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SOUTHWICK PRIORY FISHPONDS: EXCAVATIONS 1987

by C K CURRIE

ABSTRACT

The topographical and historical context of the previously much neglected fishponds of Southwick Priory, is examined. Archaeological excavation of a series of trenches, designed to elucidate the evolution of the ponds from their origins in the late 12th or early 13th century, is described. There is general agreement between the archaeological and historical evidence.

INTRODUCTION

The site of the Augustinian priory of Southwick stands within the grounds of a land Naval Base, HMS Dryad. Before the Second World War, this land had been occupied by Southwick Park, the estate of Southwick House, home of the Borthwick-Norton family. During the war the site was purchased by the Ministry of Defence whose agents, the Property Services Agency, managed the land at the time of the excavations.

Prior to the summer of 1985, the greater part of the earthworks here under discussion had not been identified as they lay under thick woodland a short distance to the north of the present surviving priory ruins. At the end of May 1985 much of this cover was removed by the Royal Navy, under the direction of the then acting Estate Manager, Lt-Comm. B Reeve. This revealed the full extent of the earthwork remains. The Navy then contacted the present author for his advice on the discovery and to consult him as to the viability of restoration of the site. This resulted in money being put forward by the PSA (SE Region) for excavations to be undertaken prior to the reinstatement of the ponds. On the advice of this author plans to reinstate the whole site were modified to the reinstatement of an upper water-filled pond only. It was decided that the recently discovered earthworks, henceforth known as the lower pond, should be allowed to stay as they were after a limited research excavation had been undertaken.

This research was designed to answer a wide range of questions about fishponds that were urgently in need of answer as outlined by Aston (1988, 4) and Chambers with Gray (1988, 113–35). It particularly attempted to concentrate on recovering information on the constructional methods employed in building the ponds and obtaining reliable dating evidence.

FOUNDATION

Southwick Priory began its existence *c.* 1128 within the outer bailey of Portchester Castle. Controversy over this foundation has been recently elucidated by Mason (1980, 1–10) who has identified William de Pont de l'Arche, a former sheriff of Hampshire, as the true founder (Mason 1980, 1). Previous literature had attributed the foundation to Henry I in 1133 (Cox 1903, 164). This has now been proved to have been a deliberate falsification by the canons who were anxious to obtain a prestigious patron after the decline of the Pont de l'Arche family during the civil wars of Stephen's reign (1135–54). With the death of William *c.* 1148, the canons sought to remove themselves to a more suitable site at Southwick, the Castle site being too cramped for their growing needs. It would appear that this move had been effected by 1150 because from this date the foundation ceases to be referred to as that of the canons of Portchester. Documents dated from early in 1150 refer to the canons of Southwick. Building works seems to

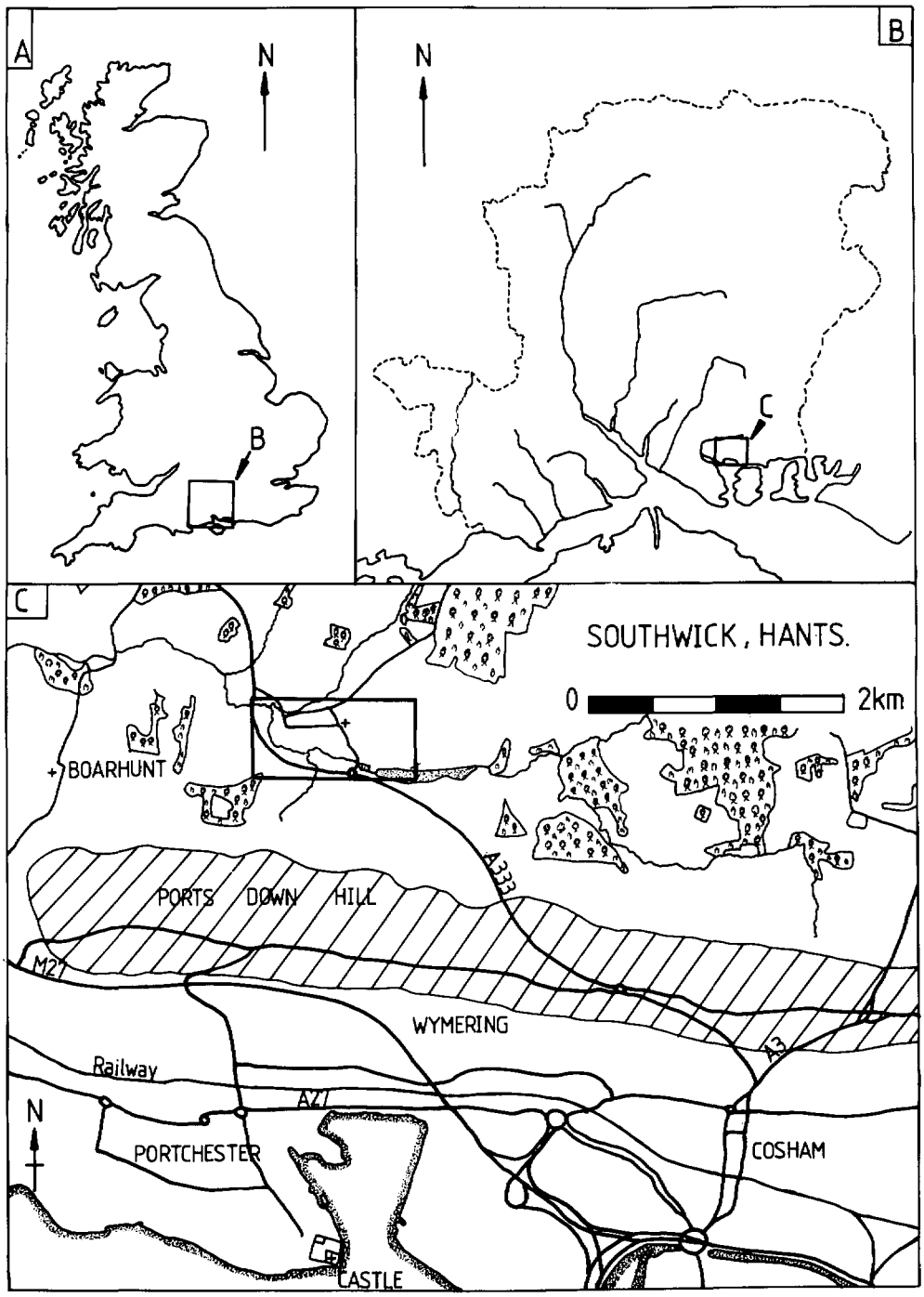

Fig 1. Site location plans

have reached a fairly advanced stage at Portchester, as the canonical church had been completed before the move took place. This building was hereafter included in the priory's possessions and was used as the parish church of Portchester. Excavations of parts of the church and the claustral buildings were undertaken by Baker and much useful information relevant to the history of the priory was uncovered (1977, 97–120).

TOPOGRAPHY (Fig 1)

The area in which Southwick stands has been described as a 'wealden landscape in miniature, formed by the prominent chalk outcrop of Portsdown and the tertiary deposits of the Forest of Bere syncline behind' (Munby 1985, 271). These tertiary deposits consist of undulating countryside divided by the numerous small streams draining the valley of a minor Hampshire river, the Wallington. This river and its tributaries lie between the large outcrop of chalk called Portsdown on the south and the main mass of the Hampshire chalklands on the north. On the south side of Portsdown, which gave its name to the hundred, is a narrow coastal strip, of which the royal manor of Portchester was once dominant (Munby 1985, 270–95).

