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Masshouse Circus, Birmingham City Centre
Archaeological Recording 2002

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1.0: SUMMARY

Archaeological observation and recording was undertaken at Masshouse Circus, Birmingham City Centre (centered on NGR. SP 07378709) by Birmingham University Field Archaeology Unit (now Birmingham Archaeology). The recording was undertaken in advance of groundworks to replace an elevated carriageway with a series of at grade roads, and was commissioned by Birse Construction with advice from Gifford and Partners Ltd. The recording followed a desk-based assessment, mainly concerned with an adjoining development, which identified the site as being located towards the 18th century limit of the built-up area in this part of Birmingham.

Archaeological observation and recording was undertaken in two stages. In the first stage two machine-cut trenches (A and B) were excavated and recorded in detail on the southwestern frontage of Chapel Street in advance of construction. The trench revealed a series of more-or-less well-preserved brick structures dating to the 18th century and later, fronting onto the southwestern side of Chapel Street. The second stage comprised the hand-cleaning and recording of service and other trenches dug in other parts of the development, during the construction phase of the project. Despite limitations on recording necessarily imposed by health and safety constraints, a total of four trenches were recorded during construction. The main discoveries in this area comprised both articulated and disarticulated human remains, along with some limited evidence of brick-built structures dating from the 18th century. Notable among the inhumations was one adult individual with an amputated leg.

2.0: INTRODUCTION

Birmingham University Field Archaeology Unit (now Birmingham Archaeology) was commissioned by Birse Construction to undertake archaeological observation and recording at Masshouse Circus in Birmingham (centred on NGR SP 07378709), with advice from Gifford and Partners Ltd. Masshouse Circus comprised a mainly elevated interchange to the northeast of Birmingham City Centre (Fig. 1). The archaeological fieldwork was undertaken in advance of the construction of new at-grade carriageways, and associated service diversions. At the time of the observation and recording the area comprised roads and car parks at various levels.

The work was undertaken in accordance with a Brief prepared by Birmingham City Council (Birmingham City Council 2002), and a Specification prepared by Gifford and Partners Ltd. (Gifford 2002), approved by Birmingham City Council. The archaeological fieldwork was required in accordance with government advice in Planning Policy Guidance Note 16 (PPG 16) Archaeology and Planning, and Policy 8.36 of the

Birmingham Unitary Development Plan. The methodology of the archaeological fieldwork follows the requirements of the Standard and Guidance for Archaeological Watching Briefs (IFA 1994).

3.0: BACKGROUND (Fig. 2)

The archaeological background was detailed in an archaeological assessment which also included other, adjoining areas (Watt 2001). The highest ground adjoining Masshouse Circus is located adjoining the northwestern side of the original interchange. From here the ground level falls to the east and southeast. Baker's analysis of the Bradford map of 1750/1 (Watt 2001, 5) suggests that the development of the Park Street and Moor Street area can probably be traced back to the 12th century, perhaps around 1166 when Birmingham was granted its market charter. Baker further suggests that these streets formed part of a medieval scheme to enlarge the town centre, in response to wider pressure on land. Although both Holt and Baker agree that Park Street and Moor Street were laid out by the beginning of the 15th century, the northern ends of both Park Street and Moor Street were not built up until the early 18th century (Watt 2001, 5).

The 1553 survey of Birmingham, mapped in 1890, shows that the northern parts of both these streets, included within the Masshouse area, which belonged to Guild of the Holy Cross. Two factors that contributed towards the development of the Masshouse area were the dissolution in 1536 of St. Thomas's Priory to the northwest of Masshouse, and the loss of control of the de Birmingham family over the manor. Despite these changes, the Masshouse area was not developed until the early 18th century. By the time of Westley's map of 1731 Freeman Street was laid out connecting Park Street and Moor Street, and some development had taken place, mainly in the south of the Masshouse area. The area derives its name from the Catholic Masshouse and Franciscan Convent built towards the south of the former interchange during 1687-8, although the establishment was demolished within three months of opening. During the mid 18th century much development had taken place, including the insertion of Wood Street between Moor Street and Park Street. Some of the properties were dwellings, while small industries were also carried out in other properties at this time.

The northern part of the Masshouse area may have been cultivated in strips in the mid 16th century. The main changes in this area by the mid 18th century were the layout of St Bartholomew's Chapel, and the layout of new streets, including Chapel Street and St Bartholomew's Row. Outside the churchyard, the area became intensely built-up, with further development, and small-scale industry in the 19th century.

An earlier watching brief (Neilson and Duncan 2001) conducted in advance of road widening to the southwest of Bartholomew Row identified a quantity of disarticulated human bone, but no *in situ* remains. Although some gravestones of 19th century date were noted, this area was proved to have been cleared of *in situ* remains.

4.0: METHODOLOGY

4.1: Aims

The purpose of the archaeological observation and recording was to:

- identify and record any archaeological remains encountered within trenches dug specifically for archaeological recording, in advance of the main programme of construction groundworks.
- contribute towards an understanding of the later medieval and post-medieval development of this part of Birmingham, and, more generally towards the wider appreciation of medieval and post-medieval urbanism.

4.2: Fieldwork (Fig. 2)

Archaeological observation and recording was initially undertaken by means of test-trenches, dug in agreed locations to examine areas where groundworks, including the construction of new roads and service trenches, could potentially affect below-ground archaeological remains. Archaeological observation was not required in respect of areas which had been heavily disturbed by the construction of Masshouse Circus, or during a general reduction in ground level to allow construction of the new roadscheme.

The archaeological observation and recording was undertaken in two stages.

The first stage comprised the excavation of a machine-cut trench (Trench A) to the southwest of the historic line of Chapel Row (now Chapel Street), to identify and record any surviving structures on the southwestern frontage of Chapel Row. The trench was located parallel to, and to the southwest of, Chapel Street, within a former car park area. The trench measured 1.6m in width and 70m in length, and was cut along the line of a new carriageway. The overburden was removed by a JCB excavator fitted with a toothless ditching bucket, working under continuous archaeological supervision. Excavation was limited to a depth of approximately 0.5m below the modern surface at the northwestern end of the trench, so that deposits below the formation level of the new road were not disturbed. Elsewhere, the trench was cut to a maximum depth of 1.5m, and the trench sides were stepped for reasons of health and safety. A further trench (Trench B) was subsequently cut at a right-angle to Trench A to further examine a brick structure and associated deposits, and a sondage was dug by hand across Trench B to further test the potential of the area to contain early post-medieval features and deposits.

The second stage of archaeological observation and recording involved the monitoring, cleaning and recording of new service trenches (Trenches 1a, 1b, 2a, 2b), cut during the construction groundworks. Trench 1a was dug in two segments, totalling 67m in length, and Trench 2a, measuring 16m in length, were both observed and recorded by an archaeologist. The trenches were located to the southeast of the former interchange, partly adjoining Masshouse Lane. All excavated spoil was examined in order to recover any human remains which might have survived earlier attempts at clearance of the cemetery. Observation was also intended to identify any *in situ* human remains

Following the identification of both articulated and disarticulated human remains, a Home Office Licence was obtained to permit their excavation. The local Coroner, the Police and the Birmingham City Council Planning Archaeologist were also informed.

Trenches 1a and 2a were excavated in sections by a 27 tonne 360 degree tracked excavator equipped with a 1m toothed bucket. Trench 1a, adjoining Masshouse Lane was dug in two sections, with a change of angle. Due to the depth of the excavation, and the soft composition of the excavated deposits it was necessary to install metal trench boxes to prevent collapse of the trench sides, and to allow archaeological recording to proceed safely. The visibility of the trench sides was necessarily restricted by this shoring, and often it was only possible to obtain a photographic record of the trench sections before the shoring was installed. In some cases it was not possible for any archaeological cleaning or observation to be undertaken from within the trench, for reasons of health and safety, in which case recording was restricted to the photography and the compilation of written descriptions from the modern ground surface, without entering the trench. Otherwise, recording was as stated below.

Further archaeological observation and recording (Trench 1b and Trench 2b) was undertaken during the excavation of a trench for a new water main. These trenches were located along Albert Street, adjoining the junction with Masshouse Lane. Trench 1b was dug first. It measured 3.4m by 2.3m, and was cut to locate an existing water main. The adjoining Trench 2b was also cut for the new water main. The trench measured a total of 47m in length, and incorporated a 45 degree angle. Again, *in situ* human remains were identified. Following advice from Birmingham City Council some articulated human remains were not lifted where it was possible to preserve these intact and *in situ* by raising the horizontal alignment of the water pipe.

All *in situ* archaeology exposed in the trenches was hand-cleaned, where possible, and recorded on pre-printed pro-forma record cards for features and contexts. Outside Trenches A-B no archaeological excavation of intact features or deposits was undertaken, other than cleaning deposits for better definition. As an exception, most human remains encountered were fully excavated, although some intact burials were not lifted where it was possible for the remains to be preserved intact and *in situ*. The written records were supplemented by plans and sections (1:50 or 1:20 scale, as appropriate) and monochrome/colour print photography. Where archaeological features were absent, stratigraphic sequences of deposits were nevertheless recorded. Artifacts were recovered by context, and were washed, marked and quantified. Appropriate conservation work was to be undertaken, if required.

No datable deposits suitable for palaeoenvironmental sampling were identified, and no such samples were collected.

For simplicity, buildings or possible buildings were allocated a number with the prefix 'S' for structure. Within each building, the bricks and mortar were recorded separately.

5.0: RESULTS

5.1: Area 1 (Trenches A and B, Figs. 3-5) by Roy Krakowicz

Trench A

Trench A was aligned northwest-southeast and measured 70m long by 1.6m wide, and was later extended to the southwest (Trench B). Within Trench A the main features and deposits are described from northwest to southeast.

Structures S1-S9 and associated deposits

In the northwest end of the trench, the remains of brick structures were uncovered at a depth of *c* 0.5m, sealed beneath a series of make-up layers and the existing surface of the car park.

The northwestern feature was Structure S1. This feature was a brick footing, L-shaped in plan. It was made of clamp-formed red and blue bricks (1015) bonded with a dark grey-brown mortar (1016). The bricks were all of the same size (9.0 x 4.5 x 3.0 inches (0.230 x 0.115 x 0.075m)). The purpose of the structure was not obvious, but all four sides had been whitewashed.

The second brick structure (Structure S2), was located 4m to the southeast of the former. This building comprised short sections of red brick interconnecting walls (1017) bonded with a dark grey-brown mortar (1018). All but one of the bricks were of the same size as those in Structure S1, the exception being a frog brick, which bore the wording "J BONDS PATENT", in negative relief. The southwestern wall incorporated a slight offset. The alignment of this structure suggested that it formerly fronted onto Chapel Street.

Structure S3 comprised two parallel walls (1019), 2.27m apart (measured from the inside faces), aligned northeast-southwest, cutting the remains of an L-shaped wall (1019a, Fig. 3). All were made of red brick. The mortar in the external walls was dark-grey brown (1020), while the mortar bonding of wall 1019a was a pale pinkish-brown (1021). Most of the bricks were of the same size as those in Structures 1 and 2, but a few were slightly smaller, measuring 8 inches by 4.5 inches wide (0.200 x 0.115m). The recorded alignments suggested, once again, that the building formerly fronted onto Chapel Street.

The southeastern wall of Structure S3 (1019) adjoined the northwestern wall (1025) of Structure S4. The two structures appeared to be parallel, and were made of the same type of brick. However, the mortar bonding the bricks within Structure 4 was light brown in colour (1023). The interior of Structure 4 had been partially floored with a single layer of blue bricks (1026), set into a dark grey-brown mortar (1025). The bricks were of uniform size, measuring 9.0 x 4.5 x 3.25 inches (0.230 x 0.115 x 0.080m). Immediately to the southeast of the blue brick floor was a line of unbonded, red bricks (1026a), also forming part of a floor surface. These bricks were of uniform dimensions, measuring 9.5 x 4.75 x 2.0 inches (0.25 x 0.12 x 0.05m).

