The canal, though mostly open, passes under Speygate, presumably in a culvert, emerging again where it enters the basin. The northern wall of the basin appears to be on or close to the line of the southern city wall, and could incorporate part of it. The 1715 plan also shows that, beyond the limit of excavation, the basin was bounded on the east by a curious northward projection that narrowed the harbour mouth at its confluence with the River Tay. This may have accommodated some kind of lock gate to maintain water level at low tide, or simply a constriction to accelerate flow and prevent silting.

The earliest documentary reference to the harbour at the mouth of the canal is in the *Perth Guildry Book*, which records that in January 1540, John Moncur of Balluny transported 200 ashlar stones '*Ad le Newhavin apud Fratres Minores*', to the New Haven by the Grey Friars (Stavert, 1993, 144, No 330). As the excavated harbour site directly adjoins Greyfriars Burial Ground, it can be easily identified with the New Haven. The mention of ashlar stones fits well with the evidence for a robbed-out facing on the harbour wall.

A carved stone fragment apparently built into the top of the wall core (953) fits less well, as it resembles post-medieval gravestones in Greyfriars (see Cox below, no 43). However, this was found on the top of the wall, so it could be intrusive, or a late repair. A possible historical context for this would be the construction of Cromwell's Citadel from 1651 onwards, when stones were robbed from the cemetery, or the programme of repairs to the town's war-damaged amenities after the Restoration, when the Citadel was robbed in turn.

The construction and occupation of the Citadel would have had a major impact in drawing traffic and activity to the south-east corner of the town, perhaps to the Tay Street harbour itself, but more probably to the area along the South Inch later known as the South Shore.

Phase 3: The second harbour (illus 6, 7 & 8)

During the 18th century, the harbour was remodelled. The harbour wall was partly demolished, and the southern part of the basin infilled. A new wall and working surface were built north of the old ones.

The layers of rubble and debris associated with the demolition of the first harbour wall contained 18th-century pottery (Cheer, below). These deposits were sealed initially by layers of fine banded silt, apparently water-laid; it seems the demolition area remained open at least for a little while before the infilling of the basin proceeded, but this may indicate a delay within the reconstruction process rather than a significant period of disuse.

The second harbour wall (946) was built of irregular sandstone blocks, bonded with white mortar, running diagonally across the northern end of the site, parallel with the early harbour wall

and 9.5 m to the north. Controlled excavation did not reach the basal course, but the wall stood to a height of at least 2.23 m. The top of the wall was uneven, probably as the result of the robbing of cap-stones. The north face of the wall was so rough and irregular as to make it evident that the upper 0.96 m of the original facing had been robbed away, leaving the wall core exposed.

In fact the original north face (955) of the harbour wall (illus 6) survived beneath the culvert (945, Phase 4), and was revealed during the watching brief when the culvert roof was dismantled. This face was constructed with large, roughly cut, uncoursed sandstone blocks, bonded with brown clay. Some blocks were quite well dressed and had probably been re-used. The bottom course was stepped out by 0.1 m.

The space between the stump of the harbour wall of Phase 2 and the back of the wall of Phase 3 was filled with deep dumps of sand, silt, stones and rubble, with tip lines indicating infilling from the south-east. Pottery recovered from these infilling layers ranged in date from medieval to 18th century, indicating that the process of infilling occurred no earlier than the 18th century. The substantial amount of residual medieval and post-medieval pottery recovered from the infilling suggests that these deposits may have originally been dug up elsewhere in the town, perhaps during contemporary town centre building development (Cheer, below).

The infilling between the harbour walls was sealed with an extensive cobble pavement (illus 8: 123, 173, 176, 178 & 184), set in a bedding layer of sand. The cobbles butted up against the back of the later harbour wall (946), while straight lines of larger cobbles used in laying out the surface ran parallel and at right angles to the wall, confirming that the wall and the pavement functioned together. The sand beneath the cobbles was stained with coal dust, especially in the impressions left when cobbles were lifted, suggesting that the pavement had been used for handling coal, which had worked its way down between the cobbles.