The geology of the Wallington valley deposits begins on the lower northern slopes of Portdown, where there is a covering of Reading Beds of sand and clay. This, in turn, is overlain by a strip of London Clay which extends as far as the lower slopes of the northern main chalklands, where Reading

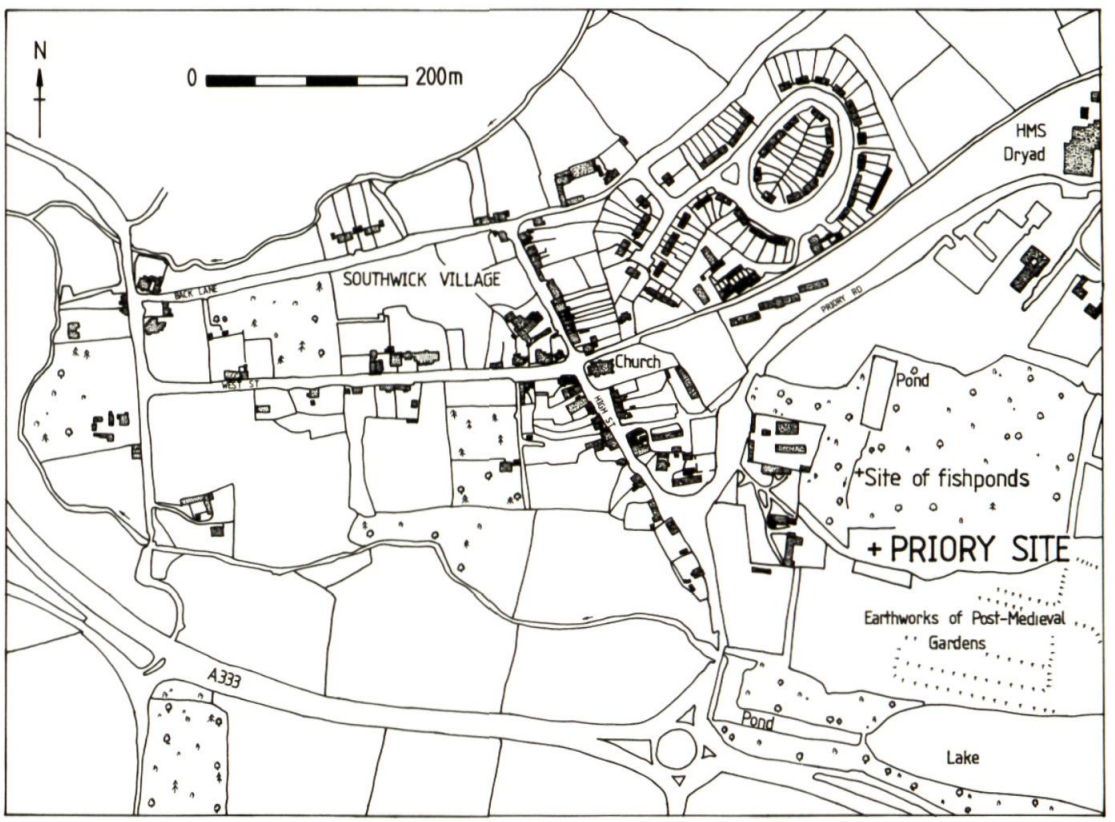

Fig 2. Southwick and the Priory fishponds

Beds break the surface once more (Munby 1985, 274–5). The Forests of Bere dominates these claylands, although by the later 12th century at the latest, settlement had penetrated liberally throughout the southern half of the valley and had also encroached, in a more scattered form, into the northern forest.

The Forest of Bere as a legal entity was probably a Norman creation but there is evidence to suggest that large areas of woodland existed in the area in Saxon times (Munby 1985, 271). The boundaries of this forest extended from Havant in the east to the river Meon in the west. Considerable areas still survived in 1814 when it was finally disafforested. This is evident from large extents of woodland still in existence at the present time.

The priory site is situated in the present Southwick Park about 200m to the east of the village where the gravel promontory widens out into a low hill comprising an outcrop of Bagshot Sands (Fig 2). Such deposits are common in the Wallington catchment area, particularly on the northern side of the main river where they occur as a linear succession of heathlands such as Wickham Common, Walton Heath, Southwick Park and Purbrook Heath, following the line of the old Roman road from Wickham to Bedhampton. Munby has suggested that this was the most easily penetrated line of communication through an area of heavy claylands and forest in early times (1985, 275).

The priory seems to have taken its name from a farm known as the 'south wic'; that is the south dairy farm, a common English settlement name (Ekwall 1960, 432).

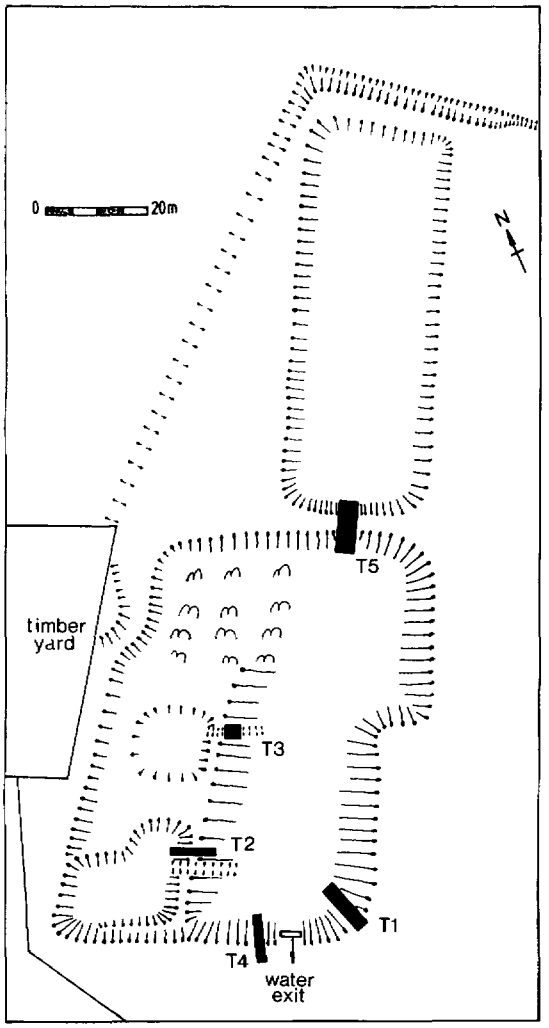

Fig 3. Plan of the fishponds, showing location of excavation trenches

THE FISHPOND EARTHWORKS AND THE PRIORY WATER SUPPLY (Fig 3)

The original water supply for the ponds in the former priory precinct probably emanated from springs arising from the side of the low sandy hill on which the present naval base, HMS Dryad, now sits. It is considered that the spring line would have occurred somewhere just below the 35m OD contour. Today the bulk of the water enters the upper pond through a modern drainage culvert that is connected to storm water drains serving the naval base. Another source of water at present includes the run off from ditches in the woodland to the east of the site. These drains all converge into the present ditch to the north of the upper pond. This ditch turns southwestwards around the north-east corner of the

pond to become the old diversion ditch of the pond system. However, the water draining off of the woodlands does not reach this far as it is channelled into the pond through an underground pipe under the north bank of that pond.

