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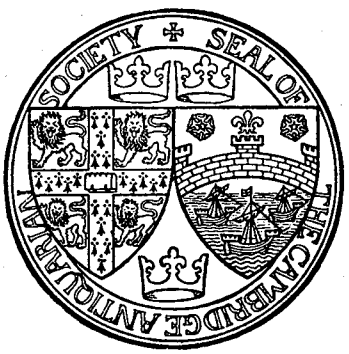

VOLUME LXXIII

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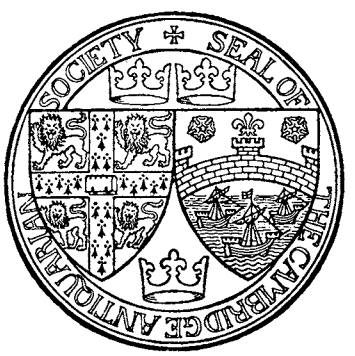

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EXCAVATION OF THE TOWN DITCH AT SWAVESEY, 1984

DAVID HAIGH

Pollen Report by Dr A. Alderton

With a note by N. James on a further excavation in 1985

A short excavation was carried out by a team of archaeologists working for Cambridgeshire County Council and the Manpower Services Commission in advance of development at Thistle Green, Swavesey. The main aims of the excavation were to confirm the location, date and function of the medieval town ditch postulated by Dr Ravensdale in his historical survey of the village. Two trenches were excavated which confirmed the line of the ditch with its associated bank, and produced finds which suggested a thirteenth-century date for its construction. The environmental evidence showed that the ditch had been kept fairly clean and normally held standing water. It also seems to have acted as a

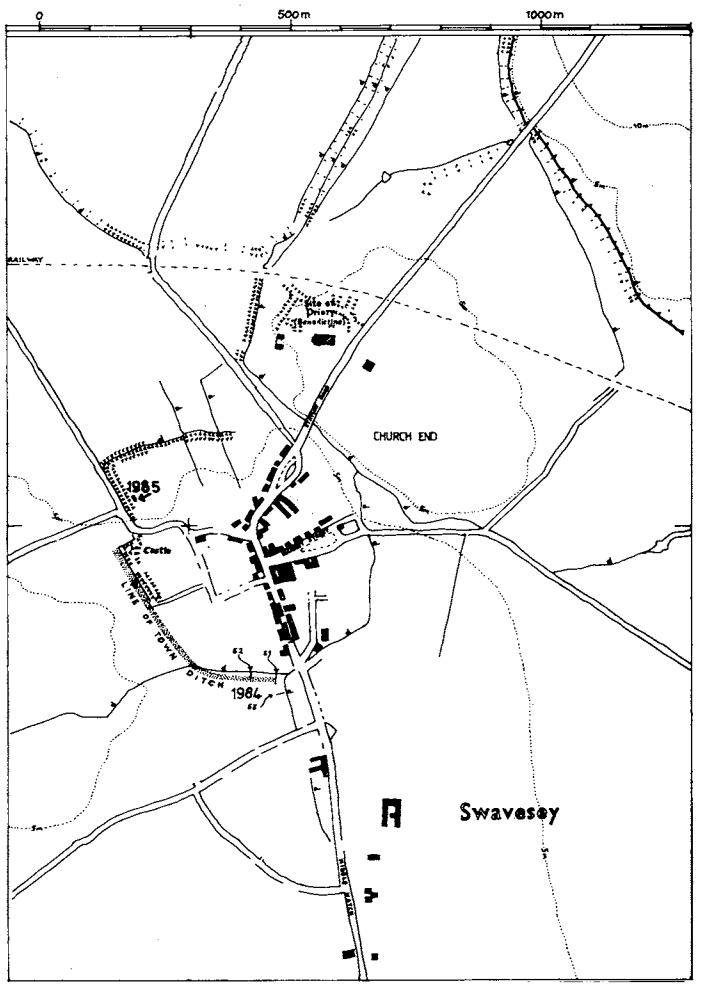

Figure 1. Swavesey, suggested course of town ditch (west side only).

flood defence, before being partly filled in during the fifteenth century. A third section was cut through what appeared to be a similar earthwork running southwards from this ditch along the eastern edge of Thistle Green. This earthwork turned out to be no more than the natural slope of the ground accentuated by the cutting of a nineteenth-century drainage ditch (Figure 1).