Cut through the cobble pavement were two post-holes (543 and 544), set directly behind the harbour wall, about 4.6 m apart; these were probably for mooring posts.

The wall, pavement and mooring posts formed a new quay, replacing (and burying) the early wall and platform (Phase 2). The effect of remodelling the harbour was to create a larger quay on the south side, but to reduce the size of the basin itself.

The new harbour, resulting from the northward extension of the quayside, can be identified on Buist's map of 1765. This map is somewhat stylized; a more accurate rendering of the harbour shape can be seen on the maps by Rutherford (1774: illus 4), Buist (1787, see McLaren, 1904) and Macfarlane (1792). The date of harbour remodelling can thus be fixed between 1715 and 1765.

The maps show that only the western, inland end of the quay was extended. Buist's map shows that about 48 m at the western end was extended. The eastern, riverward end of the harbour still retained its original open shape. On Rutherford's map (1774), the north wall of the basin follows the same line as on the 1715 plan, and connects to the Monk's Tower, then a surviving part of the medieval town defences, suggesting that the northern wall of the harbour incorporated the line of the medieval town wall.

It is not clear why the harbour was remodelled. The open basin may have suffered from silting, and the channelling of the 'canal' could have helped to flush it clear. The harbour bottom seems to have been fairly flat from north to south, so there was no gain in draught when compared with the previous harbour. The decision may have been to retain the deeper eastern end of the basin, but to reduce the less useful western end in exchange for a broader quayside. Such a quayside would also have provided better access into the town through Speygate from the South Shore or Coal Shore which was developing along the river, south of the harbour. The provision of quays farther south along the shoreline during the latter half of the 18th century would have replaced those lost within the harbour basin, as well as catering for deeper-draught vessels.

On Macfarlane's plan of 1792, the area to the south of the site (and perhaps the site itself) is marked as the Coal Quay. This fits in well with the evidence of coal-handling in the bedding layers under the cobbles, and suggests that coal was either being unloaded directly on site, or was being transported from the riverside using the harbour as a means of access. Gardner's plan of 1845 shows the basin filled in, but applies the name Coal Shore to the land directly to the south, between Greyfriars and the Tay.

Robert Heron gives an impression of activity in the harbour at the end of the 18th century; nearing Perth, he writes of the view: 'Immediately under the town appear the masts of vessels, numbers of which are commonly either lying in this station, or moving up and down the river' (Heron 1793 vol I, 57).

Phase 4: Early 19th century (illus 6, 7 & 8)

Early in the 19th century the canal culvert was extended to the Tay, the harbour basin (Phase 3) was dismantled and infilled, and three buildings were erected on the former quayside. The two holes for the mooring posts were filled in and the cobble pavement was patched with smooth stones, indicating that it was retained in use.

Within the harbour basin, a barrel-vaulted culvert (945) was constructed, mainly from large rough-cut sandstone blocks, but also incorporating long rectangular ashlar blocks. On its south side the culvert sprang from a step formed by partly robbing away the north face of the harbour wall (955, Phase 3). The north side of the barrel vault was supported by a low wall. Internally the culvert measured 1.35 m wide and 1.2 m high. At its western end, the vault was mortared onto the face of the earlier culvert mouth and retaining wall (956, Phase 2), and continued its line eastwards to the Tay, where its mouth can still be seen in the riverside wall.

The harbour basin was then filled in, over the culvert, with layers of sand and rubble, up to 3 m deep. In the north, outwith the excavated area, these layers were paved over with cobbles.

Three buildings were erected on the former quayside, their foundations cutting through the cobble pavement of Phase 3. Structure A was the north-eastern corner of a substantial building, with solid stone foundations (910, 926 & 933). Near the corner of Structure A was a cut, filled with what seemed to be packing stones (137), perhaps evidence of a gatepost. Structure B was a long narrow building, about 2.5 m west of Structure A, marked by a narrow beam slot (520) and a post-hole (521), and by robbed out or insubstantial stone foundations (509, 537, 935 & 942). Structure C was the north-western corner of a substantial building about 6.5 m east of Structure A. Its stone foundations had been almost entirely robbed out and were represented by a rubble-filled robber trench (532), except for a tiny fragment of masonry (943) trapped in a later concrete feature. Between Structures B and C were the very fragmentary remains of a wall (944).