Structure S5 comprised a single brick wall, aligned at a right-angle to the trench. The wall was made of a double width of bricks (1029) but only a single course survived. The bricks were of uniform size and shape, each measuring 8.25 x 4.75 x 3.0 inches (0.21 x 0.12 x 0.075m). This building was parallel with Structures S3-S4.

Structure S6 consisted of a section of an interrupted brick wall, aligned approximately at a right-angle to the trench. The wall was made from broken red bricks (1032), bonded with a pale, pinkish-brown mortar (1033). Abutting the structure was a compacted layer comprising a mixture of soil, mortar and rubble (1034). Truncating Structure S6 and layer 1034 was a red brick wall (1030), aligned diagonally to the trench, and bonded with a pale, yellowish-brown mortar (1031). The bricks were generally of two sizes, either 8.25 x 4.0 x 2.5 inches (0.21 x 0.10 x 0.06m), or 9.0 x 4.5 x 3.0 inches (0.23 x 0.115 x 0.075m).

Excavation to a depth of 0.75m adjoining Structure S6 revealed a grey-brown, silty deposit (1005, Fig. 5). This layer yielded a single sherd of Manganese ware, a sherd of Blackware, part of a clay pipe-stem, part of a glass bottle, a corroded iron nail and a mother-of-pearl button. The pottery dated the deposits to the 18th/19th century.

Structure S7 lay 1m to the southeast of Structure S6 (Fig. 3) and comprised the substantial remains of a concrete surface (1039) set on a mortar-rubble foundation (1040, not illustrated). A brick wall (1035) was aligned approximately 45 degrees to the northwest-southeast alignment of the building. This wall partially enclosed a small, mortar-surfaced ramp or chute that gently sloped downwards towards the northwest. The brick edging was bonded with a pale, yellowish-brown mortar (1036), which was indistinguishable from that used in the surface of the ramp/chute.

The northeastern edge of concrete surface 1039 was further defined a brick surface (1037), overlying the concrete surface. This brick feature terminated at the northwestern edge of Structure S8 to the southeast. The bricks of context 1037 were red, and were bonded with a pale, pinkish-brown mortar (1038).

The area between Structures S7 and S8 was further examined in a hand-dug sondage which was continued into Trench B (see below). The base of the sondage was auger tested to a further depth of 0.2m, but no evidence of underlying structures could be identified. The base of the sondage identified a dark-brown, sandy-clayey silt (1009, Fig. 5), although the full depth of this deposit could not be identified. It yielded a small number of pottery sherds, pieces of clay pipe, fragments of roof tile and animal bone. The pottery consisted of stoneware and blackware. Above was a dark-brown, silt (1006) overlying a compacted soil layer (1007). Layer 1006 was overlain by Structure S7 and, was probably the same as the silt deposit (1005, see above) recorded to the northwest of Structure S7. Deposits 1006 and 1007 were also sealed by Structure S9 (see below).

Numerous pottery sherds were recovered from layer 1006, which also contained fragments of animal bone, tile/brick fragments, a clay pipe bowl and stems. The pottery

consisted of Blackware, Manganese ware, Saltglaze ware and feathered/trailed slipware. The pottery was dated to the 18th/19th century.

Structure S8 mainly consisted of a flat concrete surface (1041), set between two walls (1042), located approximately 5m apart (Fig. 3). It abutted structure S7 to the northwest. There appeared to be a void beneath the concrete, suggesting that it covered a cellar. The walls of this structure were of red brick (1042). They were bonded with a pale brown mortar (1043). The bricks were of uniform size, with dimensions of 9.0 x 4.0 x 2.5 inches (0.23 x 0.10 x 0.06m). The inner face of the southeastern wall of Structure S8 was partly coated with whitewash, which may suggest that it was an internal cellar wall. No other associated walls could be identified in the trench.

Approximately 1m to the southeast of Structure S8 was a possible brick drain (Structure S9), aligned northwest-southeast. Only part of the blue brick drain (1044) was visible. The bricks were bonded with brown mortar (1045). The bricks had average dimensions of 8.75 x 4.25 x 3.0 inches (*c* 0.22 x 0.11 x 0.075m).

Immediately overlying Structures S1-S9 and sealing layers 1005-1006 was an irregular deposit of brown soil (1004), containing fragments of modern red bricks, tiles and mortar. This was sealed by a layer of pinkish-red sand mixed with building debris (1003). The overlying deposits comprised either a layer of concrete, a mix of hardcore and building rubble (1001), or pockets of cinder/ash (1002), recorded below the modern tarmac (1000) car park surface.

Other features and deposits

The remainder of Trench A was heavily disturbed, and few features of archaeological, or possible archaeological interest, could be identified. The base of the trench exposed make-up deposits containing concrete blocks, mixed with soil and demolition rubble (1010), or heterogeneous mixtures of orange/red/pink sands, brown soil and building debris (1011, 1013). These layers were overlain by more make-up deposits of concrete and brown/red sands, brown soils, building debris and pebbles or gravel (1012). Within these layers was much modern metalwork. Above these deposits lay the tarmac surface (1000) of the car park. For reasons of health and safety it was not possible to excavate the trench to lower depths.

Hand excavation towards the southeastern end of the trench revealed part of the footings of a brick wall (Structure S11), which had mostly been demolished. The building was constructed of hard, blue bricks (1051), bonded by a pale, pinkish-brown mortar (1052). The bricks were all of the same size, measuring 9.0 x 4.5 x 3.0 inches (0.23 x 0.115 x 0.075m).

Further hand-excavation uncovered a brick wall (Structure S12), aligned northeast-southwest and located a short distance from the southeast end of the trench. The brickwork (1053) was in good condition and may have been relatively modern. The wall was two bricks in width. The bricks were bonded with orange-brown mortar (1054). Each

brick (1053) had a blue outer-surface, and a dark-red core. They were uniform in size, measuring 9.0 x 4.0 x 3.0 inches (0.23 x 0.10 x 0.075m).

Trench B

A second trench was excavated, to test deposits 1006/1007 within a larger area, and to identify any evidence of earlier activity. Trench B (Figs. 3-5) was dug at a right angle to Trench A. Trench B was dug to a maximum depth of 1.4m, and for a maximum length of 1.6m at which point a brick building (Structure S10) was encountered.

Overlying deposit 1009 within Trench B was a compacted layer of sandy-silt (1006), which included traces of possible lime, mortar fragments; fragments of bricks/tiles. A number of pottery sherds were recovered from this context, amongst which were fragments of blackware and a single sherd of feathered/trailed slipware. This layer was overlain by deposit 1007, described above. The datable finds would suggest that layers 1006, 1007 and 1009 may be dated to the 18th/19th century.

Hand-cleaning of Structure S10 revealed it to comprise of two parallel walls (Fig. 3), laid out back to back and aligned northwest-southeast. The earliest wall was to the northeast, made of red brick (1047), bonded with a pale, yellowish-brown mortar (1048). There was no evidence of an associated foundation trench. The southwestern wall of the structure was three bricks in width. The red bricks (1049) were irregularly laid. The structure was bonded together with a friable pinkish-brown mortar (1050), which had also been used to bond the two walls together.

Part of Structure S9 was revealed in plan within Trench B. It was clear that this building contained a roughly square sump or sediment tank (Fig. 3). It overlay deposit 1006 and was bonded to the wall of the adjoining Structure S10 with blue-grey, fine-textured cement (1046). This cement also lined the inside of the structure, possibly to make it watertight. Most of Structure S9 was formed of blue-coloured bricks (1044), which varied in length. The bricks were bonded together with brown mortar (1045).

5.2: Area 2 (Trenches 1a, 1b, 2a, 2b, Fig. 2) by Andy Rudge

Trench 1a

Trench 1a was cut on two alignments to the southwest of Masshouse Lane. The southeastern end of the trench was excavated to a depth of 3.10m. The natural subsoil (1100), an orange-red sand was recorded at a depth of approximately 2.3m below the modern surface. This was overlain by a layer of mixed, redeposited rubble (1101), recorded below the modern tarmac surface.

At a distance of approximately 14m from the southeastern end of trench was encountered the remains of 19th century brick cellaring, presumably relating to a structure located on the southwestern frontage of Masshouse Lane. No other features could be identified. No articulated, or disarticulated human remains were collected.

Trench 2a

Trench 2a cut to the east of the former interchange. In this trench archaeological observation was limited to the identification and recovery of any articulated, or disarticulated human remains. The trench measured 13.50m in length and 0.70m in depth, and was aligned approximately north-south. A quantity of disarticulated human bone was noted and collected, but no *in situ* remains, or any other features of archaeological, or possible archaeological interest, could be identified.

Trench 1b (Figs. 6-8)

This trench was located along Albert Street. Trench 1b was excavated to a depth of approximately 2.5m below the modern ground surface. The deposits identified had been heavily truncated by previous service trenches and other disturbances. Articulated human remains (Table 1) were identified at a depth of approximately 1.55m below the surface. The remains were largely located between two existing mains services, and were often truncated by the deeper cut water main. The shallower gas main overlay parts of the human remains. Only parts of the trench sections were available for detailed cleaning and recording, because of the box shoring.

The earliest deposit encountered in this trench was a grey-brown silty-sand (1009), which may be interpreted as a possible cultivation soil, but the depth of this material was not tested. Layer 1009 was sealed by a layer of mid grey brown silty sand (1007), measuring a maximum of 0.6m in depth, and recorded at a maximum depth of 1.5m below the modern surface. A number of grave-cuts were recorded cutting through layer 1009, and into underlying deposit 1007. Grave-cut F100, the only grave recorded in section (Fig. 6) was filled with a mixed medium to dark brown silty-sand (1008). The grave cut measured a maximum of 0.7m in width, and 0.15m in height. The main axis of the grave was east-west. The backfilled cut was overlain by a layer of red sand (1006), associated with the laying of a gas main (1005). Layer 1005 was sealed by a further layer of red sand (1004), sealing the service trench. Above was a deposit of redeposited dark grey brown silty sand (1003) with brick rubble. Overlying this was a layer of brown hardcore (1002), in turn sealed by a layer of yellow sand (1001) forming the foundation of an existing path.

TABLE 1: Details of human remains from Trench 1b

No	*Feature*	*Identification*	*Details*
HB1	-	Juvenile/neonate	Very fragmentary, truncated by cut for water main. Fig. 7
HB2	-	Adult	Mostly complete. Left leg amputated above the knee. Sawn cut. Some associated coffin fittings recovered. Fig. 7
HB3	-	Young juvenile	Overlying, and to the southeast of HB5, and to the northwest of HB2. Fig. 7
HB4	-	Juvenile	Only partial survival, mainly left side. Parts of metal and wood lining of coffin (approx. 0.48m in length) surviving. Fig. 7
HB5	F100	Adult	Associated coffin fixtures, including handle and nails recovered. Lower legs truncated by gas main. Below HB4. Fig. 7
HB6	-	Juvenile	Partial survival; some nail fittings of coffin also found. Partially overlies HB8. Fig. 7
HB7	-	Adult	Feet truncated by water main. Overlies HB8. Fig. 8
HB8	-	Adult	Skull and feet missing. Coffin furniture found, mainly near legs. Overlain by HB6 and HB7. Fig. 8
HB9	-	Adult	Mostly well-preserved. A further grave-cut was revealed below HB9, but not investigated because it lay below the maximum depth of excavation for this service trench. Fig. 7
HB10	-	Neonate	Very fragmentary remains

The remains of five in situ adult human inhumations (HB 2, HB 5, HB 7, HB 8 and HB 9), two juvenile inhumations (HB 4 and HB 6), two neonates (HB 1and HB 10), and a young juvenile (HB 3) were recovered from Trench 1b. Although not fully identified HB 5 did not appear to have been orientated east-west. The right leg of HB 2 had been amputated above the knee. Along with the *in situ* human remains from this trench, a large quantity of disarticulated human remains was also recovered. The grave-cuts all truncated layer 1009 and were sealed by layer 1006. Further details of HB2 are provided in the Appendix (Brickley, below).