Trench 1 (Figures 2, 3)

A 4 × 20 m trench was excavated at right-angles across the line of the medieval ditch, where it ran adjacent to the modern drain which flows under the bridge known as the Turnbridge. This trench revealed a shallow flat-bottomed ditch some 2 m deep and 8 m wide, with steeply sloping sides. The ground continued to slope gently upwards on either side to form low ridges 14 m apart. On the south side this showed as a slight rise almost 1 m high, and it is suggested that this was formed as the result of repeated dumping of silts cleaned from the ditch. On the north side of the ditch, the bank rose at a slightly steeper angle until it was cut away by the modern drain forming the boundary of the industrial area.

The initial silting in the ditch was a thin deposit of silty clay which had washed in prior to the deposition of a layer of marly sediment *c.* 0.20 m deep which had been deposited within the freshwater-filled ditch. The small number of finds from these two deposits, which included a few pieces of pottery and animal bones, shows that the ditch had been kept scrupulously clean, and that domestic rubbish was never allowed to accumulate, no doubt because of the ditch's apparent function as a flood defence. The pottery suggests a fifteenth-century date for this silty clay and the marly deposit.

The rest of the ditch fill consisted of a uniform mass of clay with slight traces of earth and marl, which completely filled the ditch. The same uniform clay fill was found at both the other points where the ditch was sectioned. This clay fill appears to consist of the clay subsoil, dug out when the ditch was first excavated during the late twelfth or early thirteenth centuries, which had been piled up on the inside of the ditch to form the internal bank, which can still be seen adjacent to the castle. After the ditch was no longer required, part of it was backfilled with the bank material. It appears that this backfilling took place so quickly that few contemporary finds were deposited in it, and the only finds from the sections excavated by us were fragments of animal bone and pieces of twelfth/thirteenth-century pottery. The early date of these finds suggests that the ditch had been deliberately slighted in a single operation, and that the finds within it were deposited during the construction of the bank rather than during the backfilling.

It is probable that the ditch had been periodically cleaned out, although there was no sign that silt had been dumped on the adjacent banks. Certainly the finds within the ditch silt seem only to have accumulated during the fifteenth century. Presumably the ditch silts were either spread on the adjacent fields or were piled beyond the bank where they have since been removed during the building of the industrial estate. Regrettably it is impossible to tell by using the botanical evidence how long the marly deposit took to form; however Dr Alderton has shown that the ditch carried flood water periodically and that the normal level of standing water rose gradually during the time that the silting took place. It seems clear therefore that the ditch was kept open as much for drainage as for defensive purposes and that its importance as a drain increased throughout its life. It is possible that the level of fresh water at this time was sufficient to allow hemp retting to take place in an adjacent part of the ditch, as *Cannabis* (Hemp) pollen was present. (We are indebted to Dr A. Alderton for her fascinating pollen report for this site, which forms an appendix to this report.)

Trench 2

The second trench was opened to examine what appeared to be a continuation of the southern bank at right-angles to the medieval ditch. This bank ran along the west side of what was supposed to be an eighteenth-century drain running southwards from the Turnbridge ditch, which implied that the drain followed the line of an earlier, perhaps medieval ditch. This bank ran parallel to, and *c.* 3 m from the lip of the modern ditch and was therefore unlikely to be formed from silts cleared from the modern ditch. The trench showed that the low bank was the edge of a slight change in the level of the subsoil which coincided here with the line of the modern ditch. The section was however interesting in that it confirmed the nature of the undisturbed subsoil here.