North of Structures A, B and C was a drain, divided into two branches (938 & 939), set in a trench cut roughly through the cobble pavement (Phase 3) and falling west to east. The drain was built with long sandstone slabs laid end to end, with a shallow V-profile channel cut down the centre. Side walls were built over the slabs, and the drain was then capped with flat sandstone slabs (960), level with the cobble pavement. The drain probably collected rain water from down pipes at the corners of Structures B and C, and emptied into the culvert (945). A small rectangular cut (540) at the corner of Structure C was perhaps the remains of a sump.

When the harbour basin was filled in, the cobble pavement was patched and retained. It is not clear if the pavement remained in use throughout the life of the three buildings; where their foundations cut through, it had not been made good, but had been roughly patched; there was no sign of any later pavement above it.

The process of infilling the harbour basin and redeveloping the site can be traced on 18th- and 19th-century maps. Reid's map of 1809 shows the entire basin infilled. Filling in the basin would simplify land access between the town and the riverside, from Speygate eastwards over the old quayside and the infilled basin, and would have released sufficient space to allow the erection of buildings to the south, up against the north wall of Greyfriars Burial Ground. Wood's map of 1823 shows Canal Street extended to meet the South Shore or Coal Shore, later Tay Street.

The three excavated buildings –Structures A, B and C – first appear on Gardner's map of 1845, but the OS map of 1863 (illus 5) shows them in much greater detail. Structure B is shown divided into 11 small cubicles, each with a circular feature at the western end (and a 12th large cubicle with two). The building was evidently a public toilet, probably provided for the workers of the Coal Shore. The function of the double cubicle is unknown. Structure C can be identified to the east of the toilet block, and has a distinctive curved frontage in the north-east corner. Between Structures A and B, a gate is shown which probably relates to feature 137 (illus 8), while a wall between Structures B and C is identifiable with feature 944. A small square on the south side of the wall looks like a drain cover, and can be identified with the drain sump (540).

Phase 5: The public hall

Papers and drawings in Perth and Kinross District Archives (Dean of Guild's Plans 1879/29) record that in 1888 a New Public Hall was erected on the site; originally this was an Opera House, but it was later used as the Baptist Church. The excavated remains can be related to the original architect's plans and to the building as it stood until 1984.

THE FINDS (ILLUS 9)

Adrian Cox

Artefact assemblages from the excavation are discussed by phase, below. A full report on the finds, including a full catalogue, has been lodged in the National Monuments Record of Scotland.

Phase 2: The early harbour

Finds assigned to this phase are associated with the construction and use of the early harbour, the earliest known reference to which was in the 16th century (above).

Among the stratigraphically earliest finds from the excavation are two carved stone fragments, which were incorporated in the rubble core of the harbour wall. The precise origins of these are unknown but the form of both suggests that they may be architectural fragments or fragments of funerary sculpture associated with the adjacent friary and its burial ground. The form of *43* (in the Catalogue, below) resembles that of decorative carving which can be seen on the upper edges of some surviving gravestones of 18th-century date in the cemetery, although this form may also have occurred at an earlier date.

Finds recovered from the sand and gravel construction layers abutting the harbour wall include an iron key, probably to a door or chest (*22*) and an octofoil mount of copper alloy (*4*). The mount is of a type known from London and elsewhere, interpreted as a belt or strap fitting, the central aperture serving to accommodate a rivet for attachment. Examples of similar form from London, lacking the embossed decoration of *4*, fall within a mid-13th- to early 15th-century date range (Egan & Pritchard 1991, 194, fig 122, nos 1034 & 1037).