The fishponds appear to have been constructed in a small, shallow valley aligned north–south towards the main river Wallington. There are three cross valley banks spanning the width of this valley, which would appear to have been as little as 25m across. The first of these banks forms the back, or north bank of the present upper pond, currently known as Monk's Pond. This is, on average, 29m OD along its top and there is evidence to suggest that a small, relatively unstructured pond existed in the valley bottom above it. It is therefore considered that the ditch behind this bank described above is a recent feature.

The purpose of this small pond was thought to act principally as a reservoir to collect water draining off the hill and to bring the level up sufficiently to allow it to then flow south-westwards down the diversion channel when it was not required to run directly through the pond system. It is thought that this pond would not have served primarily as a fishpond. The advantages of being able to divert water around a pond system enables management functions such as cleaning and repairs, as well as control of fish stocks, to be carried out more efficiently (Currie 1988a, 273–4).

The present upper pond is a different type altogether, being a well planned rectangular feature approximately 72m by 25m. It is dammed back by a large bank some 30m in length, 12m broad across the base and about 2m high. The side banks are of such a regular appearance that they would appear to have been artificially dug out of the valley side.

The lower pond area has an outer perimeter of *c.* 80m by 60m and is of an irregular parallelogram in shape. It is divided down the middle by a board low bank thus forming two roughly equal internal enclosures. The eastern enclosure forms a pond similar in size and shape to the upper pond; that is *c.* 80m by 25m but of a less regular form, the top north-east part of the pond being indented by about 5m off the alignment of the main eastern bank. This indenture corresponds in negative with a similar off-set in the outer western bank. Whereas the indenture on the east bank serves to increase the area of the pond, that on the eastern bank of the outer enclosure reduces the size of the western enclosure by projecting into the ponded area.

The dividing bank of the lower pond has an extremely shallow gradient on its east side, although it is scarped much more sharply on the west. As described above, this feature divides the lower enclosure into two roughly equal rectangular areas. There is a significant difference in the western rectangular area in that it is subdivided into smaller pond-like compartments. The most southerly of these is L-shaped being approximately 20m by 20m at its widest points. There is a definite leat cut through the dividing bank leading into the eastern part of the lower enclosure.

To the north of this pond is another, less well defined, pond about 12m square. This is very shallow and difficult to appreciate when overgrown, as it was at the time of writing. As with the previously described small pond, a leat can be traced cutting the central dividing bank, again indicating that both of these smaller ponds emptied to the east.

There is a suspicion that a third small pond may have existed to the north, but this part of the earthworks has been used as a rubbish dump by the village until recently. The content of this dump does not seem to predate the 19th century and includes much ceramic and bottles, quantities of this originating from the small brewery that existed behind the Red Lion public house and which has recently been restored. Over the last decade or so this dump has been much disturbed by treasure hunters and bottle collectors. Although this has confused interpretation of the site, perhaps more significant is the siting of a timber yard across the line of the diversion ditch that would have ran roughly parallel with the west bank of the lower enclosure. This seems to have obliterated all traces of the relationship of this

ditch with the lower enclosure, in particular with the smaller western ponds contained therein. As it stands today the water supply to these ponds seems confused. This author feels that to make an efficient system water must have come to these ponds from the west, emptying to the east. If this was not so, the western ponds could only have been filled by the same channel that presently seems to empty them and this makes for almost impossibly inefficient control (Currie 1987, 13–4).

Interpretation of the earthworks site is problematic as has been admitted in previous interims (Currie 1986a, 21–2; Currie 1987, 13–4). The excavations were able to solve this problem in some respects by showing that the present earthworks were superimposed over at least two earlier layouts.

A final feature of the earthworks is the lower bank of the lower enclosure. This is approximately 60m in length, aligned roughly east–west. The initial impression is that the whole lower enclosure has been dug out of relatively level ground as there is no real trace of a back to the lower bank. However, detailed examination shows that this must have been impossible as the stream that flows through the lower enclosure along a north-south axis must have had a natural exit. The bank therefore obstructs this stream and acts as a dam. The level ground behind it was explained by a general artificial levelling of the entire southern part of the small valley fed by this stream after the Dissolution (see below). The stream is currently culverted underground from the south-east corner of the lower enclosure. Slumping of the backfill over this culvert allows its course to be traced in the conjectured direction of the main claustral range.

Although the present exit from the pond is constructed in late brick, it can be suggested that the culvert has medieval origins. A late 12th century document in the cartulary refers to a stream that flows beneath the court of the canons (HCRO 1M54/1, f4). The document describes this stream as descending to the mill of Remilmus de Boarhunt. A mill may have existed near Rook's Bridge and is highly likely that this was one of the mills the de Boarhunts gave to the priory (there are a number cited in the cartulary). The present exit for the fishponds stream is by a pipe about 30m upstream from Rook's Bridge.

It should be noted that the fishponds stream does not appear to have been used for drinking water. Its channelling under the cloister would have probably served to flush the main drainage system and such necessities as the reredorter and the recently discovered lavabo (Soffe 1985, 29). The main fresh water supply was channelled from chalk springs at Offwell Farm on the north slope of Portsdown. This is mentioned at various times in the site's history, the first occasion being in the late 12th century when the de Boarhunts give the priory leave to conduct the water of "Affewell" through their land (HCRO 1M54/1, f4b). The rebuilt conduit house is still visible today (SU 621 079).

EXCAVATION RESULTS

The excavation results are described below. After a description of each trench, there follows a discussion of the evidence. The dating is divided into five phases, which is applicable to all the trenches. Phase one represents the earliest phase *c.* 1150–1300. The subsequent phases are given the bracketed date ranges: phase two *c.* 1300–1425; phase three *c.* 1425–1540; phase four *c.* 1540–1750 and phase five post-1750.

Trench 1 (Figs 4 & 5)

This trench was excavated lengthways through the eastern side bank of the lower enclosure at a point closest to the priory ruins. The alignment of the trench was roughly east–west, with the east end being approximately the top of the bank and the west end near to the approximate bottom of the slope. The excavated area was 10m by 2.5m.