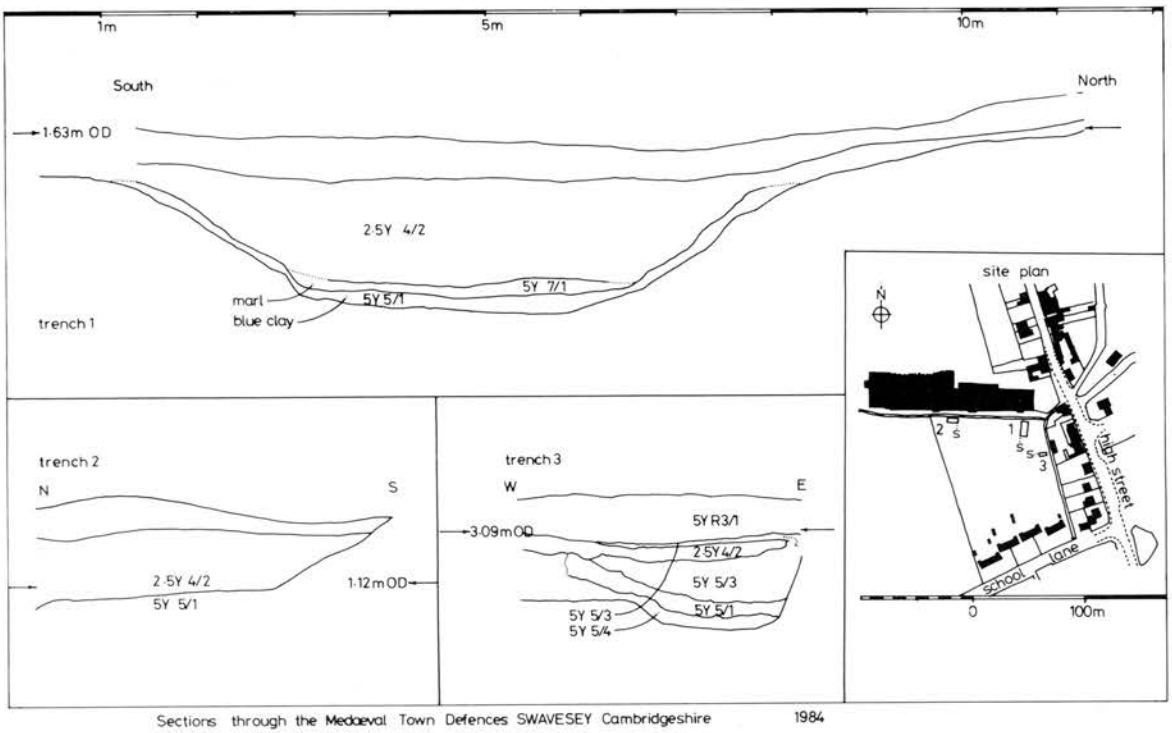

Figure 2. Swavesey, location of trenches and ditch sections.