Phase 3: The second harbour

The majority of finds assigned to this phase were recovered from deposits representing the deliberate infilling of the early harbour, which, on the basis of pottery and cartographic evidence, took place in the 18th century.
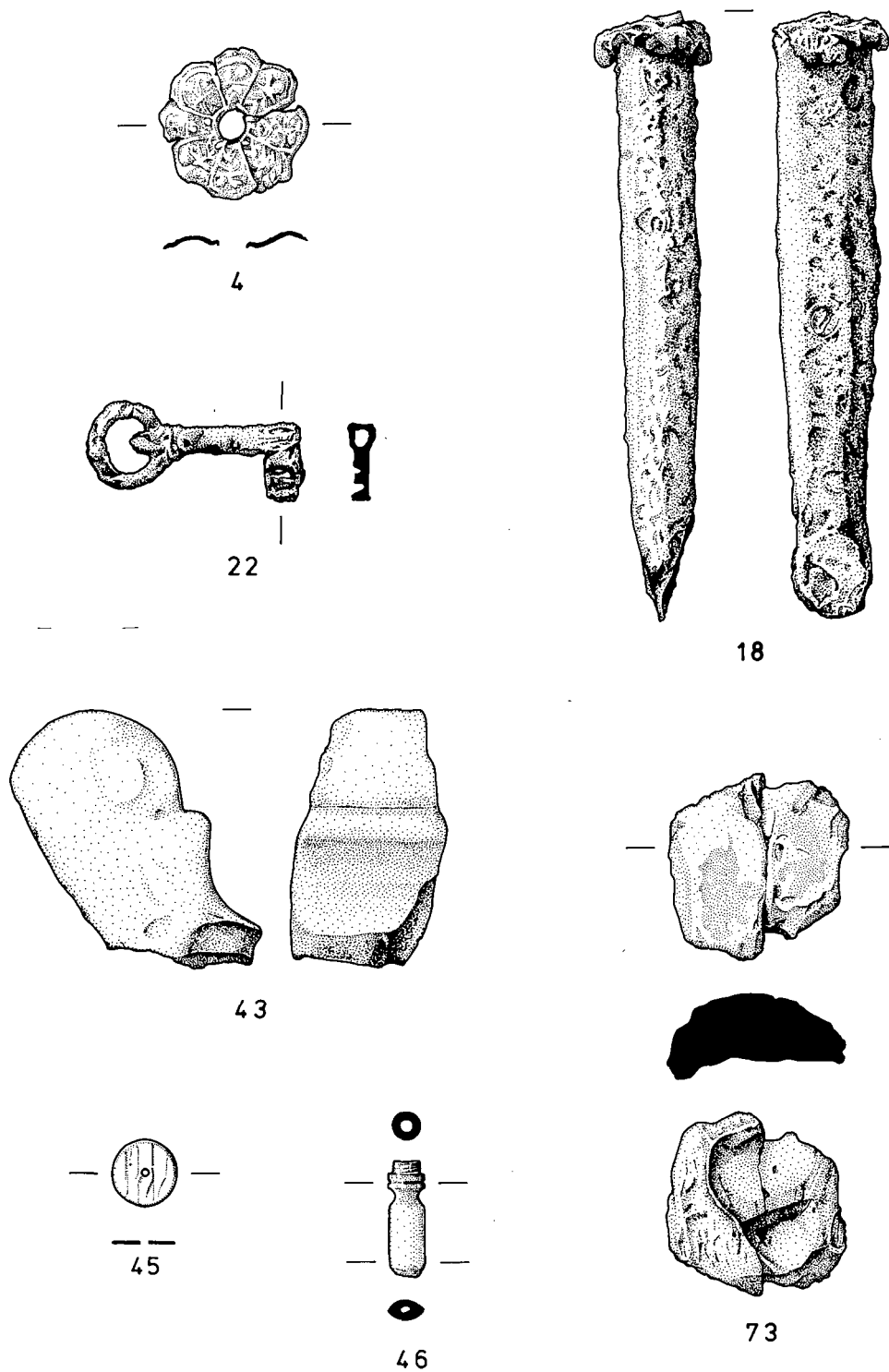
ILLUS 9   The Finds: No 4, scale 1:1; Nos 18, 22, 45, 46, 73, scale 1:2, No 43, scale 1:4

The artefactual content of these deposits confirms their secondary status; they may have been brought to the site from contemporary development sites in the town.