Trench 2b

This trench was excavated along Albert Street. Trench 2b was excavated to a depth of approximately 1.20m below the modern surface. It was cut in two sections, the longest aligned southwest-northeast. The deposits recorded within this trench mainly comprised demolition or dumped material. The earliest layer identified comprised a mixed medium

to dark brown sand (2008), possibly a cultivation horizon. Two *in situ* grave cuts (Table 2, not illustrated) were recorded cutting layer 2008. At the southwestern end of the trench this deposit was overlain by layers 2003 and 2007. These layers comprised deposits of red-orange sand surviving to a depth of between 0.65-0.70m. A Pit (F200) was cut through layers 2003 and 2007. The pit was roughly 1.05m in width and survived to a depth of approximately 0.60m. It was backfilled with a dark brown to black silty sand (2006), flecked with charcoal. Pit F200 was sealed by a mixed deposit (2005), composed of red brick and concrete rubble. Two features (F201, F202) recorded in the northeast of the trench also cut layer 2008. Feature F201 was the cut for the foundation trench of a brick wall (2010), aligned northeast-southwest, and surviving to a maximum depth of 0.5m. Feature F202 was the remains of a foundation trench, backfilled with mixed, mostly red sand (2009). Layer 2003 was overlain by a deposit of demolition material (2002) in the extreme southwest of the trench, measuring a maximum of 0.45m in depth. Layers 2002, 2005 and 2008, and features F201 and F202 were overlain by a deposit of mixed red brick rubble (2004) measuring up to 0.35m in depth. This was in turn overlain by a former tarmac surface (2001), measuring approximately 0.12m in depth, overlain by the present concrete surface (2000) which measured up to 0.10m in depth.

Human remains

TABLE 2: Details of human remains from Trench 2b

No	*Feature*	*Identification*	*Details*
HB1	-	Adult	Disarticulated remains, some coffin fragments recovered
HB2	-	Adult	Grave cut recorded. Only skull survived

At the base of the trench a number of *in-situ* grave cuts were identified cutting layer 2008. Two grave-cuts were fully excavated (HB1, HB2). Each gravel contained an adult inhumation.

6.0: **FINDS** by Annette Hancocks

TABLE 3: Finds, excluding coffin furniture from the graves

Context	*Trench*	*Human Bone*	*Fdr ceramic*	*Post medieval pottery*	*Clay pipe*	*Iron: nails*	*Copper alloy*	*Crucible*	*Glass: bottle*	*Glass: window*	*Glass: other*	*Shell*	*Coffin furniture*	*Bone: animal*	*Spot-date*	*Comments*
1004	1b	-	-	16	-	-	1	-	1	9	10	-	-	-	19th / 20th cent	Yellow ware, transfer printed ware, blackware
1005	1b	-	-	2	1	1	-	-	1	-	-	1	-	-	18th/19th century AD	Blackware, manganese ware
1006	1b	-	-	84	3	-	-	-	1	-	-	-	-	127g	18th/19th century AD	Blackware, manganese ware, dress moulded trailed slipware
1007	1b	-	1	54	2	-	-	-	-	-	-	-	-	14g	18th/19th century AD	Blackware, manganese ware, cistercian ware
1008	1b	-	-	-	-	-	-	-	1	-	-	-	-	-		
1009	1b	-	2	9	7	-	-	-	-	-	-	-	-	104g	18th/19th century AD	Blackware, cistercian ware, stoneware
1010	1b	-	-	6	-	-	-	-	-	-	-	-	-	-	19th/20th century AD	Transfer printed ware
1027	-	-	-	-	-	-	-	-	-	-	-	-	-	4g		
3003	-	-	-	12	24	-	-	3	3	-	-	1	-	-	18th/19th century AD	Blackware, cream ware, cistercian ware
U/S	-	-		1	1	-	-	-	-	-	-	-	10	5g	19th/20th century AD	
D/s. Bone	-	7 boxes														
Total		10	**3**	**184**	**38**	**1**	**1**	**3**	**7**	**9**	**10**	**2**	**10**	**254g**		

TABLE 4: Details of coffin furniture from the graves

HB no.	*Coffin handles*	*Nails*
HB 2	3 (188g)	7 (36g)
HB 4	-	1 (3g)
HB 6	-	9 (23g)
HB 8	5 (143g)	-

7.0: DISCUSSION

7.1: Trenches A-B

The structures and deposits identified within Trenches A-B are probably datable to the 18th century or later. This area was depicted as open fields on the map of 1553 compiled in 1890 (Watt 2001, fig. 4). It lay to the southeast of the lands of the Priory of St. Thomas shown on the same map. Moor Street and Park Street were joined by a diagonal road, later known as Masshouse Lane, and a further road led to the northeast of Park Street. The area to the northeast of Masshouse Lane was mostly fields, cultivated in strips in 1731 (*ibid.*, fig. 5), although adjoining the southeastern side of Pole's Hill Street (later Cooleshill Street) lay Carlesses Steel House. The appearance of this area was changed by 1749 (*ibid.*, fig. 6) as a result of the layout of St Bartholomew's Chapel and graveyard, a chapel-of-ease of St. Martin's. Chappel Street was inserted to the northeast of, and parallel with, Masshouse Lane. Chappel Street followed the approximate location of the recent Chapel Street, with Chappel Row and Button Alley inserted at a right-angle between Masshouse Lane and Chappel Street. The map of 1750/1 shows a number of buildings laid out on the southwestern frontage of Chappel Street, elements of some of which may have been located during the archaeological observation and recording.

Unsurprisingly, the map of 1750/1 shows that only parts of the southwestern frontage of Chappel Street was built-over at this time; some areas of open space, including a possible ornamental garden lay towards the northwestern end of the street. Little change was recorded in the period up to 1778 (*ibid.*, fig. 7). However, by 1828, the whole of this frontage was occupied by terraces, only broken by occasional alleys (*ibid.*, fig. 8). By this date a number of smaller buildings, possible outhouses, had been located in the backplot areas. Because of the increasing depth of overburden in the southwestern half of the trench, the 18th century levels may not have been reached. This half of the trench approximately corresponds with that part of Chappel Street which was located to the south of Button Alley. It is possible that Structures S8-S10 correspond to the rearward parts of a large building of complex layout sited in the angle between the northwestern frontage of Button Row and the southwestern frontage of Chappel Street. If this interpretation is correct, the range of buildings to the northwest (S4-S7) could represent infilling of the street frontage between 1775 and 1828. Structures S1-S3 located at the extreme northwestern end of Trench A may have been 19th century in date, since the

depth of excavation was limited in this area, no information relating to any possibly surviving earlier builds could be recovered from this part of the trench.

The archaeological features identified post-date the layout of Chappel Street as part of the scheme involving the construction of St Bartholomew's Chapel in 1749, and the layout of other roads at this time. The results of the trenching indicate that structural remains of 18th and 19th century date survived the construction of Masshouse Circus within areas most recently designated for car parking. It may be presumed that at least some of these structures, particularly those towards the southeastern end of Chappel Street, where the depth of modern overburden appeared to be greater than elsewhere, may have survived at least in part the recent rebuilding of Chapel Street. The natural subsoil was not recorded, nor was evidence of pre-18th century activity, either artifactual or structural.

7.2: Other trenches

The remaining areas investigated during the archaeological observation and recording were located close to, or adjoining Masshouse Lane. Trench 1a was located to the northwest of Masshouse Lane, and Trench 1a to its south. Finally, Trench 1b/2b was located just beyond the southeastern end of Masshouse Lane. Masshouse Lane was recorded on the map of 1553 compiled in 1890 (Watt 2001, fig. 4), extending between Park Street in the southeast and Dale End to the northwest. The map compiled in 1890 shows a stream running to the northwest of the lane, a possible orchard and 'land of the late Gild' to the southwest. The land surrounding Masshouse Lane remained mostly arable in character in 1731 (*ibid.* fig. 5), as was the immediately surrounding area. This cultivation may be represented in Trench 2b by layer 2008, albeit that it was undated. By contrast, most of the southwestern frontage of the lane was built-up by 1750/1 (*ibid.*, fig. 6). To the northeast of Masshouse Lane was the churchyard of St Bartholomew's Chapel, founded in 1749. The remaining boundaries of the churchyard were formed by Chappel Row (adjoining the location of Trench 2a), Duddeston Street to the southeast, and St Bartholomew's Street to the northeast (now Bartholomew Row). Trench 2a, from which disarticulated human bone was recovered lay in the northwest of the churchyard. Trenches 1b and 2b which identified *in situ* human burials were cut towards the southeastern limit of the churchyard. Burials were discontinued in the churchyard by 1873 (Watt 2001, 33), which was converted into a public recreation ground in 1879. Albert Street (Fig. 2) is the survival of a boulevard which was intended to link Curzon Street station (completed in 1838) to the northeast, with the junction of High Street and New Street, to the southwest.

The discovery of articulated human remains within Trenches 1b and 2b suggests that clearance of the churchyard was not complete, although in other areas articulated burials will have been systematically removed, leaving only disarticulated human bone (e.g. Trench 2a; Neilsen and Duncan 2001). Burial HB2 (See Appendix below) is significant as evidence of amputation, a medical practice not documented archaeologically elsewhere in Birmingham in this period. By implication, the industrial accident which may have occasioned the amputation illustrates the possible hazards of early industrial working practices.

8.0: ACKNOWLEDGEMENTS

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APPENDIX: AMPUTATED HUMAN BURIAL HB2 (Trench 1b) by Megan Brickley

Quantity and nature of material

A number of inhumations were discovered during the excavations at Masshouse Circus, Birmingham. It was decided that only one individual would be studied in detail. The individual selected (HB 2, Plate 8), appeared of particular interest due to the presence of an amputated left leg and a number of other pathological conditions.

The individual, on whom this study focuses (HB2), was 50-75% complete. However, as mentioned previously due to an amputation the skeleton of this individual was not complete when it was buried. A number of areas of the skeleton had undergone post mortem damage and disturbance and were not recovered during the excavation. The missing areas included the skull and the right foot. Small amounts of intrusive material from other burials in the area were present, including a number of bones that came from juveniles.

Overall the quality of bone preservation was good, with most bone present being graded 0 (McKinley 2004). However, some areas of the skeleton, such as some of the ribs and lumbar vertebrae, were slightly less well preserved and these were graded as 3 (*ibid.*).

Demography

Using the criteria set out in Brickley and McKinley (2004) this individual was recorded as being an older (50 years +) adult male. Full information on the features used and the scores awarded are available from the recording sheets, which form part of the site archive.

Normal variation

Stature was calculated as 182.24cm +/- 2.99 cm from the femur and tibia, using criteria devised by Trotter and Gleser (1958). Although stature estimates calculated from long bone lengths are not precise, it is clear that this individual was quite tall. The mean stature for males from the site of St. Martin's, Birmingham, a site of comparable date, was 171.8cm. The range of male statures found at St. Martin's was 156-185cm (Brickley and Buteux in preparation). It was also apparent from examination of various bones from this individual that they had been well built and muscular.

The range of non-metric traits recommended in Brothwell and Zakrzewski (2004) were recorded. However, in the skeletal elements available for study the only trait present was a double superior atlas facet on the left side.

Abnormal variation

From examination of the skeleton it was apparent that this individual had suffered from a number of pathological conditions and traumatic accidents. As the amputated part of the left leg was not buried with this individual no direct evidence can be gained for the

reason for the amputation. However, reports from this time period make it clear that amputations were frequently performed following traumatic accidents.