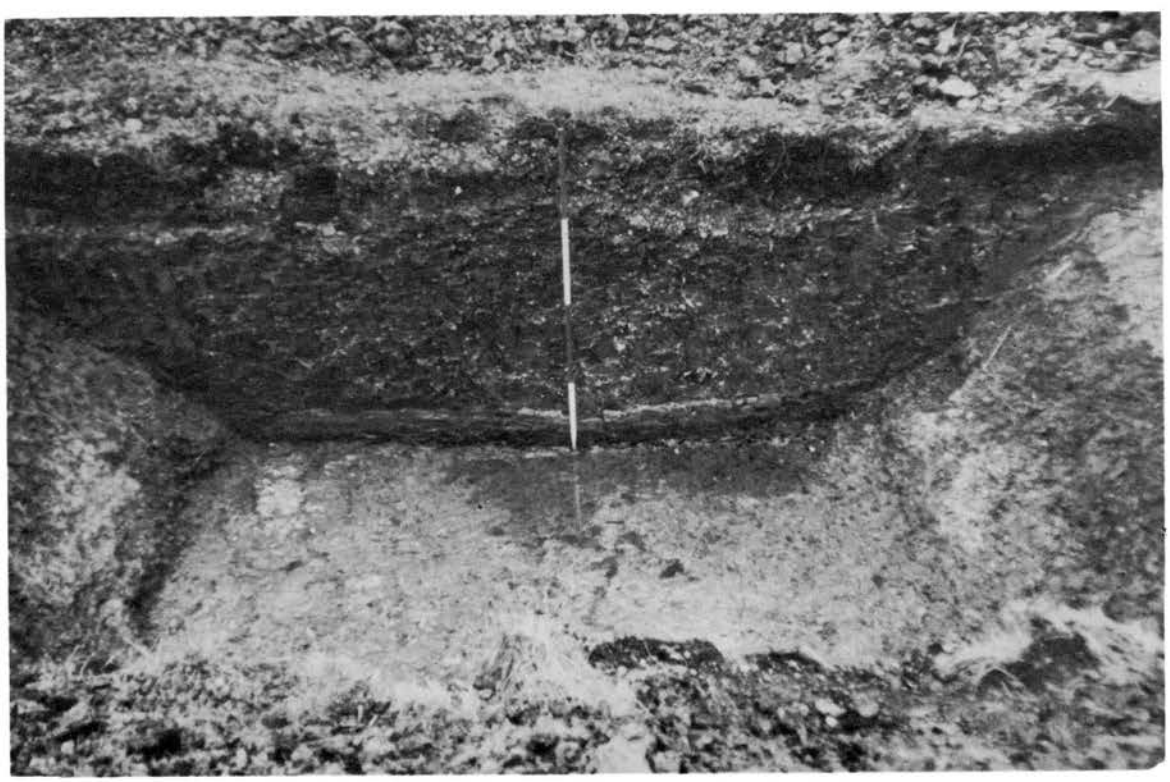

Figure 3. The town ditch Swavesey, trench (1) looking east.

Trench 3

The third trench was cut to confirm the line of the medieval town ditch at the eastern limit of the available piece of ground. It showed that the line of the medieval ditch had converged with the line of the modern drain, and only the slope from the southern bank to the lip of the ditch was revealed. The lip of the ditch was discernible at the edge of the section. The published third section shows this slope.

Earlier in 1983, Alison Taylor and John Shepperson had noted a section that apparently cut through the town ditch further to the west. The cut was made during the construction of a drain outlet and adjacent garden wall during the building of the first phase of the development on Thistle Green. They referred to the fill of the ditch being a uniform black silt, unlike any found during the excavation. In an attempt to resolve this problem it was decided to try to define the course of the ditch westwards from the site of the excavation towards the castle.

The section of ditch and bank between the castle and the north side of the industrial area is well preserved, with the bank surviving to a height of 4 m and a width of 7 m. The ditch is much overgrown and partly filled in at its southern end, but is still clearly visible. If the line of the ditch here is projected in a straight line across the industrial area, it reaches the modern drain running along the south side of the industrial area. This projected line takes the course of the town ditch to the modern drain at the point where it runs through two slight bends before continuing on what is otherwise a straight course towards the Turnbridge.

It is suggested that these bends mark the actual point where the modern drain cuts into the line of the now filled medieval town ditch. This point is some 5 m to the east of the place where the ditch was seen to be full of silt to a depth of at least 2 m. As the present depth of the modern drain is no more than 1 m at this point it was assumed that this silt must be the fill within the town defensive ditch. Since this point lies outside the proposed course of the defensive ditch and as the fill seemed totally different from those seen elsewhere in the town ditch, it was decided the matter needed further investigation.

The depth of the modern drain was measured here using an auger, and again where it ran parallel to, rather than along the line of the former town ditch. It was found that the present size of the drain is a fraction of its original size and that it was originally at least 2 m deep and some 5 m wide from bank to bank. It was clear that the silts revealed on either side of the drain were no more than the lower levels of this modern drain, which had not been cleared out properly after being allowed to silt up gradually.

The reasons for the construction and the functions of this defensive work have been discussed by Dr J. Ravensdale in his paper on the history of Swavesey (*PCAS* LXXII (1982–3), 55–8). He suggests that the defensive works including the bank and ditch and the castle were probably dug in the last quarter of the thirteenth century.