Among the residual material were quantities of ceramic and stone roof-tile fragments and glazed floor-tile fragments. The presence of the latter may suggest that some of this material was derived from the demolition debris of the nearby Franciscan monastery, which may have provided a readily available source of material for the harbour infilling. A coin of late 16th-century date and another of late 17th-century date were recovered from the infill deposits. An iron chisel (*18*), probably used in stone working, was found in the final levelling deposits overlying the harbour infill layers.

Phase 4: Early 19th century

A glazed tile fragment (*73*), was recovered from a deposit interpreted as trample overlying the final levelling deposits of Phase 3. The degree of distortion of this object makes it worthy of note. It may be a fragment of floor tile, and the line of slip underneath the glaze may have been part of a decorative pattern. The object may either have been deliberately distorted for some purpose or may be a waster from tile manufacture, perhaps used in separating tiles stacked in a kiln.

Phase 5: Late 19th century

Finds assigned to Phase 5 mostly relate to the demolition of the walls of Structure C in the late 19th century. The fills of the robbed-out foundation trench contained a large number of wall plaster fragments which give an indication of the internal decor of the building at the time of its demolition. A button backing (*45*) and a probable tobacco pipe mouthpiece (*46*), both of bone, were also recovered from these fills.

CATALOGUE

Copper alloy objects

4   Fitting or mount. Diameter 22 mm; thickness 0.3 mm. Flower-shaped fitting or mount, perforated by a central hole (diameter 5 mm). One side bears embossed decoration, the object being divided into eight segments or petals by embossed, radial lines. Embossed lines also border the edge of the hole and the perimeter of the object. Within each segment is a design consisting of three curved elements and a central, horizontal bar. Most of them are worn to some extent. The central hole has a burr around its edge on the underside of the object. The object has a radial split and is slightly distorted. Context 227; Find No 00097; Phase 2.

Iron objects

18   Chisel. Length 169 mm; width 32 mm; thickness 30 mm. Flat-headed chisel with a sub-rectangular cross-sectioned shaft and a double bevelled cutting edge. Context 160; Find No 00083; Phase 3.

22   Key. Length 59 mm; diameter of shaft 7 mm; length of bit 21 mm. Complete key with a circular cross-sectioned shaft and a circular bow. The shaft terminates in a small projection at the bow end. At the bit end it is hollow. The bit has two ward cuts. Context 238; Find No 00152; Phase 2.

Stone objects

43   Worked stone. Length 94 mm; width 75 mm; thickness 161 mm. Fragment with a curved and stepped edge and one weathered surface. Context 953; Find No. 00166; Phase 2.

Bone objects (species identified by Catherine Smith)

45 Button? Diameter 18 mm; thickness 0.7 mm. Possible button back, derived from a large ungulate long bone shaft or possibly antler, in the form of a flat, circular disc with a central, circular hole. File marks are visible on both faces. Context 108; Find No 00034; Phase 5.

46 Mouthpiece. Length 32 mm; width 9 mm; thickness 9 mm. Lathe-turned mouthpiece, possibly from a tobacco pipe, derived from a large ungulate long-bone shaft. The object has a screw-thread at one end for attachment. File marks are visible at both ends. Context 108; Find No 00013; Phase 5.

THE POTTERY

Peter Cheer

The bulk of the pottery came from Phase 3, the mid-18th-century harbour infill. It consisted of badly fragmented mid-18th century wares, a small amount of post-medieval Scots Green ware and residual medieval pottery in a very abraded condition. The chamber pot (*85*) was the only post-medieval vessel with a surviving profile.