The left leg was amputated in the proximal third (Appendix Plates 1-3), leaving a stump 223mm in length. The first cut was made from the superior, medial surface of the femur, but penetrated just 1.9mm into the bone (Appendix Plate 1). The second, successful cut was just under 1mm from the first, with the last 2.87mm of bone having been snapped off rather than cut through (Appendix Plate 2). From visual examination it was very difficult to discern any marks related to cutting on the bone surface, and examination using scanning electron microscopy (SEM) demonstrated that this individual had lived for a short period following the amputation. Small areas of new bone growth, such as those seen in Appendix Plate 4 were apparent on the cut surface, along with other features indicative of bone remodelling. It is impossible to say how long this individual lived following the operation, but it could have been several weeks. Although this man lived for a short period he almost certainly died from an infection introduced during the amputation.

From examination of the bones available for study it was clear that this individual had a number of fractures. Although the fractures recorded clearly occurred in incidents that were unrelated to the one that caused the leg to be amputated, it is not clear if they occurred at the same time or in multiple incidents. The first fracture recorded was an avulsion fracture of the olceranon process of the left ulna (Appendix Plate 5). In modern cases the most frequent cause of this type of fracture is falls with the elbow being bent (Salter 1999, 579). Today most cases of this type of fracture an operation to provide internal fixation of the fractured bones is required. It is quite rare that such a fracture can be successfully treated by immobilizing the joint (*ibid.*). Non-union, as in the present case leads to reduced capacity for movement and use of the joint, in particular weakness of extension (Salter 1999, 581). The bones around this joint were affected by secondary osteoarthritis, and significant areas of eburnated bone were present on the humerus. There had also been alteration of the joint shape. The osteoarthritis at the elbow almost certainly developed as a result of the accident, as there was none present in comparable bones from the other side. The various changes recorded from bones around the left elbow indicate that the fracture occurred some time before death, and that despite probable impairment in use of this joint this man continued to use his left arm.

The second fracture was another avulsion fracture, this time of the right patella. The avulsed piece of bone was not present and was probably left on site. Such fractures are caused by contractions of the quadriceps muscle whilst the knee is bent (Salter 1999, 628). Salter cites various types of accidents that can result in this type of fractured such as stubbing a foot and manœuvering to try to prevent a fall. Non-union had also occurred in this instance, which is not surprising as in modern cases open treatment is often required to bring about successful union of such a fracture (*ibid.*). Although the fractured surfaces were well healed and had some porosity, no eburnation was present on the bones of the knee joint.

The third fracture was of the odontoid peg of the axis vertebra (C2, Appendix Plate 6). It is unlikely that a traumatic incident produced this fracture, as trauma in this region is often fatal, and this would almost certainly have been the case during the period in which this individual lived. The odontoid peg had become fused to the atlas, but it is not clear if fusion occurred before or after the fracture developed. Fusion had also occurred in the thoracic vertebrae, between T 10 and T11, and at the right sacro-iliac joint.

Osteoarthritis (OA) was diagnosed using the criteria set out in Rogers and Waldron (1995, 43-44). In addition to the left elbow, OA was also present in the spine (cervical, thoracic and lumbar) and the right acetabulum.

This individual appeared to have suffered from a number of traumatic incidents and the high level of fractures is in line with the findings from individuals from St. Martin's (Brickley and Buteux in preparation). Here the highest levels of fractures were found in poorer males. It is likely that at least some of the accidents that happened to this man occurred in the work place. No cases of amputation were recorded during analysis of the 505 individuals from St. Martin's. The amputation examined in this individual from Masshouse is interesting as it provides direct evidence for this medical procedure in Birmingham during the 19th century. Cases are reported in medical literature from this period, for example the report in the *British Medical Journal* by Pemberton (1853) in which details are given of an accident suffered by a 17-year-old girl in factory machinery in Birmingham. As in the case of the man examined from Masshouse, the girl died shortly afterwards, in this case 18 days after the amputation.

It is known that there were many commercial and industrial establishments in this area of Birmingham during the 19th century, and it is likely that at least some of the trauma sustained by the man examined for this report were sustained whilst working in such businesses. The types of stress and trauma suffered by this individual reflect stresses that would have affected individuals living in rapidly growing post-medieval urban areas such as Birmingham.

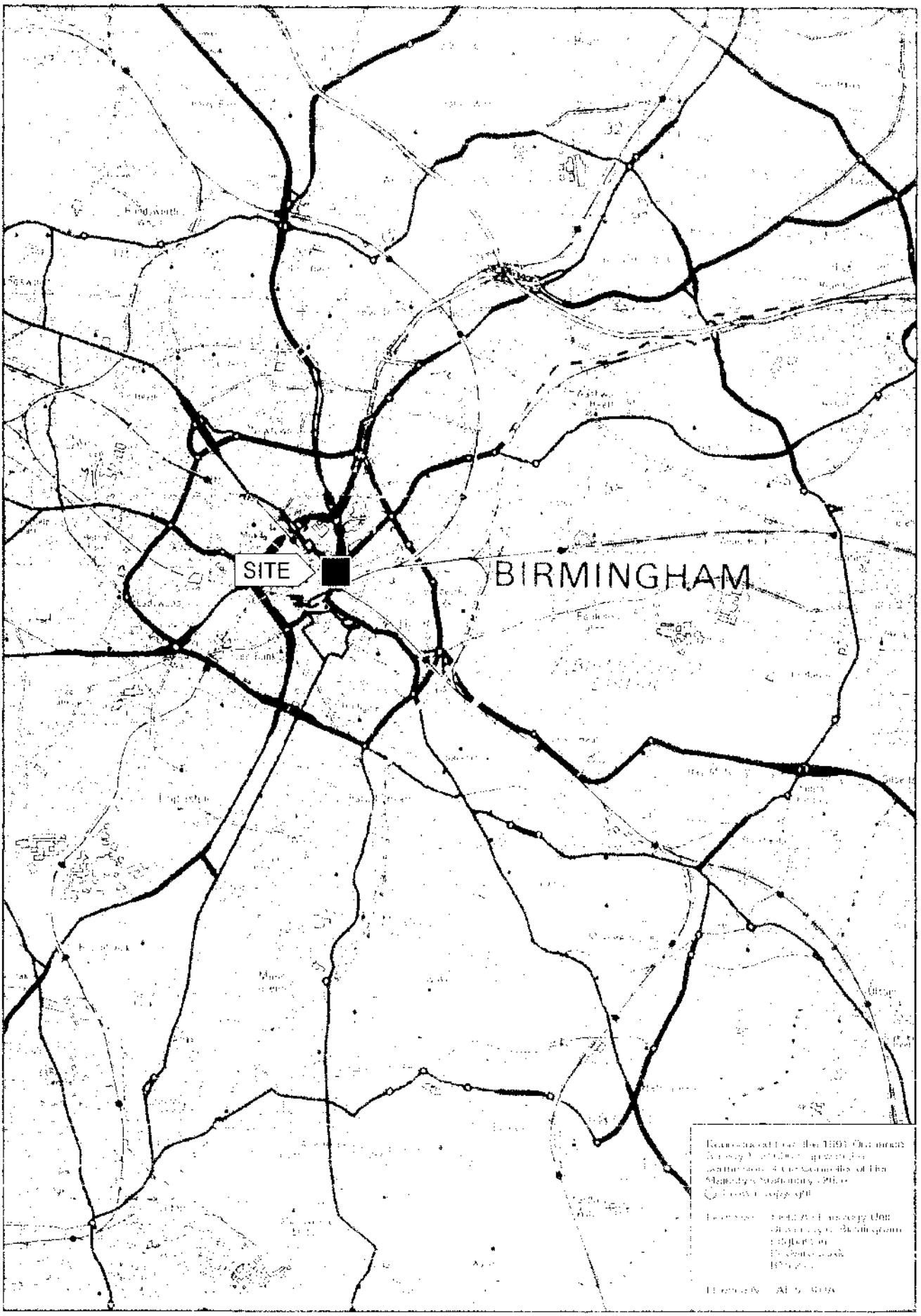


Fig. 1

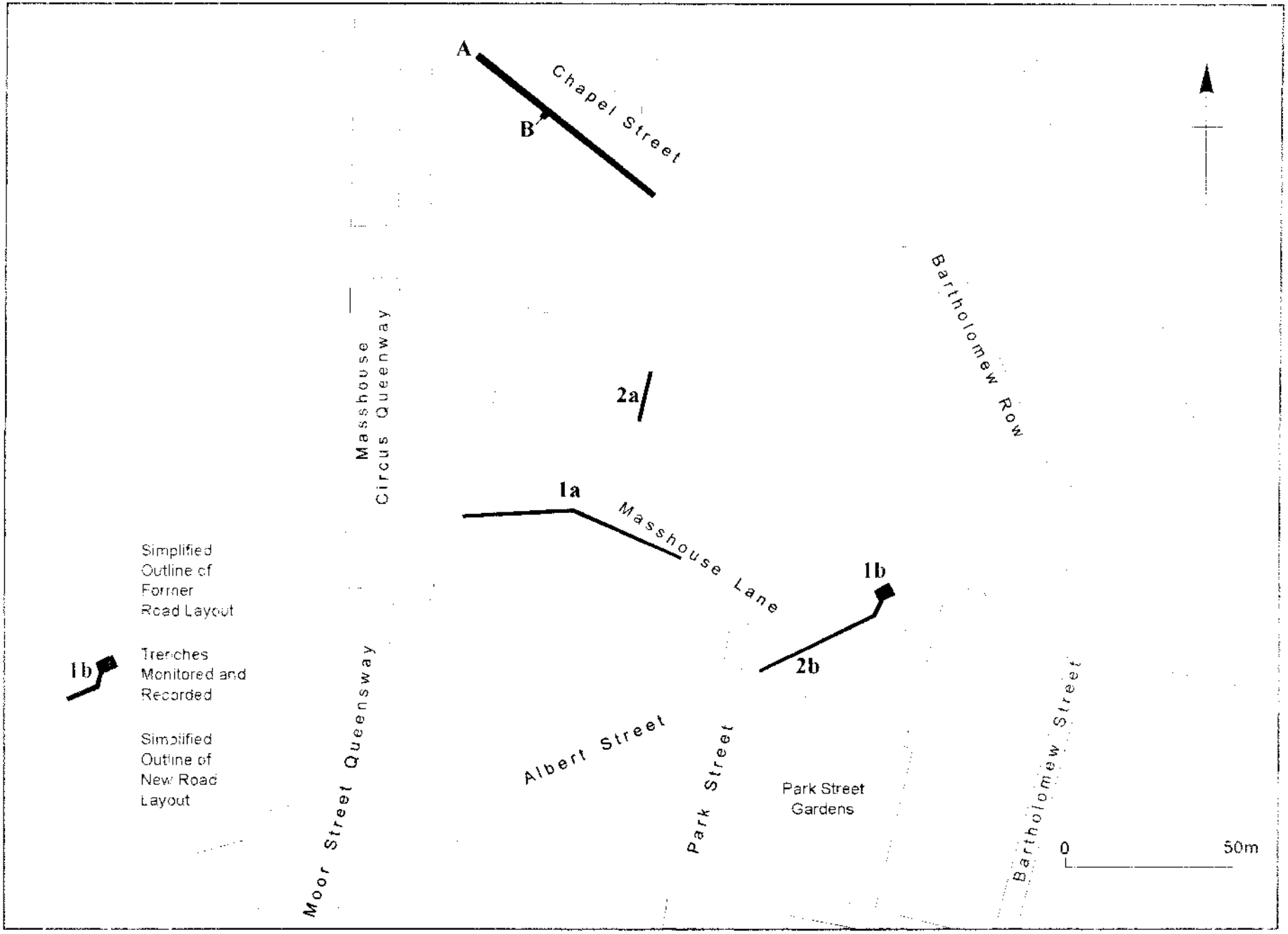

A
B
Chapel Street
Masshouse Circus Queenway
Bartholomew Row
2a
1a
Masshouse Lane
1b
2b
Simplified Outline of Former Road Layout
1b
Trenches Monitored and Recorded
Simplified Outline of New Road Layout
Moor Street Queensway
Albert Street
Park Street
Park Street Gardens
Bartholomew Street
0
50m