> When the de la Zouch's corn was burned, the church was also attacked and the chest rifled. One is tempted to imagine that the defences of Swavesey were, like those of Burwell and Rampton in the previous century, merely an emergency measure against the threat from the barons in the Isle of Ely, possibly after the assault and burning of 1267.

However, Dr Ravensdale thinks that the totality of the evidence suggests a longer-term purpose, the planning and fortification in the thirteenth century by the Zouch family of what was intended to be a town. Whilst this would appear to have provided the initial impetus for the construction of the ditch, it is clear that the usefulness of the feature as a drainage channel was such that it was kept open until at least the end of the fifteenth century. I would also suggest that the large enclosed area of pasture within the defence work on the north side of the village was used in time of flood to keep the beasts which would normally be allowed to graze on the fen area beyond. The efficacy of the bank and ditch as a flood defence was proved as recently as 1947, and this continued use would explain why the ditch was kept open on the sides of the village most exposed to flooding. Support for the dating of the earthwork has also been provided by documentary evidence. Dr Ravensdale reports that, in the 1476 Rental of John Norton, Prior of the Carthusians, who had held Swavesey Priory since 1411, the 'Castell croft' and thirteen other pieces of land are described as *garisonabilis*. While the exact meaning of the term in this context is being debated, it might be worth noting that the last time (according to the archaeological evidence) when the ditch was cleared cannot have been long after the date of the rental,

nor could it be far removed from the period of disorder when old ramparts, capable of being put in defensive order, would have been useful.

The marly deposit and the clay filling above it were sampled by Dr A. Alderton of the Fenland Research Project. Her findings are published in detail below. The rental referred to by Dr Ravensdale is in the Cambridge University Library, EDR D6/1/5.

Acknowledgements

Thanks are due to Drs A. Alderton and D. Hall for their environmental work, and to Mr J. Shepperson, Dr J. Ravensdale and Miss Alison Taylor for their expert local knowledge and assistance throughout the course of the excavations, which were funded by the Manpower Services Commission. Mr James' work received a small grant from English Heritage.

SWAVESEY VILLAGE DITCH – ENVIRONMENTAL REPORT

Dr A. M. Alderton

A monolith was taken through the primary marl infill of the ditch in Trench 1, where it was best developed (*c.* 15 cm thick), 2 m from the southern limit of the marl. Unfortunately the upper boundary was lost in the process. All measurements are therefore given in millimetres upwards from the base of the ditch cut. The stratigraphy is as follows.

Stratum	Depth (mm)	Description
5	80–106	Pale yellow (Hue 2.5Y 8/4) shell marl with abundant shells, Characeae oogonia and ostracods. Some orange mottling. Lc As1 Ld+ + Dg+ Ag+.
4	54–80	Brown (10YR 5/3) silty shell marl with abundant shells, Characeae oogonia and ostracods. Lc2 AsAg1 Ld1 Dg+ + upper transition sharp and level.
3	*c.* 48–54	Light grey (2.5Y 7/2) slightly clayey shelly marl, very platy structure. Upper boundary partial blue clay lamina/gradual change.
2	0–*c.* 48	Olive grey (5Y 5/2) slightly silty and shelly calcareous clay, As2 Ag1 Lc1 Dg+ + Ld+, with laminae of beige shell marl variable in thickness (<0.5–1.5 mm) and frequency. Basal 20 mm unlaminated. Fine quartz and flint.
	(Base of ditch)	
1	0	Dark grey (7.5YR N4.0) oxidising to strong brown (7.5YR 4/6) very stiff calcareous silty clay, some mottling. Upper boundary level, slightly irregular with tongues of stratum 2 penetrating down.

The initial fill is a silty clay which above *c.* 20 mm developed irregular marl laminae increasing in thickness upwards. Above 48 mm the sediment composition is more homogeneous, with a clayey marl grading into a purer shell marl at the top. Organic remains also increase in frequency upwards, with wood fragments near the top. The upper boundary of stratum 5 is irregular, probably due to loading by the overlying fill.