The residual medieval pottery of late 13th- to 15th-century date indicates that this material had its origin somewhere in the medieval town. The small amount of post-medieval wares may be because the harbour infill utilized material extracted during the digging of cellars which did not include post-medieval deposits. It could also be influenced by a change in patterns of rubbish disposal between the late-medieval and post-medieval periods.

85 Body sherd from an 18th-century chamber pot. Internal yellow-brown to light green glze with traces of same on the exterior. External red slip worn at base. Red earthenware. Context 212; Find No 00397; Phase 3.

THE ANIMAL BONE

Catherine Smith

The majority of the animal bone fragments came from Phase 3 deposits. While the harbour itself is well dated, the origins of the infill containing the bones remains obscure. As well as containing medieval pottery, similarities between the faunal collection from Tay Street and other assemblages more closely dated to the medieval period suggest that at least some of the bones could have been medieval in date. These similarities include the size range of the animals and, possibly, the age structure of the cattle and sheep/goat populations, the majority of animals being classified as immature/adult or adult. Relatively high ratios of sheep/goats to cattle might, on the other hand, indicate the presence of more recent material, as does the single bone of Guinea pig (*Cavia porcellus*) which probably represents the remains of a domestic pet. The numbers of bones of each species is shown in Table 1.

It is worth noting, however, that since widespread improvement of Scottish domestic stock did not take place until the late 18th or early 19th centuries it may not be possible to distinguish medieval from post-medieval animals on size criteria alone. Comparisons are further hampered by the lack of a solid corpus of metrical data for well dated post-medieval animal bones from Scottish urban sites.

SYNTHESIS

Perth and its harbour (illus 10)

Perth lies at the highest navigable point on the Tay and, until the 19th century, this was also the lowest practicable crossing point. From Perth the river valleys radiate into a very large catchment area, westwards up Strathearn towards Dunblane, Stirling and the Forth, northwards up the Tay to

TABLE 1
Total number of animal bones, arranged by species

Species	No of bones	Species	No of bones
Cattle	228	Domestic Fowl	36
Sheep/Goat	327	Goose	1
Pig	20	Duck, probably domestic	3
Horse	48	Wigeon	1
Roe Deer	1	Partridge	2
Dog	23	Red Grouse	1
Cat	6	Unidentified Bird	1
Rabbit	5	SUB TOTAL	45
Hare	1	Fish	1
Rat	56	SUB TOTAL	1
Guinea Pig	1	Large Ungulate	330
SUB TOTAL	716	Small Ungulate	221
		Indeterminate Mammal	177
		SUB TOTAL	728
		TOTAL	1490

Dunkeld and the Highlands, and north-eastwards up the Isla towards Strathmore and the roads to Forfar and Brechin. Perth doubtless owed its existence to its function as a centre of land and water communication. At a time of poor roads, its position so far up the Tay gave easy access to a very large hinterland, compared with a coastal site like Dundee, but at the price of a difficult and tortuous passage between the sandbanks and mudflats of the lower Tay. This limitation had a critical effect on the development of both harbour and town.

Three harbour sites are known in Perth. The earliest was close beside the bridge, at the end of the High Street. This appears on the earliest plan of the town in 1715 and on Rutherford's map (1774), and it remained in use into the 19th century. It has never been excavated, but timber structures as much as 5 m below street level have been seen during underpinning beneath the City Chambers.

The second harbour site is the one excavated at Tay Street and the subject of this report. The third developed at Friarton, about a mile downriver from Perth in the 19th century, and is still in use. The creation of the Tay Street harbour was part of a process of extending and then moving the harbour downstream.

The Tay Street harbour

The creation of a New Haven by the Grey Friars some time before 1540 may have been influenced by several considerations. Ships were growing in size, and the existing High Street harbour was at the extreme limit of navigability; a few more yards farther upstream, the river would have been fordable at low tide. Moving even a quarter of a mile downstream would have made an improvement. Furthermore, the old harbour was in the centre of the town, and was probably quite congested. Relocating outside the town walls would have given more space for cargo handling onshore, and a site at the mouth of the town's 'canal' could have allowed redistribution of cargoes around the town in small boats. There is a persistent local tradition that the canal was used in this way until it was covered over.