The latest layers at the east end showed much sign of disturbance. The area was heavily honeycombed throughout by animal burrows and two largish pit-like features were identified, F6 and F52. Another feature F50 was probably another pit but it was so badly disturbed by animals that an exact

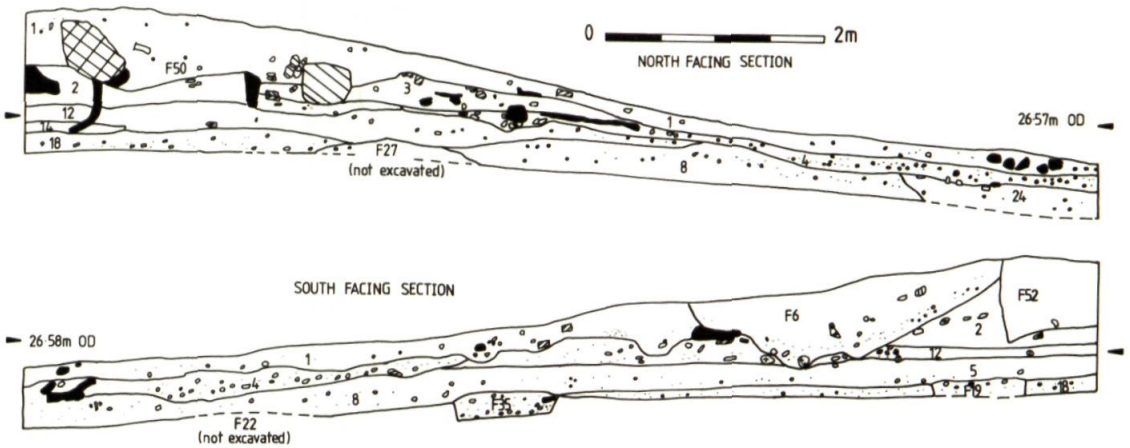

Fig 4. Trench 1, sections

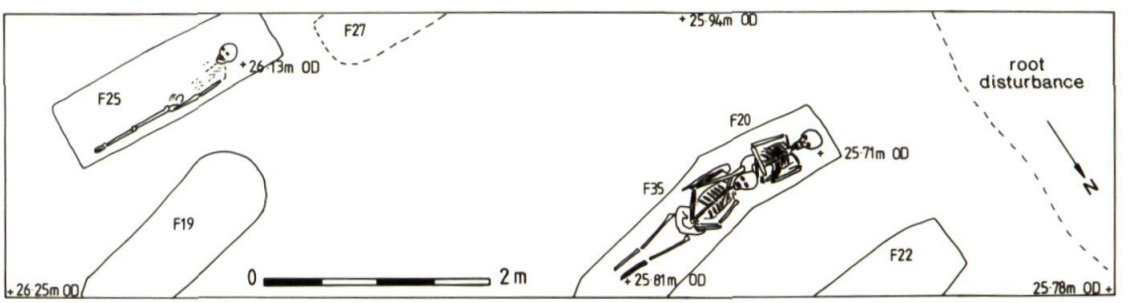

Fig 5. Trench 1, plan

analysis is not attempted. All three features clearly represented late post-medieval disturbance and had destroyed all trace of the profile of any earlier bank.

The first layer encountered that was undisturbed to any extent was context T1–3. This overlay surviving medieval layers and contained much evidence of demolition materials in the form of mortar, broken brick and heavily fragmented stone. The eastern end of this level was cut through by F50.

The first medieval layer encountered lay beneath the cuts of F6, F50 and F52. This context (T1–2) was of clay but much hardened up by firm lenses of mortar and mortary clay. The firmness of the layer may suggest that it had been deliberately compacted. Contained within this level was large quantities of roofing materials, slate and ceramic tile and also quantities of broken pottery and some broken floor tile. The concentration of these materials declined decidedly towards the west end of the trench. Here were much thinner contemporary layers made up of mainly gravely clays (T1–4). Only occasional artefacts were recovered here.

The removal of level T1–2 revealed an underlying gravely clay throughout the trench (Contexts 5, 8, 18). Artefacts were again few.

Cutting into these layers were a number of rectangular features, some clearly showing rounded ends. Six features were identified although there could have been more. The homogeneous nature of the gravels made identification of cut features difficult. The first three of these cuts to be recognised were excavated but subsequent features were not as the aims of the excavation did not warrant their disturbance.

Of the features excavated (F20, F25, F35), all three proved to be burials. All were aligned roughly east-west with the heads at the west end. All features were extremely shallow cuts. F25 was overlain by T1–2 and no signs were observed that it had cut through it. Likewise F20 and F25 showed no sign of cutting through level T1–4. An unexcavated grave-like feature F19 had a very distinguised outline of iron-panning around it, indicating that it had been cut into gravel layer T1–10 but not the layers above it.

The skeletons were in a variable state of preservation. F25 lay in concentrated gravel and here much of the skeleton had been eroded by the acid soil, leaving only a dark stain where the missing bones had been. The skeletons of F20 and F35 were in a much better state of preservation, lying in less gravely soil. However, some of the smaller bones of the hands and feet were missing.

F35 cut grave F20, destroying part of the pelvis and removing the legs of the skeleton in F20. These bones, it would seem, were thrown back into F35 over the later skeleton. This gave the skeletons the peculiar appearance of being buried together. The order of the leg bones overlying the skeleton of F35 showed this was not the case (see microfiche: Human remains).

The fill of the graves was almost totally devoid of artefacts. The only non-natural fragments found were tiny (less than one gram) fragments of slate. These were so small that they could have been deposited by earthworm activity. No nails were recovered and although the stain of former bones remained in F25, there was no sign of coffin stain in any of the graves.

Discussion

It was not possible to ascertain the original profile of the medieval pond bank because of post-medieval disturbance. The latest stratified material (T1–3) seemed to date from *c.* 1700 on the inclusion of post-medieval Surrey White Ware in the deposit, although the heavily abraded nature of the recovered rim could indicate a later date. The date accorded here fits in well with recorded rebuilding work in the period 1695–1705.

The latest medieval level (T1–2) was dated to within phase two (*c.* 1300–1425) on ceramic evidence. The high incidence of mortar and building materials, particularly roofing materials, indicates that the level was a dump of debris from nearby construction or repair work. The inclusion of an unworn fragment of a floor tile associated with William of Wykeham suggests a terminal date of *c.* 1425 would seem probable. The priory cartulary indicates that there was probably much building work being undertaken on the church in the later 14th/early 15th century, particularly concerning the construction of the Wykeham chantry chapel. If the priory church was in its expected position on the north of the refectory, it would have been close to where this trench was excavated.

The occurrence of these materials can be explained in two ways. Firstly that they were dumped in the nearest convenient place or they were used deliberately to build a fishpond bank. The latter, in the circumstances seems more likely in the light of the compacted nature of the deposit. This evidence ties in with that of trench 4, cut through the lower pond dam. Here the dam was enlarged or rebuilt before phase three (*c.* 1425–1525).

The main problem with this trench is the interpretation of the graves and their relationship to the pond. The extremely shallow nature of the graves suggest that the topsoil had been removed in the enlargement of the pond. Ponds with scarped, or dug out (levelled), bottoms are amongst the medieval type identified by Taylor (RCHM 1979, lvii) as Type B. The evidence seems to suggest that this was done at some time between 1350 and 1425. Contemporary with this conjectured scarping was the construction of an outer enclosure bank for the pond. This may be evidenced by the dumping and compacting of level T1–2. The upper levels of this conjectured bank seem to have been destroyed by post-medieval activity, preventing confirmation of the suggested sequence of present evidence.

The graves themselves seem to indicate that an early cemetery had been laid out in this area. The lack of residual finds in the grave fills indicates that the area was relatively undisturbed at the time. It also suggests the close proximity of the church. It would seem

therefore that this area was used for burial from the early days of the priory (*c.* 1150) through until about 1350 at the latest. The possibility that the body in F20 was a female points to the internment of lay patrons in this area. The bodies seem to have been buried without coffins. It is also possible that the graves were unmarked. This could help account for the cutting of F35 through F20 and also the later flooding of the graves. Their position seems to have been forgotten by phase two, although the callous reclamation of consecrated ground would not have been impossible.