Pollen analysis (Figure 4)

Six samples were taken through strata 2, 3 and 4. They were subjected to the current pollen preparation procedures of the sub-department of Quaternary Research, Cambridge. A minimum of 500 dry-land pollen was counted and the results were given (Fig. 4) as percentages of this figure (the pollen sum). Nomenclature follows Clapham, Tutin and Warburg (1962). Pollen concentration (nos/cm^3) values (available from the author) show a declining pollen concentration up the profile. The high basal values probably result from slope-wash and the decreasing values are due to the increased calcareous precipitation by charophytes (stoneworts).

The pollen was all in extremely poor condition, but shows the dominance of herbs and the dearth of trees and shrubs. The common herbs are Gramineae (grasses) and the plants from open cultivated or waste ground, *Plantago lanceolata*, *Centaurea cyanus*, Compositae, Chenopodiaceae, Cruciferae, *Rumex acetosa* type, etc. Some of the grass values, along with Cyperaceae, *Filipendula* and *Thalictrum* probably emanated from the fringing vegetation in the ditch, but the overall picture is from the surrounding dry-land vegetation. Arable cultivation is indicated by the curves for cereal type at the base, and *C. cyanus*, but weed and pastoral taxa predominate above this. However, inferences on changing arable and pastoral land use based on these assemblages are not without their problems (Edwards, 1979).

Evidence of inwash of material from older sediments comes from the presence of pre-Quaternary microspores at the base.

The increase in aquatic taxa through the diagram shows that the water level in the ditch was rising. *Salix*, which was probably growing on the ditch sides, was replaced by shallow-water vegetation comprising *Sparganium* type, *Typha latifolia*, *Menyanthes trifoliata* (bogbean) and *Hydrocotyle* (pennywort).

One notable occurrence in the pollen assemblages is the continuous curve for Cannabaceae. The majority of