Relocation to this site would have required the goodwill of the Grey Friars who occupied the adjacent site. It is interesting that John Moncur's entry to the Guild in 1540 in consideration of his
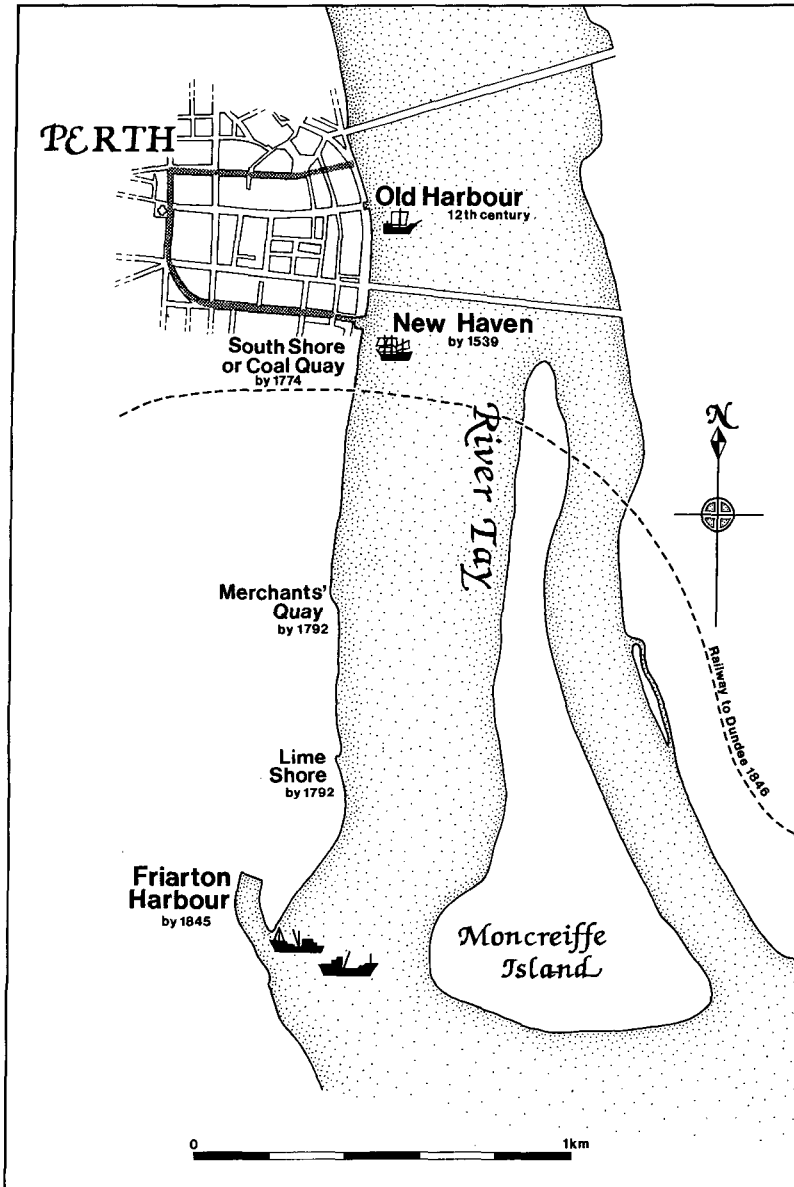
ILLUS 10 Perth and its harbours

contribution to the harbour works is sponsored by a member of the Oliphant family, (Stavert 1993, 144, No 330) long-established patrons of the Grey Friars.