Trench 2 (Fig 6)

This trench was aligned roughly east–west over the full length of the dividing bank within the lower enclosure. It measured 9m by 1m. The lowest layer was level T2–48 which appears to be a dump of natural gravel within a clay matrix. This was probably thrown up from within the western half of the lower enclosure. There is some suggestion that this layer was compacted. Subsequent layers (T2–47, T2–46, T2–45, T2–16) were heaped up over this core. Overlying this is topsoil about 10cms. thick. Within the pond itself (to the west) a layer of silty gravel built up (T2–54) to a maximum of about 15cms.

Trench 3 (Fig 7)

Trench 3 was a small test trench cut across the line of a ditch leaving the middle small pond within the western half of the lower enclosure in the hope that a control sluice would be encountered.

The cutting here revealed a similar construction method for the bank as in trench 2, with a gravely core overlain by other mixed layers. The whole overlay natural sand. No dating evidence was recovered excepting for post-medieval ceramics in the top 10cms. No evidence for any structures were encountered.

Discussion of Trenches 2 and 3

These trenches were disappointing in that they showed little evidence for dating. It was concluded that the bank was not part of the monastic ponds and that it represented a late phase in the development of the area. This bank is thought to have been associated with

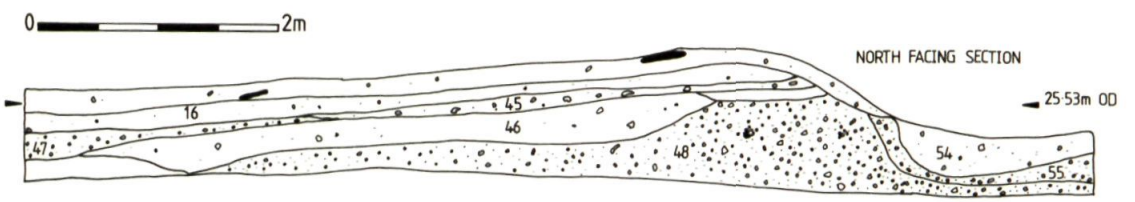

Fig 6. Trench 2, sections

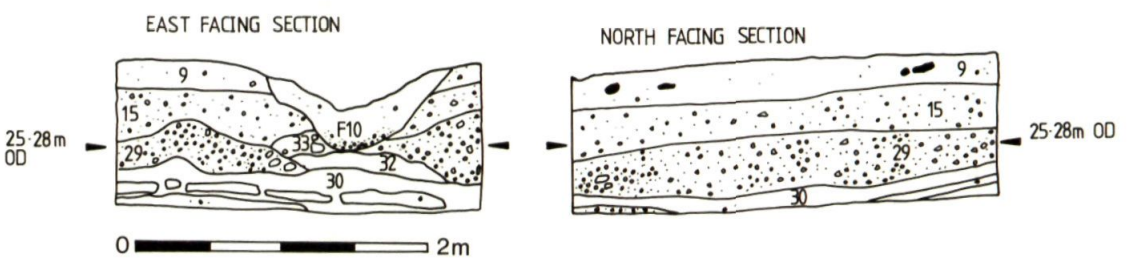

Fig 7. Trench 3, sections

restructuring of the system to serve primarily an ornamental function in the post-medieval period.

Trench 4 (Fig 8)

This trench comprised a cutting 1.25m wide through the lowest dam of the earthworks complex. It was 9m in length. Its purpose was to try to ascertain the constructional method for this feature and to arrive at a dating sequence.

The lowest levels comprised contexts 81–84, 85–90 and 93–94 inclusive. These were relatively thin layers, up to *c.* 10–15cms. in depth, made up largely of gravels in clay matrices, clays and clay loams. The clays contained varying degrees of sand within them. Layer 83 comprised entirely a dirty greenish-grey sand. All these layers were heaped, one on top of the other, in a low bank with a rounded profile about one metre in height. Except where a later cutting (F68) had been made as a foundation trench for a brick wall, this bank was sealed beneath a layer of crushed chalk (context 69) mixed with clay.

Examination of the section diagrams seems to suggest that the original bank was once higher. Layers 81 and 87 have the appearance of being truncated and then covered by context 59. The top of layer 89 and layer 59 overlying it contained the earliest recognised dating evidence. Context 89 contained a few pieces of flint-tempered cooking pot.

Whereas the layers in the earliest dam seems to have been systematically laid, the succeeding levels, making up the phase two dam, overlying the crushed chalk foundation, comprised a single dump of firm clay (context 44) about 0.4m maximum height from the top of context 59. This would have made a dam at a height of around 26.3m OD, or approximately 2m above the natural ground surface.

Behind context 44 were darker clayey levels, containing varying amounts of silt (contexts 85 and

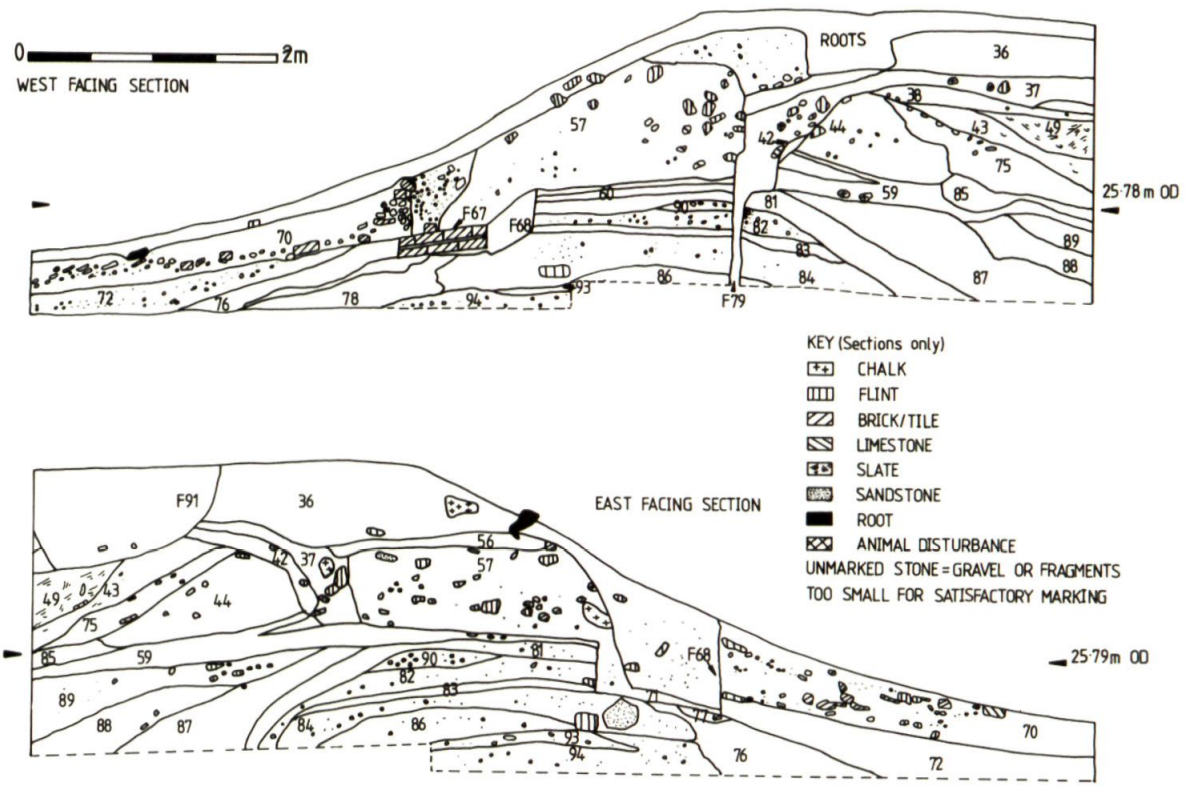

Fig 8. Trench 4, sections

75). All three levels (44, 75 and 85) contained amounts of fragmentary ceramic.