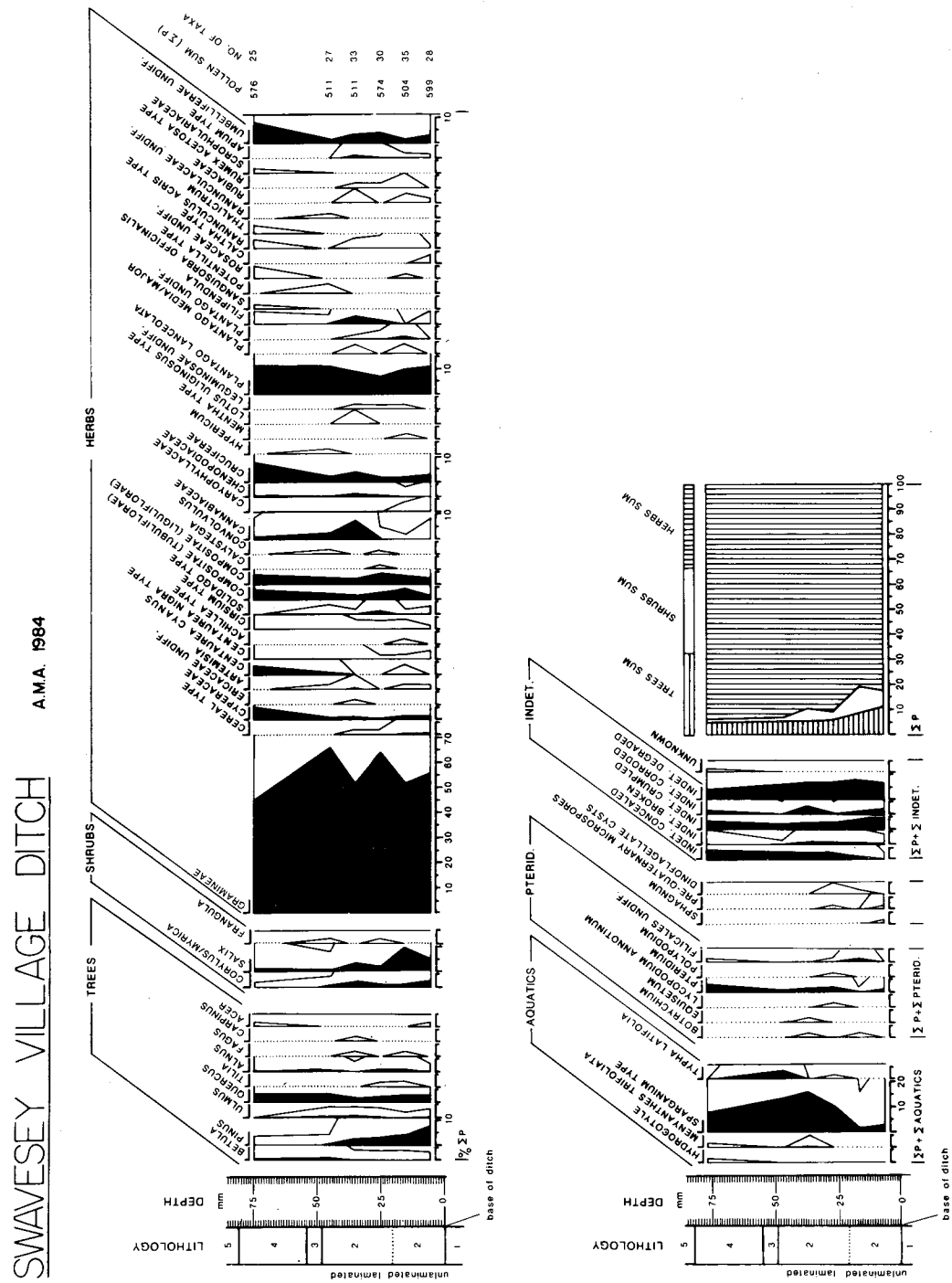

Figure 4. Pollen percentage diagram for Swavesey ditch.

Scale at base of diagram gives percentage for black silhouettes; unshaded silhouettes are exaggerated $\times 10$ scale.

Abbreviations: Pterid. = Pteridophytes; Indet. = indeterminable.

grains were too poorly preserved to allow separation of *Humulus* (hop) from *Cannabis* (hemp); however, of those that were securely determinable (Godwin, 1967) only *Cannabis* pollen was observed. It is reasonable to assume therefore that the curve represents only this species. Godwin (1967) and Bradshaw, Coxon, Grieg and Hall (1981) review the increasing palynological and documentary evidence for *Cannabis* cultivation from Tudor times to the present day in Britain and Europe, where it is associated with the same clearance herbs as occur here. Bradshaw *et al.* also propose that hemp retting was carried out in pools in East Anglia and Yorkshire. However, at Swavesey the amount of pollen is not such as to suggest retting in (at least this part of) the ditch itself, but it cannot be ruled out. Also, unlike at the proposed retting pools of Bradshaw *et al.*, no achene of hemp was found at Swavesey. However, it is interesting to note that the peaks in both the percentage and concentration curves coincide with the maximum waterlogging of the ditch when conditions would have been optimal for retting. It may be that retting was carried out in an adjacent length of the ditch.

Table 1

	Depth (mm)		
	20–30	30–45	60–100
Potamogeton sp. (pondweed) fruitstone	1	1	–
Ranunculus subgenus *Batrachium* (crowfoot) achene	–	–	1
Lemna sp. (duckweed) fruit	–	4	–

Plant macrofossils (*Table* 1)

No macrofossil was obtained from a sample of horizon 5. However, odd remains were isolated from pollen and mollusc preparations.

All taxa are aquatic, and *Lemna* favours still or stagnant waters. Charophyte oogonia increase in frequency upwards, reaching a maximum in horizons 4 and 5. They prefer still, quiet or even stagnant water, with a sandy or muddy floor (Fritsch, 1935). They cannot withstand turbid water, which may account for their scarcity in horizon 2. Here there is much more mineral material, indicative of active inwash and a high suspended sediment load. Murphy (1983) found a similar sequence in Bronze Age pits at Mildenhall and suggested that during occupation of the site pollution and high turbidity inhibited stonewort growth. They flourished only as the water became clearer and purer on abandonment.