Fig.2

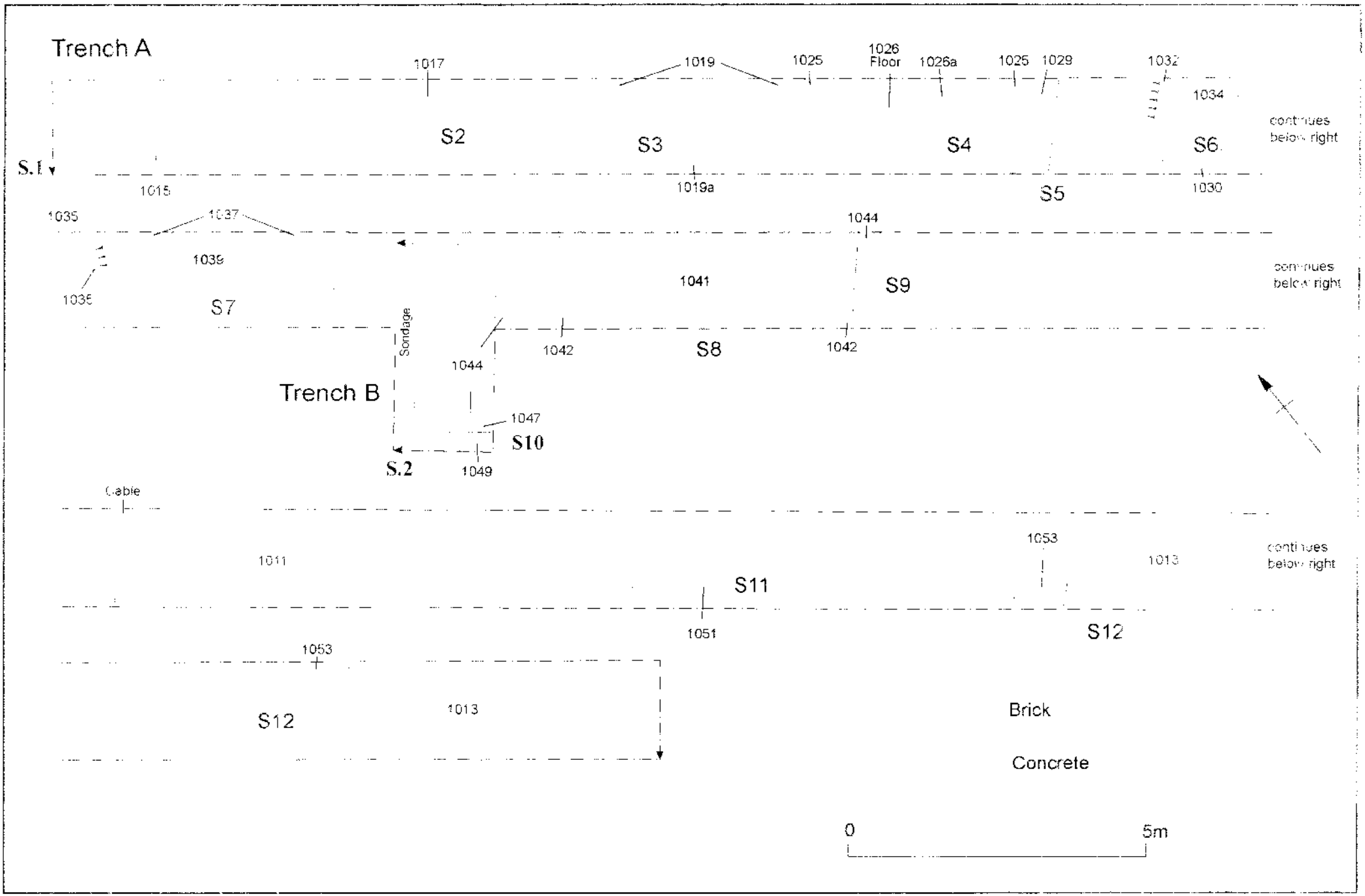

Trench A
1017
1019
1025
1026
Floor
1026a
1025
1029
1032
1034
continues below right
S2
S3
S4
S6
S.1
1015
1019a
S5
1030
1035
1037
1044
1039
1038
S7
1041
S9
continues below right
Sondage
1042
1042
1044
S8
Trench B
1047
S10
S.2
1049
Cable
1053
1011
1013
continues below right
S11
1051
S12
1053
S12
1013
Brick
Concrete
0
5m

Fig.3

S.1 Trench A (Reversed)