Context 44 had a clean cut northern face, sloping upwards at an angle of about 70 degrees. Like the earlier bank, it has the appearance of being truncated after its initial construction. Immediately in front of this face were four post-hole like features set in what appeared to be two parallel lines (F61, F63, F65 and F79). These were aligned roughly parallel to the cut face of the dam.

The levels overlying context 44 contained large amounts of rubbish, particularly slate and oyster shell. Contexts 43 and 49 also contained large amounts of other fragmentary artefacts. These layers were, in turn, overlain by a mortary layer containing fragments of flint rubble and limestone (context 37). This slumped over the northern face of context 44 but did not extend beyond the line of the post-like features.

Context 59 would appear to have been partially removed to the north of these post-holes. This layer is fairly thick south of the line of the post-holes but becomes little more than a thin smear of chalk to their north. It is overlain by a mixed layer containing many large flints and other building debris, including brick, in a clayey loam matrix (context 57). The clay context of this level was found to be variable.

Cutting context 57 a foundation trench (F68) was dug along the face of the now enlarged dam to take a brick wall (F67). It does not seem that this wall was built the full length of its intended trench. Squared courses of this feature appear in the east section of this cut, constructed with the intention to end the wall there and not use the full length of the foundation trench.

The foundation trench was associated with post-medieval ceramics. Further pieces of similar wares were found in the pond silts in front of this wall.

Discussion of Trench 4

The dam at the position excavated seems to have gone through at least four stages of building; two medieval, interrupted by a phase of dumping (*c.* 1425–1525) behind the dam, and two post-medieval. Each successive phase destroyed varying amounts of the preceding phases and so the outcome of each of the earlier phases cannot be attempted on the present evidence.

The first stage of dam building consisted of the construction of a bank made of systematic rammed layers. This only survives to a height of about one metre when it would appear to have been truncated in the possible preparation of a second dam. The earliest dam would appear to date from phase one (*c.* 1150–1300). This is reliant on the dating evidence of four pieces of the same pottery vessel which, if not redeposited, would make the most likely date for the first dam *c.* 1150–1250, with *c.* 1300 as a terminal date. However, if this piece is residual, the dating must rely on the dating of the sealing layer (context 59). This was dated to the late 13th/early 14th century. The dating for context 59 and the associated phase two dam would appear, on the evidence of trench 1, to be of later rather than early 14th century date. It seems likely therefore that the pottery in context 59 may be residual by about a century.

The sequence after this is fairly straightforward although the problem of residuality of artefacts still remains. The dumping behind the phase two dam cannot be any later than the Dissolution. The overwhelming bulk of the artefacts point to a deposition between 1425 and 1525. It is considered that the dump of materials behind the phase two dam (contexts 43 and 49) are associated with the fire of 1511 rather than the Dissolution although this would be difficult to prove exactly.

The phase two dam, like that of phase one, seems to have been truncated. Whereas the earliest bank appears to have been reduced in height, the phase two dam seems to be retained almost to its full height. It is not certain whether the post-holes represent a revetment that was in use on the face of the dam for any length of time or whether it merely served as a reinforcement so that context 57 would be thrown in front of it. Whatever the answer this work was undertaken after the phase 3 dumping had been completed. The rubble layer that abutts against the line of the post seals the phase 3 layers, forming a reliable division between the medieval layers proper and those that come after.

A date of *c.* 1700 for the phase four levels

seems likely. If this is associated with the posts (which is nowhere certain) it may represent the first post-medieval restructuring of the pond system. The final phase seems to date from the later 18th or early 19th century.

The pond silts themselves were not of the great depths expected from long neglected ponds. Although the excavation continued into sterile levels thought to be natural, there was no sequence of stratigraphy. The earliest datable artefact in the silts was a piece of marked pipe stem dated to *c.* 1711. Most of the datable material came from the period 1760–1850. From this it was concluded that the final phase (the brick wall) could be no earlier than the early 18th century but was unlikely to be later than about 1850.

Trench 5 (Fig 9)

Following the completion of the excavations in summer 1987, the author was asked to return to the site to observe a machine cut trench through the dam of the upper pond (Monk's Pond) prior to the building of a new sluice. Previously the water exit for this pond had been a pipe set in concrete. This was in danger of collapse. The decision to rebuild at this point was decided by the clear evidence for modern disturbance here.

The cutting proved, as was expected, that the dam had been rebuilt on a number of occasions in the last 200 years or so. This work had destroyed any possible earlier evidence.

The earliest level was a dump of pink-brown clay. This had been cut vertically along its south side at a later date and a brick wall was constructed along the back face of the dam. The wall survived to full height on the east side of the machine cut but on the west side only the foundation remained. To the south of this cut line was a deposit of mixed clays and clay loams.

Along the northern face of the dam was a timber structure. Timbers, in the form of five horizontal planks could be seen extending westwards into the undisturbed part of the dam. The exposed part of the structure was crudely made with no signs of nails or joints being visible. The remains of six horizontal planks were observed aligned north-south and at right angles to the timbers facing the dam. These seemed to have been merely balanced one on top of the other and held in place by a large vertical pile against their east side. This pile showed signs, through a flattening of its upper end, of having been rammed in place, probably with a large hammer-like instrument.

Discussion of Trench 5

The mixed dump on the north side of the dam was the latest level in this sequence. Ceramic evidence suggested that this was of 19th or even early 20th century date. The preceding stage was the building of the brick wall. It is not certain if the mixed dump had been thrown up immediately behind the wall or if the wall had acted as an exposed revetment for some time before the mixed dump was added later.

The wall was made of similar bricks to those found in the face of the lower enclosure; that is they were a later, post-1700, variety. It is suggested that the wall was built around the end of the 18th century or in the first half of the 19th. The absence of all but the founda-

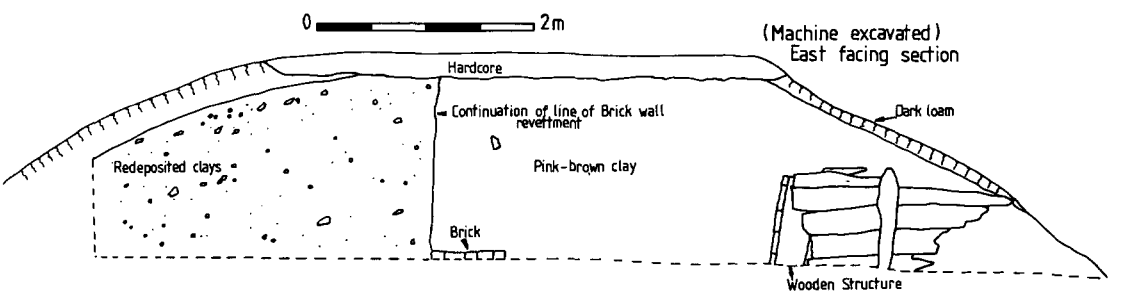

Fig 9. Trench 5, sections

tions of this wall on the west side of the cut is a mystery. It seems likely that the weight of the dam may have caused it to collapse although the levels behind it were so mixed that no evidence for this conjectured collapse was observed.