The limitations of the harbour were perceived in the 16th century; in 1544 Perth could be described as 'a dry town, far from the sea' due to the silting of the Tay (Lynch 1987, 9). The new harbour may have been a partial response to this. It has been pointed out that Perth's economy was oriented to craft manufacture rather than trade, unlike the other leading burghs (Verschuur 1987,

38). However the early 16th century did see some recovery in Scottish trade in Scandinavia (Ditchburn 1988, 166). It is not clear whether the new harbour in Perth was a response to growth, or an attempt to stem decline. The orientation to manufacture rather than trade reflects Perth's location, well placed to serve its own hinterland, but less so for international shipping. The new harbour may itself reflect this orientation; its later use as a Coal Quay suggests local trade with Fife rather than international commerce.

The mid-18th-century remodelling of the harbour (Phase 3) created a broader quay on the south side, but it reduced the size of the basin. The basin's draught of 1.15 m at the shallow end and only 1.72 m at the deep end must have been increasingly inconvenient as ships grew in size. Retaining the deeper eastern end of the basin, but reducing the less useful western end in exchange for a broader quayside, would not have increased the usefulness of the basin itself, but would have provided better access between the town and the South Shore.

The expansion of wharves down river along the South Shore during the latter half of the 18th century more than replaced what was lost within the harbour basin, and catered for deeper draught vessels. The mid-18th-century reconstruction of the basin was perhaps the first step towards its eventual replacement.

Reid's map shows that by 1809 the entire basin had been infilled, but it was becoming obsolete even by 1774. On Rutherford's map the South Shore is already marked to the south of the basin, and the area to the west is starting to fill up, with buildings appearing on the north side of Canal Street and even on the south.

Buist's map of 1787 (copy by McLaren, 1904) shows a few more buildings, but adds projections for three new streets south of Canal Street (now called South William Street, Marshall Place and Scott Street). The harbour basin is beginning to be replaced and is about to be surrounded by a new suburb.

Macfarlane's plan of 1792 shows that the suburb has not yet been built but, in addition to the South Shore or Coal Quay, it also shows the Merchants' Quay and the Lime Shore farther down the river. William Morison's plan of 1805 revives the proposals for a southern suburb, and shows the basin filled in, probably as proposal not fact, since the buildings shown adjacent are not those which were eventually built.

By the beginning of the 19th century, the harbour basin was becoming redundant with alternative provision being made down river; it was suffering the same problems of a cramped site with restricted access which had affected its medieval predecessor at the end of the High Street. The development of the southern suburb would not only make the harbour unusable but would make it a hindrance to the expanding town.

Later harbour developments

After the closure of the Tay Street basin, the harbour facilities continued to migrate downriver. Perth could never hope to compete with Dundee as a major deep-water port, and the coming of the railways gave Dundee the land communications it needed to serve a wide hinterland. By 1846, the railway bridge at Perth also restricted large ships coming up as far as the two early harbour sites in the town, even if the facilities had been there to handle them. The large-scale industrial development which transformed Dundee largely passed Perth by.

However, Perth and its harbour continued to develop on a more modest scale. The three excavated buildings on the quay – Structures A, B and C (Phase 4) – can be traced on 19th-century plans and illustrations (beginning with Gardner in 1845), and they evidently served the South Shore adjacent to the basin. They seem to have continued in use until the construction of the Public Hall.

The construction of the Public Hall in the 1880s required the demolition of the early 19th-century harbour buildings, and thus the concealment of the last remains of the harbour basin. However, the Victorian architects evidently understood that they were building on made ground with nothing very substantial beneath it, and chose to rely on very wide, very strong concrete beams laid on top of the 18th-century ground surface, with virtually no deep disturbance. Within the area enclosed by these beams, the floors were supported by dwarf walls which did not fully penetrate the 19th-century demolition rubble. As a result, the harbour basin was sealed, more or less as it had been buried around 1808, and preserved undisturbed until 1984.

The harbour facilities developing along the Shore Road eventually gravitated to Friarton, about a mile downriver from the town, a position which gave access to much deeper water. Here a tidal basin was completed in the 1840s, with quays added in 1898 and 1939. This harbour, like its predecessors, carries on a busy trade with Scandinavia, the Baltic, the Low Countries and the east coast of England.

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