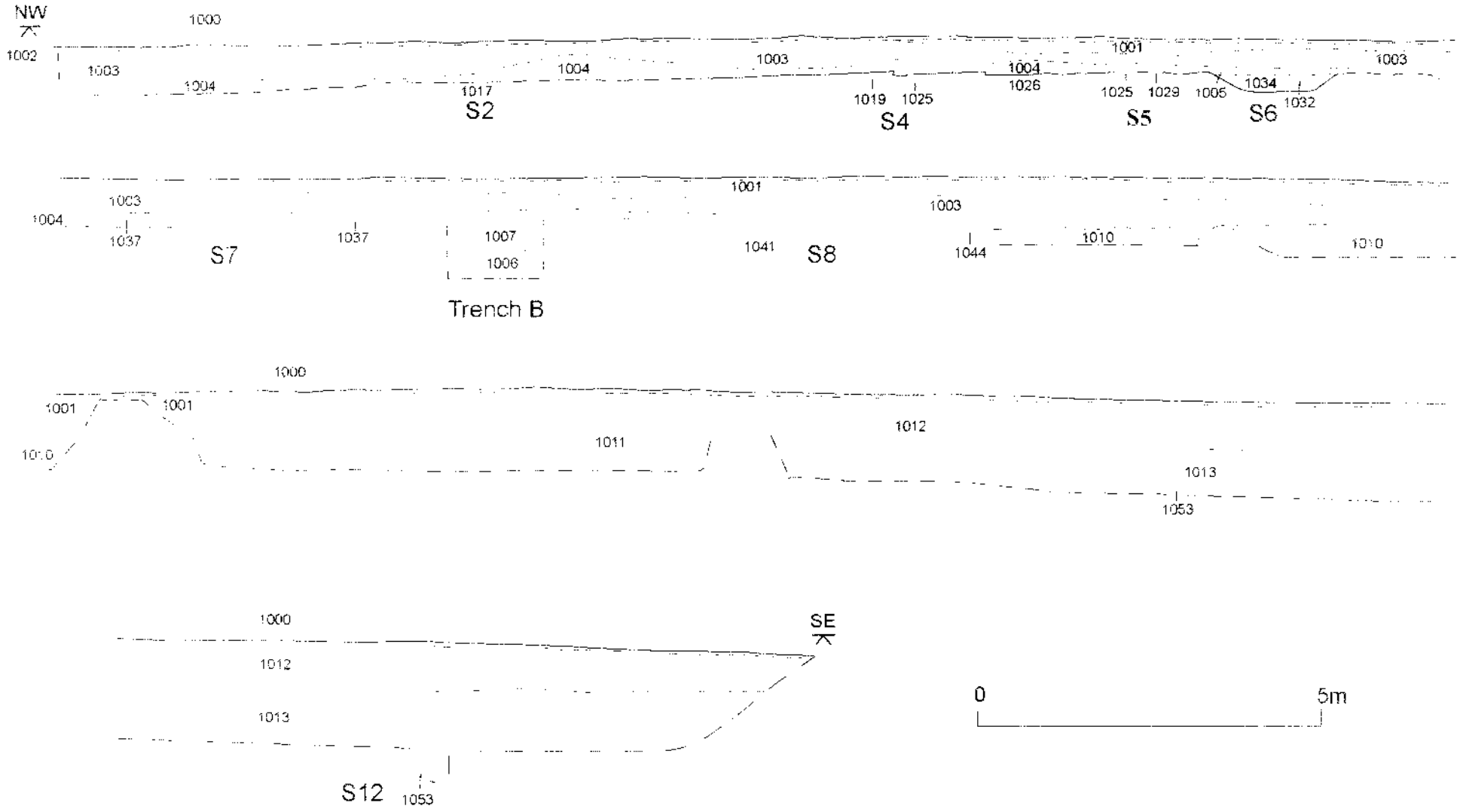


Fig.4

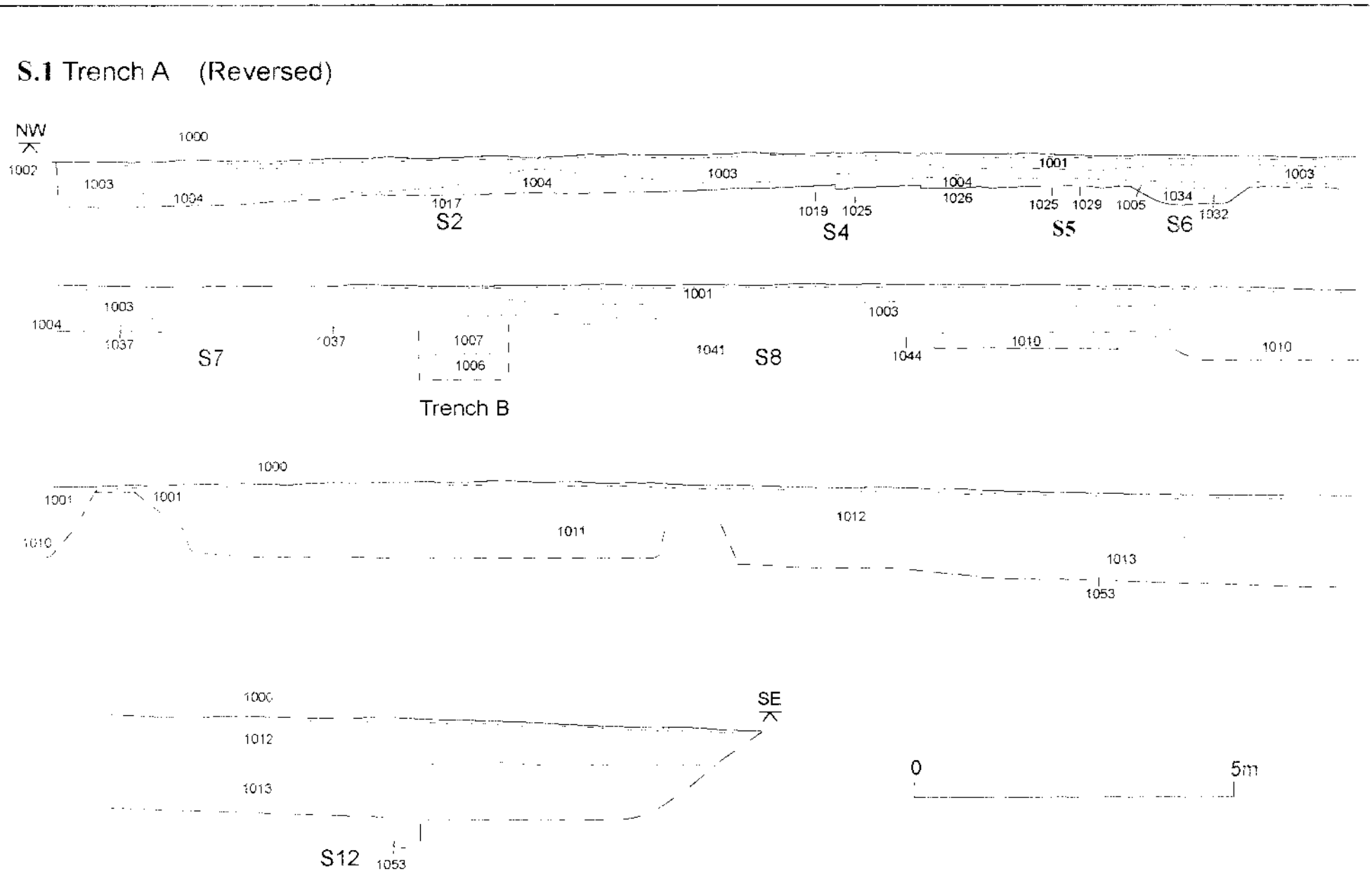


Fig.4

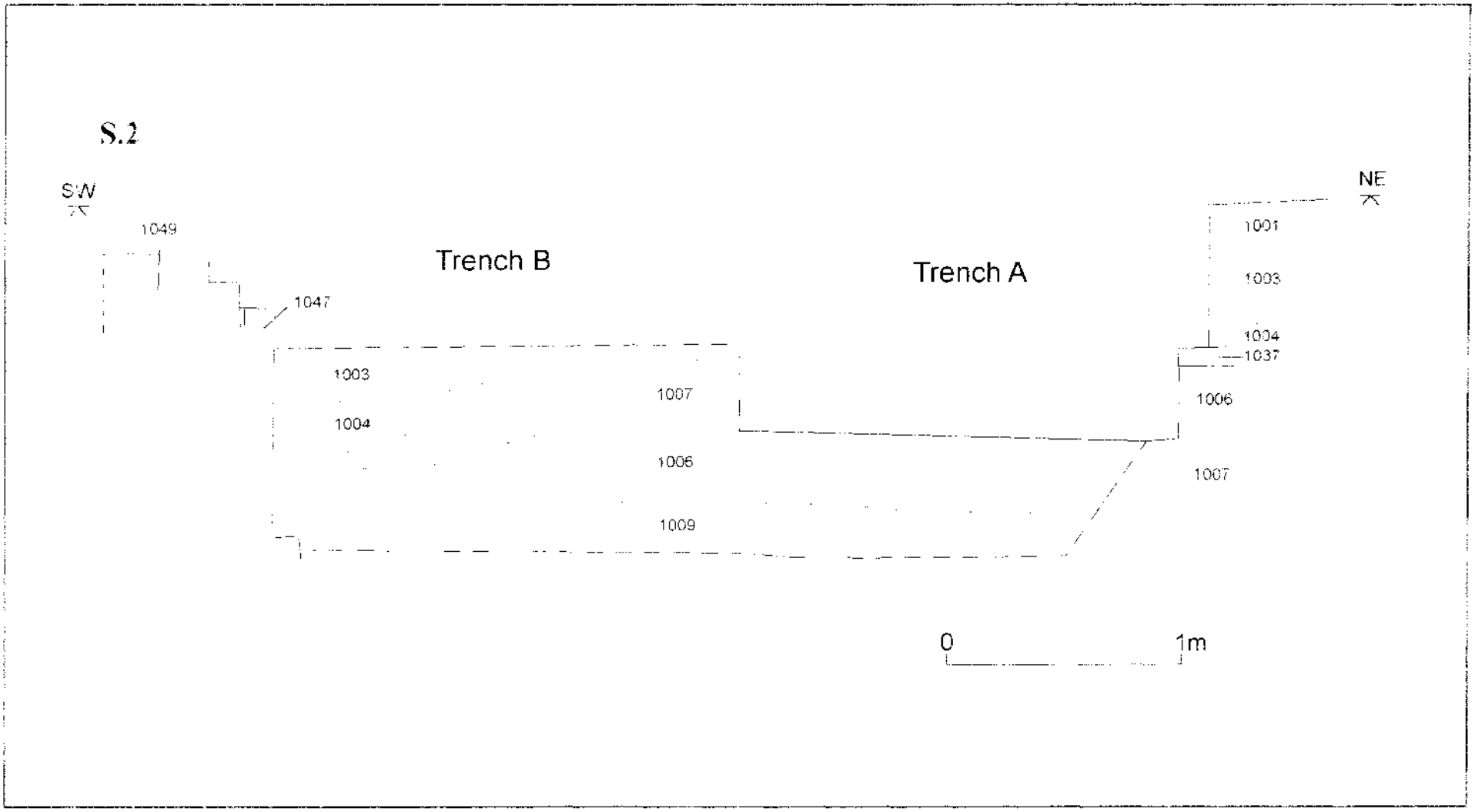

S.2
S/W
NE
1049
1047
Trench B
Trench A
1001
1003
1004
1037
1006
1007
1003
1004
1007
1006
1009
0
1m

Fig.5

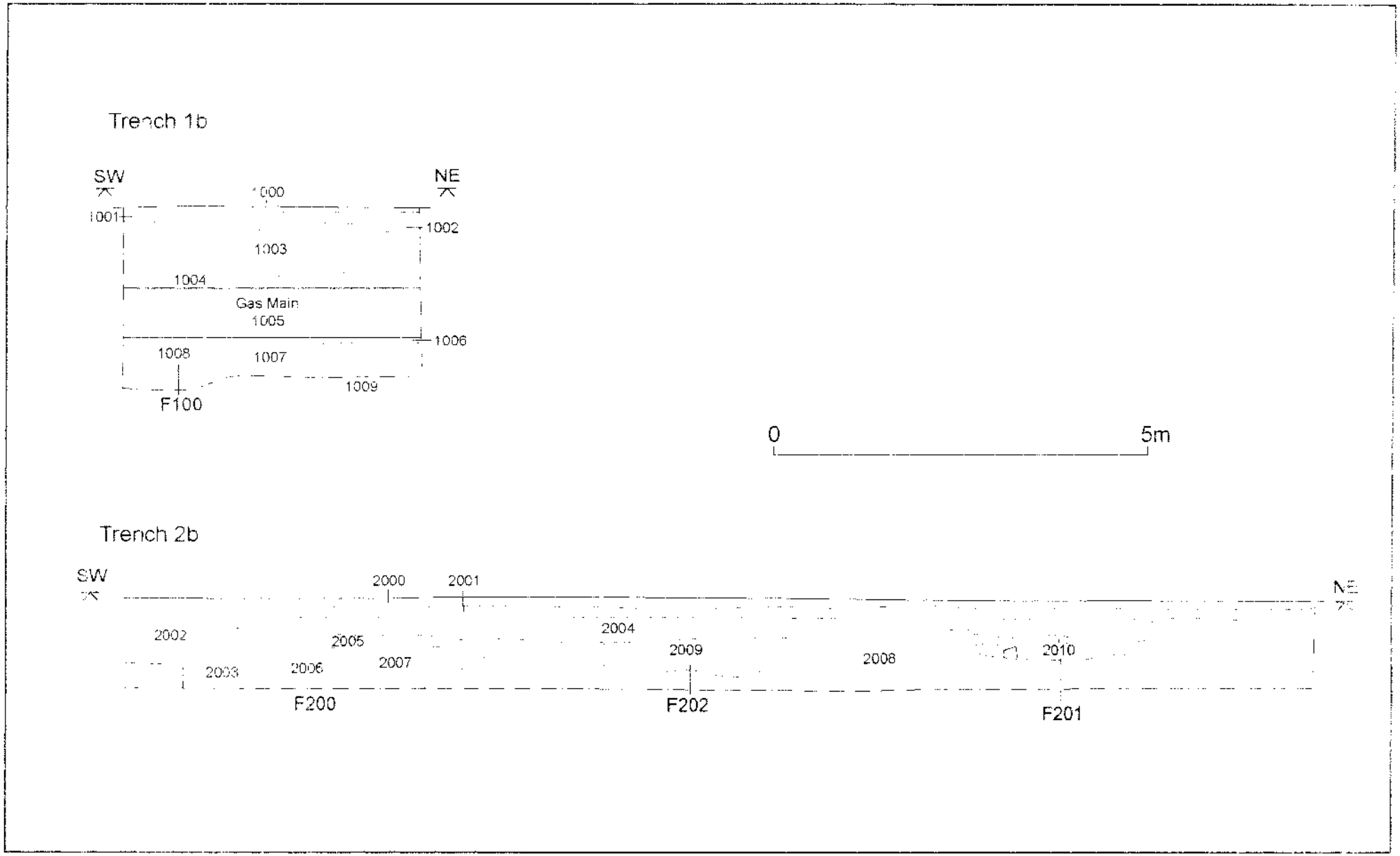

Trench 1b
SW
NE
1000
1001
1002
1003
1004
Gas Main
1005
1006
1008
1007
1009
F100
0
5m
Trench 2b
SW
NE
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
F200
F202
F201