It seems probable that the pink-brown clay dates from an earlier period. This clay is extremely characteristic and was found in the lower enclosure dam overlying and sealing late medieval layers. Fragments of tile were found mixed in with this dump, some of suspected medieval fabric. However, these could easily have become redeposited here. No other dating evidence was found and so it is very cautiously suggested that this dump may date from the same period as similar materials in the lower dam. The outer limits for this level is *c.* 1550–1700, but it is not possible to be more precise.

The timber structure presents the problem of deciding whether it faced the original pink-brown clay dump or whether it was added as a later feature. Elizabeth Lewis of Winchester Museum observed the timbers and concluded that their crude workmanship indicated a post-medieval date (*pers. comm.*). This was confirmed by radio-carbon dating which gave a date range of *c.* 1530–1930.

There is some evidence that carpentry works may have been undertaken in this vicinity in 1699. Here a carpenter is paid for 'piling' work on a pond in the grounds of Southwick House (SM50/967). Although the exact location is not given, it may be suggested that the upper pond was a likely possibility.

19th century Ordnance Survey maps show a narrow inlet in the dam at the exact position of the timbers. This inlet was destroyed when the concrete pipe was laid through the dam. This was almost certainly a short channel directing water into a sluice of some kind. This "channel" is probably the timber work under discussion although the actual sluice itself was probably destroyed by later alterations. The continuation of timbers along the north face of the dam probably represents a reinforcement to prevent the weight of the dam from collapsing onto the sluice channel.

It is not possible to answer the question of whether the timbers are contemporary with the pink-brown clay level. They are probably not because documentary evidence has shown that dams, particularly in the vicinity of sluices were constantly having to be rebuilt. Sometimes the interval between replacement was as little as five to ten years (see below). Also because of its proximity to the sluice site, it is not possible to say whether the pink-brown clay represents the earliest dam. Again, the vicinity of the sluice makes this unlikely but until further work is done at this site, no definite conclusions can be drawn.

FISHPOND CONSTRUCTION: A DISCUSSION

The earliest mention of artificially constructed fishponds dates from the Roman period (Currie 1988a, 274, 283; Currie 1988c, 27–35) and although they are known on mainland Europe during the Dark Ages, they do not appear in England on a large scale until after the Norman Conquest. Recent research had shown that the earliest ponds after this date needed to be constructed under secular rather than monastic initiative (Currie 1989, 147–72).

Details for the construction of new ponds in the medieval period is scrappy. Most fishponds are first recorded as already extant features and although the accounts of repairs to dams, sluices and other appurtenances are often given at some length, the documentation of new pond constructions are rare.

An example is quoted by Robo (1935, 22–3) where the tenants of the Bishop of Winchester's manors refuse to cart timber and stone to construct Frensham Little Pond in Surrey in 1245–46. However, doubt has been expressed whether this work refers to the building of a brand new pond or the repair of an old one (Roberts 1986, 126).

Repairs to existing ponds are much more common. The best example is recorded by Salzman at the royal pond of Foss outside York (1967, 453–4) in the 14th century. Here a breached dam is to be repaired:

> ". . . and in the midst of the foresaid breach they shall rebuild another bay, which bays, behind and in the midst together with a houvetre (a grooved beam) in front, they shall strengthen and bind up crosswise with long and strong beams of timber, and shall also fill up the foresaid breach, . . . with great stones and clay . . ."

Such a reference helps to explain the numerous documented instances in 13th century royal records to the replacement of "bays" following the "breaching" of a fishpond. These bays are considered to be timber frameworks around which many fishpond dams are made, in the same way as medieval mill dams were constructed (Faull and Moorhouse 1981, 744). Thus at Marlborough, a royal pond in Wiltshire, it is recorded that a new bay is to be made in place of the old bay and the dam raised in 1239 (Cal. Lib. Rolls 1226–40, 415). This work is repeated in 1250 when the bays are to be "amended" and the dam "raised" (Cal. Lib. Rolls 1245–51, 294). The extent of such works is hinted at in 1271 after the pond is breached so that the fish can be taken. In order to carry out the repairs 170 oaks are taken from the local woods (Close Rolls 1268–72, 329, 353, 444).

Breaching of pond dams are standard practice in medieval times to help get at the fish during fishings. It also helped in a variety of management tasks such as the removal of mud and repairing of sluices, both difficult operations without draining the water off to begin with. To help in this ditches were often dug to divert streams around the pond whilst the dam was breached. The latter often involving the digging away of the "bay" of that dam nearest to the sluice (Currie 1988a, 273–74; Roberts 1986, 132–5; Currie 1985, 21–2).

It is the recorded works during these "breachings" that hint at the complexity of medieval dams. The most detailed expositions of such work is given in the bishop of Winchester's Pipe Rolls for the 13th and early 14th centuries, of which only snippets can be given here.

In 1252–53 the dam of the bishop's great pond at Alresford is "broken" (*ad frangendum vivarii calcatum*). Once broken the fish are taken to ready prepared holding ponds at nearby Bishop's Sutton for sorting; the best fish to be kept while the remainder are returned to the restored pond to grow larger. Works on the repair of the dam include the carriage of wood and timber for rebuilding the sluice and other works. A carpenter and a master dyker (*magister fossiturum*) are employed and iron stakes (*stapelis ferris*) are rammed into the dam. Grease for the sluice, patches and nails are brought to help in this work (HCRO Eccl 159293).

Further details of the work involved in such undertakings is given at the ponds at Bishop's Waltham in 1257–58. Carpenters are again employed to work on the "broken" pond, hurdles (*clatis*) and boards (*bordis*) are ordered and earth is removed from around the sluice (*terra amovend' a loco excluse*). While this is going on a small pond is constructed to hold the fish (*In cepo in vivarii parvo faciendo ad pisces retinend'*) (HCRO Eccl. 159293).

Such works are repeated frequently throughout the 13th century. At the 'great pond' of Marwell three men are employed for 12 days in making a foundation for a sluice and for "ramming" in 1262 (*In quandam magna exclusa de noua fac' ad vivarium magnum de merewell lxxiijs. In fundamito eiusdem excluse fac' et rammand per iii nomines per xij dies*) (HCRO Eccl. 159294). At Frensham in 1282 timber is carried from "Colenor" to the pond after a breaking, along with clay and earth to make up the defect in the dam (*In caratio locatis ad carianium? meremium de Colenor ad ipsum vivarium et arsimus et terram ad perimplend' defect' super caput eiusdem vivar'*) (HCRO Eccl. 159305). Other details given here include the digging of ditches, the making of iron rods for supports, bringing piles and making a new sluice, a quay (*capum*) and a bridge across the sluice (*exclusam ibidem ponend'*). There are further details of repairs to ponds at Marwell in 1283 (HCRO Eccl. 159309) and 1298 (HCRO Eccl. 159317) and again at Frensham in 1299 (HCRO Eccl. 159318).

Although it is possible to guess what the exact finished products of these works would have looked like, it is not until the post-

medieval period that treatises begin to appear that explain what was done with the "stakes", "piles", "boards" and "ramming" mentioned in these accounts.

The earliest of these is written by a Dutchman, Janus Dubravius in 1563. Here it is recorded that not everyone agrees on the best method for making fishponds. The author then summarises some of the alternatives before concluding that his method is the most reliable.

He recommends raising the dam "little by little", ramming each successive layer and reinforcing the face of the dam with posts (Churchey 1599, 10–1). He also talks of sluices of oak and describes a water gate which, when lifted, will allow the water to run out. Diversion ditches are mentioned to take "flood waters" away from the pond (1599, 13).

Although the next writer on fishponds, John Taverner (1600) acknowledges his debt to Dubravius, there are some major differences in their recommendations. Taverner does not like to put timber in the dam, preferring to ram successive layers of earth on top of one another, without the use of a timber framework although it is implied that others prefer this method (1600, 4). He urges his readers to camber their dams outwards so that the face is sloping down into the pond otherwise timber will be needed to revet the inner face (1600, 3). Sluices are mentioned that contain boards to bring the water up to the required level in the gate (Taverner 1600, 5).

Markham, writing in 1638, argues that dams are best made by driving stakes and piles into the ground and ramming earth down hard between them until the required height is reached. The sluice should be made of oak timbers and planks and to be of such a design that it is possible to drain the pond at any time (1638, 46). These ditches are taken up by later writers such as Walton (Aston 1988, 192), Mortimer (1707, 224) and Hale (1756, 250), although North, writing in 1713, seems to prefer Taverner's method of rammed clay on its own (Aston 1988, 192).

Modern fish farmers consider that the drainage of ponds for fishing and repair work is much aided by the use of diversion channels (Currie 1988a, 273–4). These are common features on medieval pond sites and have been recorded in many different parts of England (Currie 1988a, 267–89; Welsh and Currie 1986, 18–9; Bond and Chambers 1988, 361).

These features are only mentioned by Dubravius and Taverner (1600, 8) to convey away surplus water without referring to their other advantages. The French writer, Estienne, writing in the 16th century recommends such ditches so that ponds can be drained "during the time of the fishing" and also to remove mud and "unprofitable weeds" (1600, 647). Hale (1756, 251) also recommends diversion ditches to allow ponds to be drained individually without disturbing other ponds along the watercourse. The destruction caused by liquid and leaving a breached pond can be very considerable as has been observed by this author. However, not all are unanimous on diversion ditches. Mortimer says they are only necessary where "floods are too violent" (1787, 225).

Aston is of the opinion that the writings of Dubravius, Taverner, Walton and North represent knowledge that had been accrued over the medieval centuries (Aston 1988, 187) and so were not innovations as suggested by Hickling (1971, 123). Knowledge of Roman techniques reported in Currie (1988c, 27–35) suggest that much of this knowledge may have had even earlier origins. It seems that the techniques described above can be accurately related to the works recorded on the Bishop of Winchester's ponds in the 13th century.

It is therefore possible to suggest that the evidence recovered at Southwick in no way contradicts the written sources. The constant renewal of parts of the dam could explain the successive phases visible in the dam of the lower enclosure. Here there is evidence for careful ramming of layers in the earliest medieval levels. When the dam was raised at some time after *c.* 1300, a layer of chalk and clay was rammed down to form a foundation. Mortimer records that a good method to secure "false" or unstable foundations to dams is to lay down a level of lime (1707, 224). It would seem that

the Southwick canons considered crushed chalk as a suitable alternative and this is hinted at in a 13th century priory document where chalk is proposed to be used for the repairs to a mill, although it is not specified whether this material was meant for the building itself or the mill dam (HCRO IM54/1, f19b).

It might be suggested that medieval dam construction methods were more thorough than later efforts. The most careful laying of earth in a dam at Southwick is in the earliest levels, probably dating to the late 12th or 13th century. This careful ramming technique is paralleled in the earliest dam at Titchfield Abbey (Currie 1986b, 19–21) and has been observed in another suspected medieval dam on Titchfield Common (Currie 1985, 22; Currie forthcoming b).

The later medieval dam at Southwick seems to comprise a mixture of ramming (the chalk layers) and dumping, whereas post-medieval techniques here seem to rely on timber revetments (later in brick) and the simple dumping of earth. This can be seen in the earliest level in the upper pond dam.

This level, probably 16th or 17th century, at least comprised good firm clay that had been clearly carefully chosen. The phase 4 level in the lower dam, dated *c.* 1700, was just a dump of mixed materials and the latest layer at the back of the upper pond dated *c.* 19th century, was little more than a dump of the nearest available earth that may not have been watertight without the better clay in front of it.

CONCLUSIONS

The conclusions drawn are that the excavations at Southwick showed that the lowest of the fishponds dated to the medieval period. Although precise dates are difficult, it might be suggested that this pond existed by 1300 at the latest. This was subsequently rebuilt, possibly with a heightened dam and an enlarged flooded area. This enlargement seems to have taken in part of an earlier cemetery. This pond was rebuilt again, around 1700, when it would seem to have been enlarged once more, but probably also in the 16th century when a timber revetment was put along the inner face of the dam.

At some time in the post-medieval period the upper pond was either rebuilt or started anew. It is possible that the pink-brown clay layer represents a dump placed in a previous breach although this cannot be proved on present evidence. It is not certain whether the timber works in the upper pond dam are contemporary with this work or whether they are replacements to an earlier revetment along the front of the dam. The timbers themselves are thought to represent one side of an entrance channel leading into a sluice gate of some sort. The other (eastern) side of this channel was probably destroyed when the 20th century pipe in concrete was set in the dam. Cartographic evidence suggests that at least a similar channel or outlet was still in position in the late 19th century (OS 25″ map; sheet Hampshire LXXV.3; 1879 ed).

It is noticeable throughout the successive phases how the quality of the workmanship seems to decline, particularly after the early post-medieval period. This may be a reflection of importance of the ponds to their respective owners.

By the late 18th century it is thought that the current surface earthworks had formed, possibly by this time as ornamental features as much as functional fishponds although the two purposes could have easily overlapped.

The outstanding lesson of this exercise is the caution that should be taken when interpreting surface remains. It has already been suggested by Chambers that surviving fishpond earthworks often represent the final stage in what may have been a long sequence of development (1988, 124).

However, the sequence at Southwick would appear to be far more complex than had been hitherto expected. This was not to be foreseen by the author's excavations of a pond at Titchfield where, although the pond dam and the water exits were repaired on at least two occasions after the initial construction, the overall layout of the pond does not appear to

have been significantly altered (Currie 1986b, 19–21). The original layout of the monastic pond system at Southwick can only remain guesswork at present.

The monastic fishponds existed from a relatively early date in the priory's history but subsequent alterations, both in the later medieval period and in the post-medieval period seem to have considerably altered or modified the original system.

It can be seen, nonetheless, that the results of the excavations seem to be confirming the documented evidence for fishpond construction and use. This being the case, they can be shown to be worthy subjects for detailed examination and the careful siting of trenches can be shown to obtain the sort of material evidence that has hitherto been "rarely recovered" (Chambers 1988, 125).

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Author: C K Currie, 15 Claudeen Close, Swaythling, Southampton S02 2HQ