Fig.6

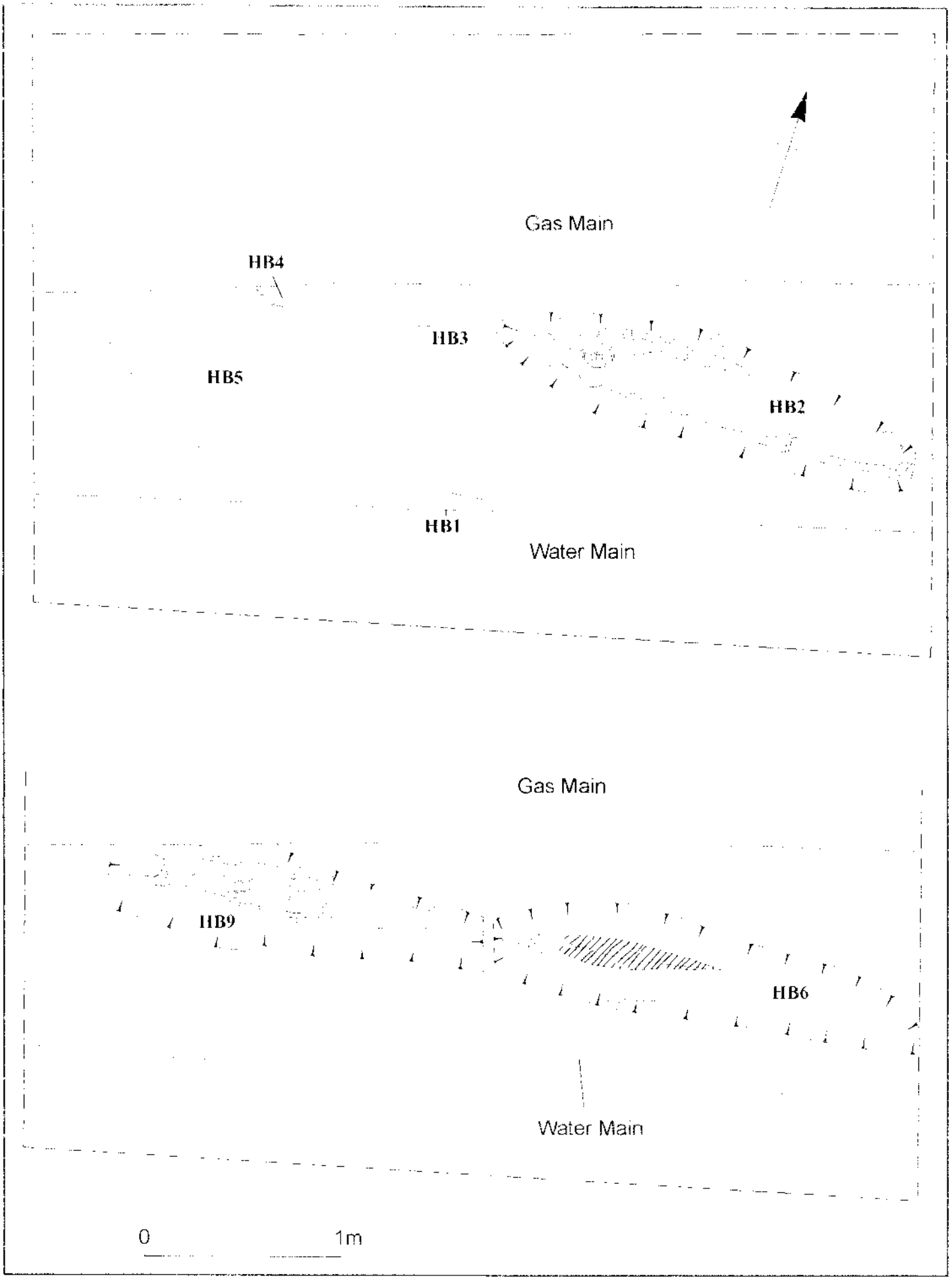

Gas Main
HB4
HB3
HB5
HB2
HB1
Water Main
Gas Main
HB9
HB6
Water Main
0
1m

Fig.7

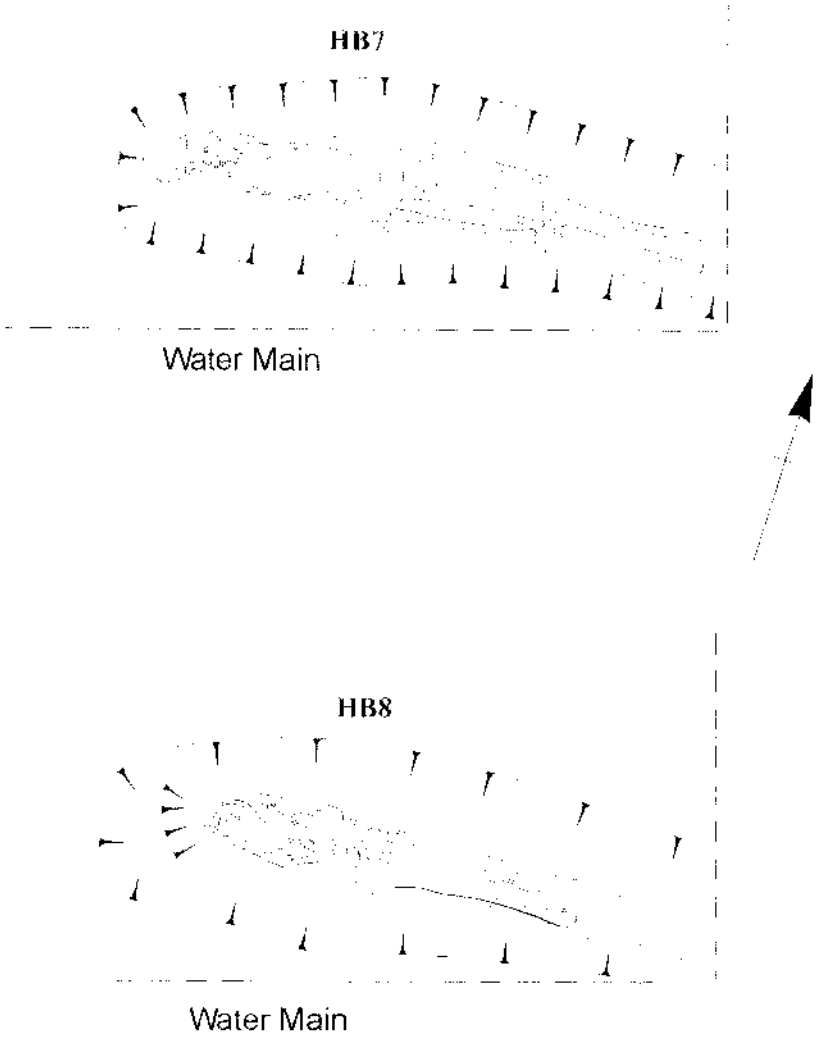


Fig.8

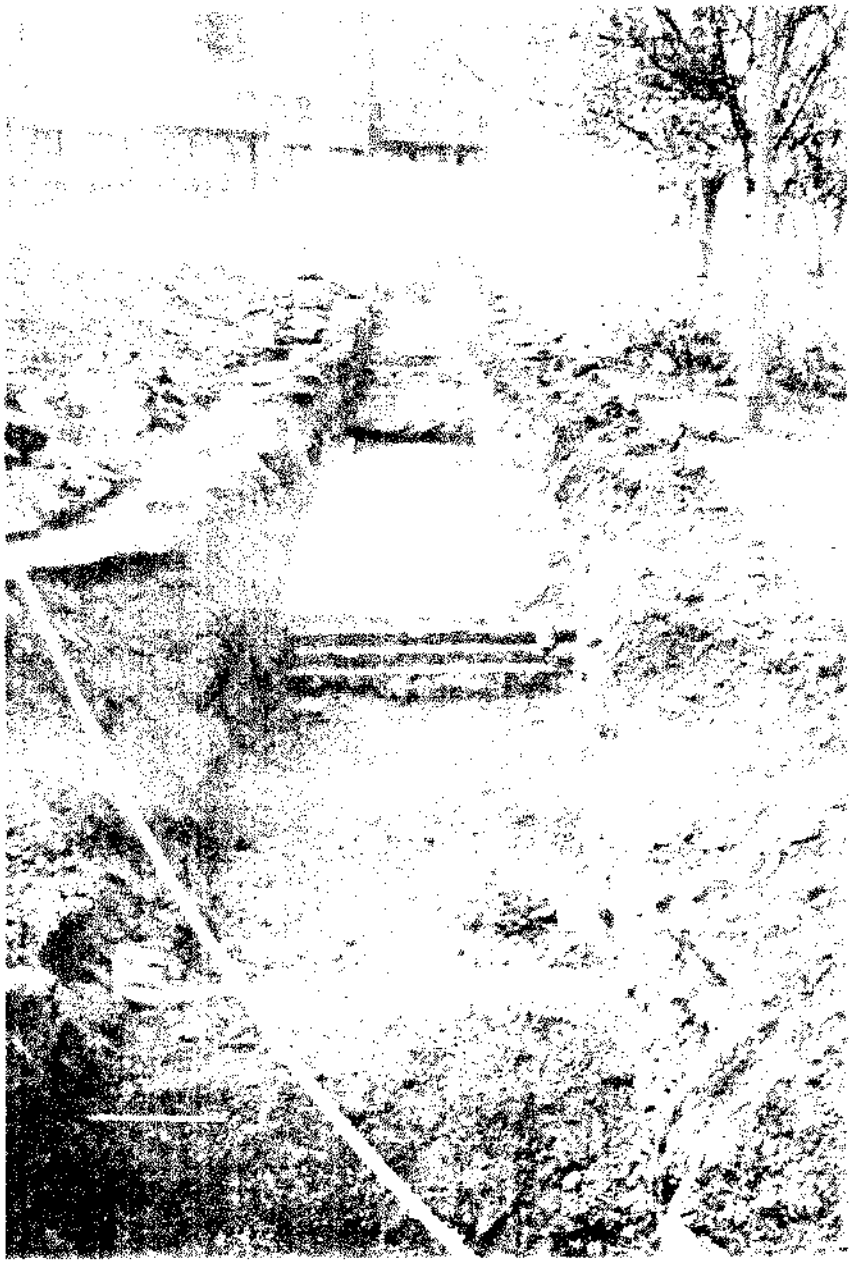


Plate 1

Plate 2

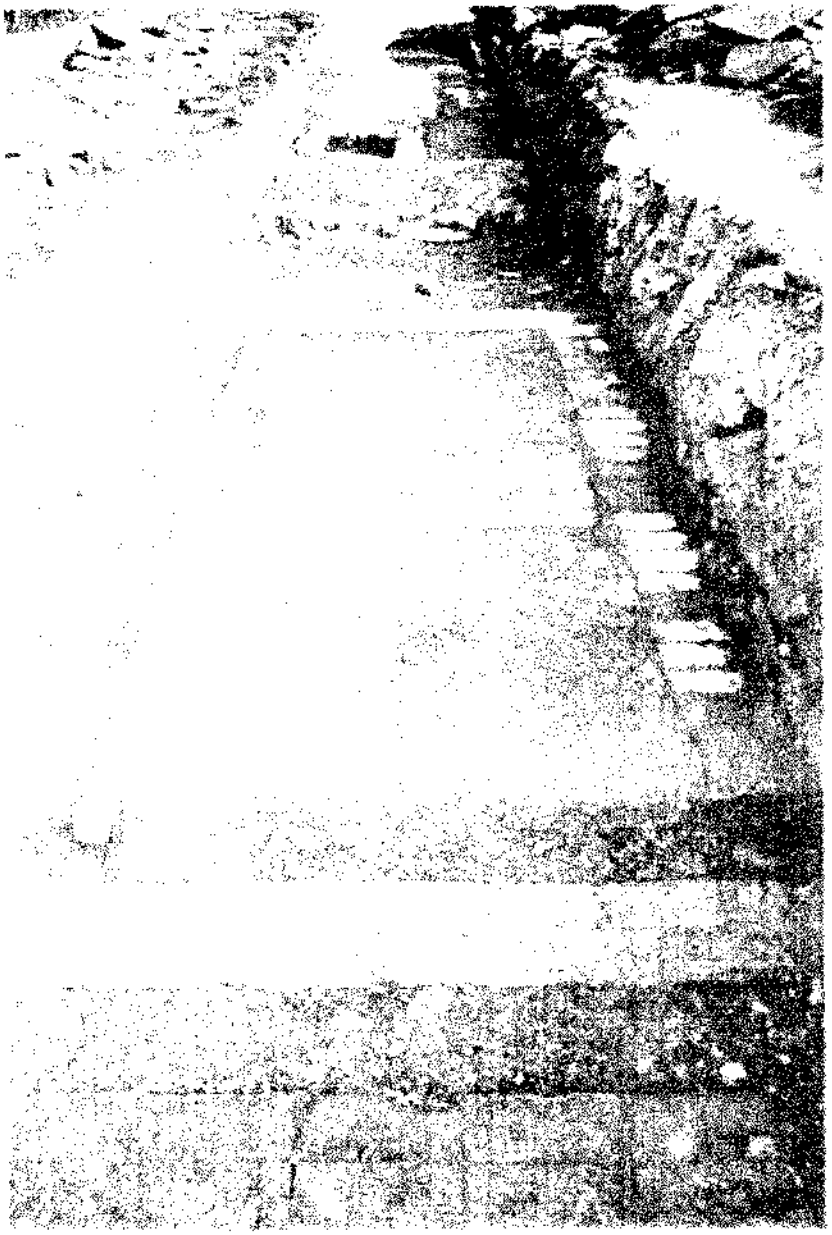


Plate 3

Plate 4

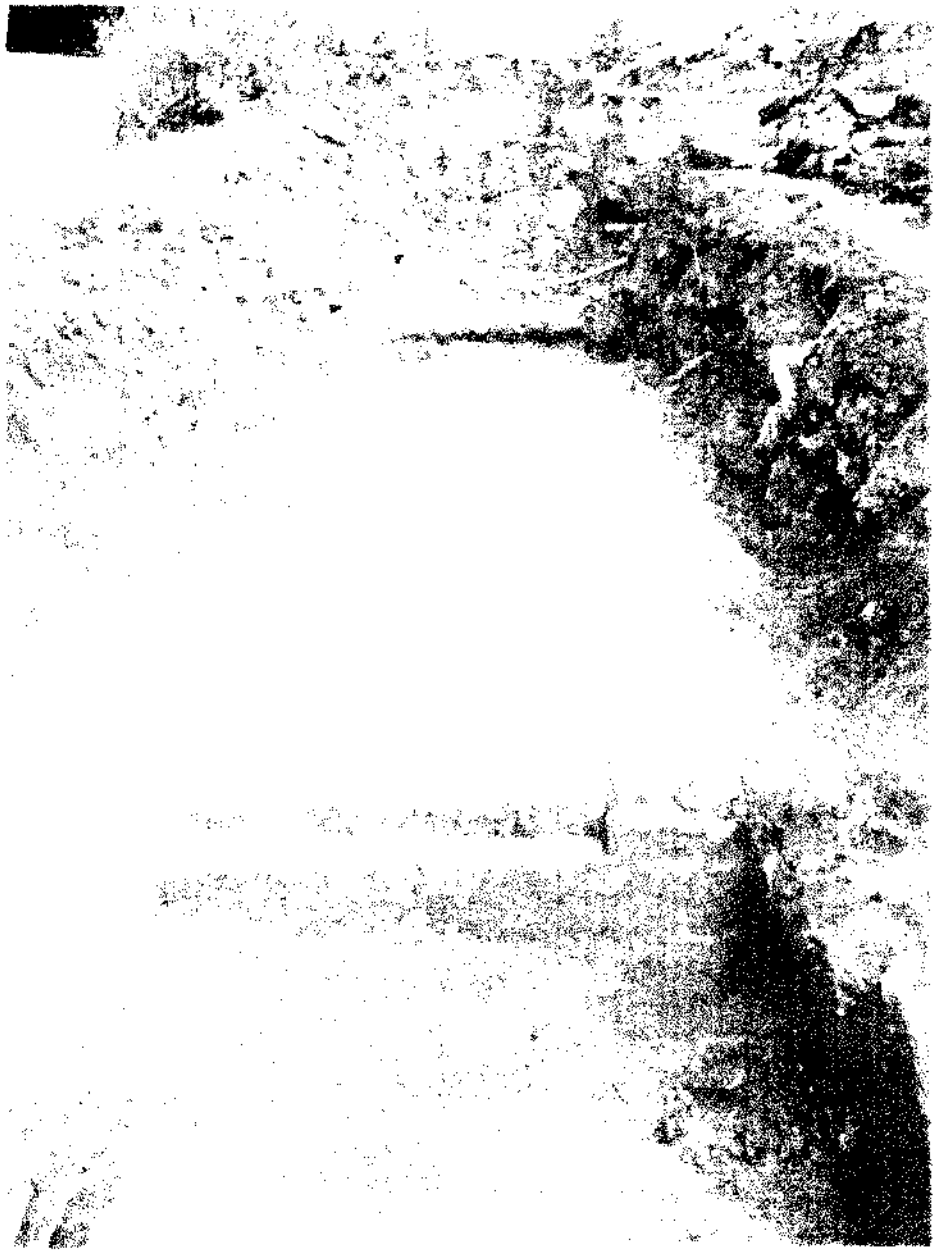


Plate 5

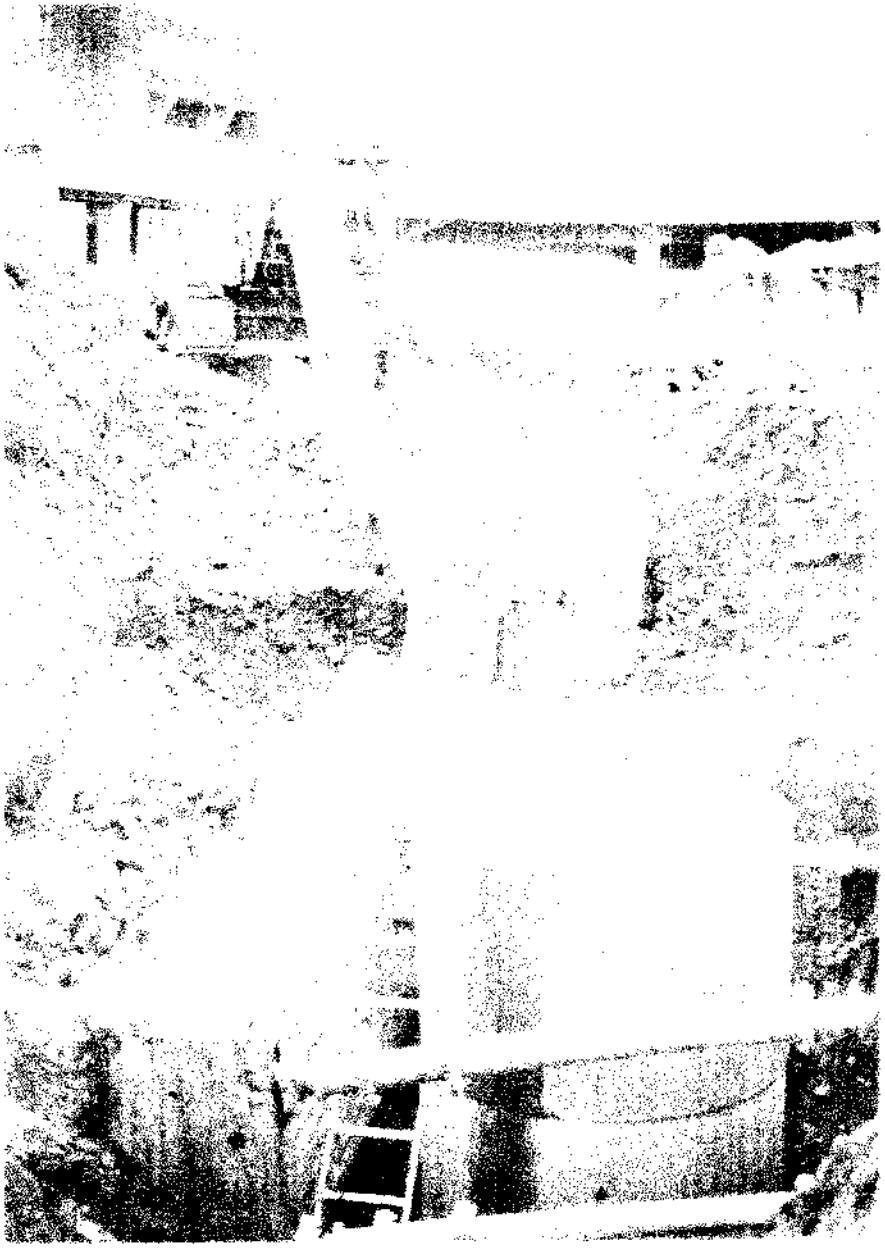


Plate 6

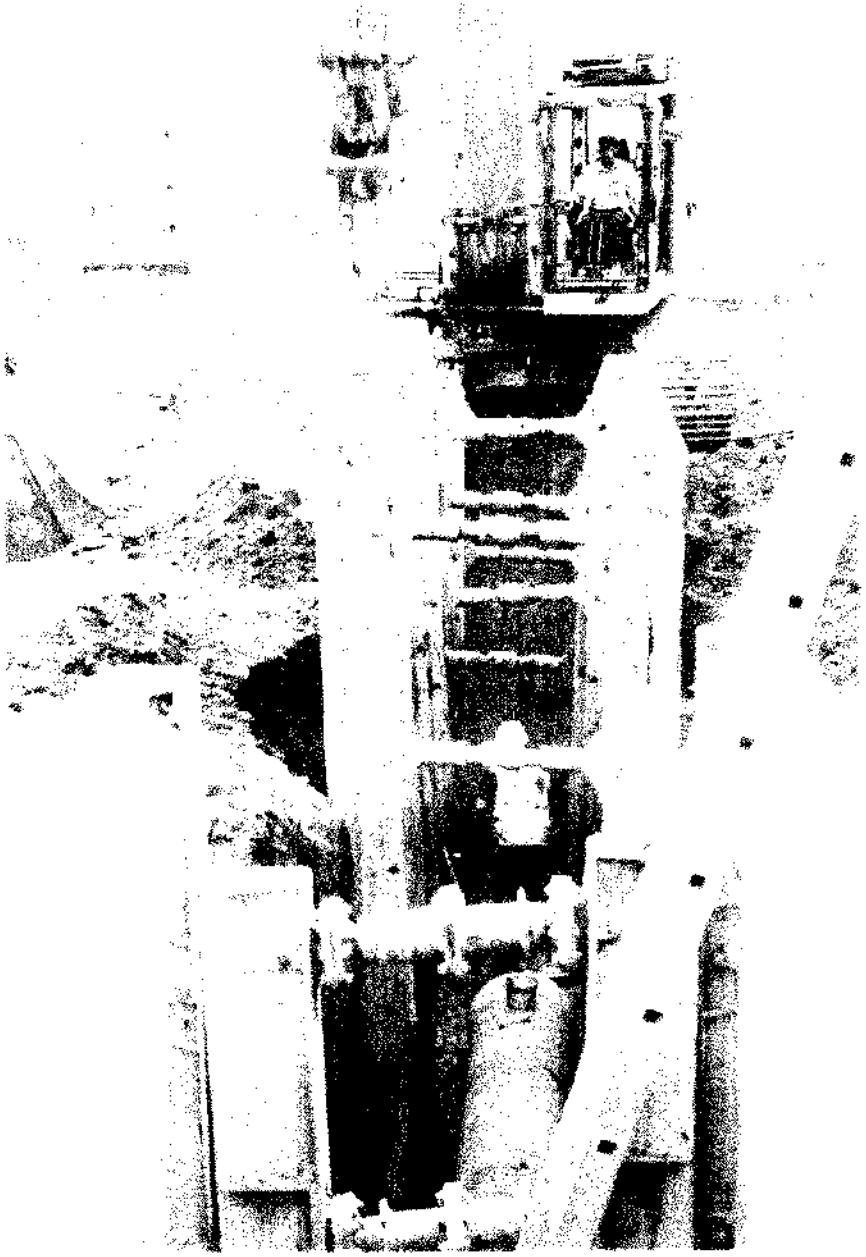
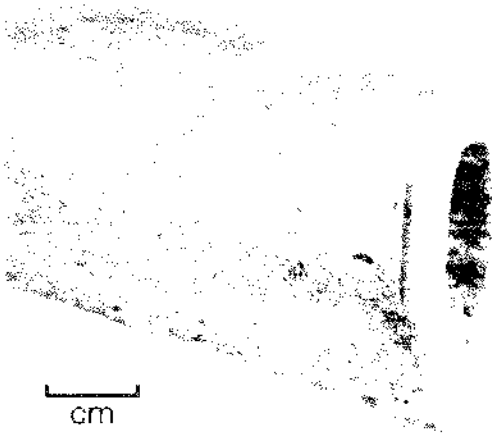


Plate 7

Plate 8

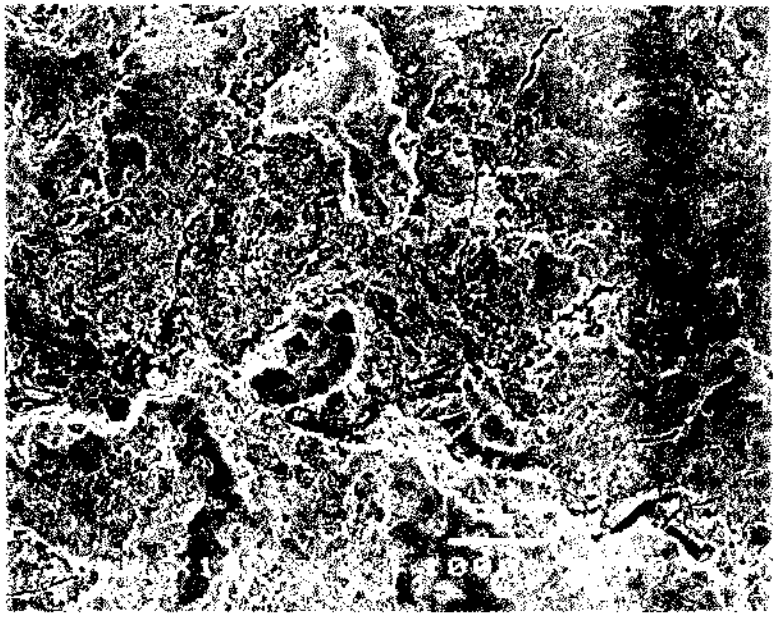
Plate 9



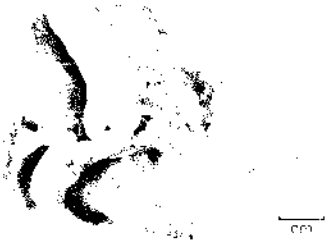
Appendix Plate 1

Appendix Plate 2

Appendix Plate 3



Appendix Plate 4



Appendix Plate 5

Appendix Plate 6