Diatom samples taken from each of the ditch-fill strata proved to be disappointingly barren, with only the odd degraded *Pinnularia* sp. from horizons 3 and 4.

Table 2. *Swavesey Village Ditch – mollusc samples*

	A	B
Valvata cristata Muller	14	130
Bithynia tentaculata (L.)	91	121
B. leachii (Sheppard)	50	40
B. opercula	279	218
Lymnaea stagnalis (L.)	—	20
L. peregra (Muller)	19	20
Planorbis carinatus	5	27
P. sub-genus *Planorbis*	37	30
Anisus vortex (L.)	5	9
Armiger crista (L.)	65	41
Hippeutis complanatus (L.)	3	9
Acroloxus lacustris (L.)	1	4
Pisidium obtusale (Lamarck)	—	7
Pisidium sp.	1	—
Succinea cf. *putris*	—	2

Molluscs (Table 2)

Two samples were analysed from the marl: (A) from the top of horizon 2 at 30–45 mm and (B) from strata 4 and 5 at 60–100 mm. After drying, 100 g of each sample was disaggregated in hydrogen peroxide, sieved and the molluscs and other remains extracted. All gastropod apical fragments were counted. The counts for bivalves are numbers of individual valves. Nomenclature and order follow Kerney (1976) and Walden (1976).

Identification of some juvenile *Bithynia* (*c.* 25 per cent of the total *Bithynia* individuals) was not undertaken. Instead they were separated in the same proportion as the adults. The counts for *Planorbis* subgenus *Planorbis*

consist of those that cannot be identified to species level with any certainty. However, they can confidently be attributed to *P. carinatus*, as only that species was present.

If the counts for *Bithynia* opercula reflect the true numbers of that genus then it dominates both samples. The two assemblages are comparable, the only (minor) differences being in the relative abundance of *V. cristata* and the appearance of *L. stagnalis* in sample (B).

The taxa are exclusively fresh-water in (A), and there is only one marsh species in (B). There is no inwashed dry-land form. The species are characteristic of hard, slow-flowing or stagnant water. Some water movement is suggested by the presence of *A. vortex* and *P. milium*. *B. leachii* and *P. carinatus* indicate a water body of some size, not an isolated pool. Many of the taxa suggest the presence of plants, and several prefer thickly weeded water. A fringing vegetation would have supported *S. putris*.

Bones

Small amounts of bone were recovered from the two mollusc samples and identified by Dr A. J. Stuart. The bones were extremely fragmentary.

Sample (A) produced bones (including a maxilla) of frog, not identifiable to species. Sample B contained spines and body armour of 3-spined stickleback (*Gasterosteus aculeatus* L.) and an unidentified amphibian.

The pits from the fen-edge site at Mildenhall also contained bones of frog and stickleback (Murphy, 1983).

Conclusions

The ditch section studied should be somewhat characteristic of quite a length of the ditch, as the marl did not develop in an isolated pool as certain molluscs indicate. It was a large water body, suggesting widespread waterlogging. The biological evidence shows that this was a permanent base-rich weedy ditch, probably with at least some periodic water movement. Initially the water was shallow, and as the water level rose aquatic plants, molluscs and fish moved in. Stoneworts could grow and facilitate development of a marl.

The surrounding area was already extensively cleared of woodland and some arable cultivation was going on. *Cannabis* was growing locally and/or retted in the ditch during its wettest period.

Acknowledgements

Thanks are due to Dr R. C. Preece for verification of certain mollusc specimens, and Dr A. J. Stuart for identification of the bone fragments and to Tim Malim for general assistance.

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An archaeological investigation within the fortified enclosure at Swavesey, in 1985 Nicholas James

In 1985 the County Archaeology Office conducted a small excavation in advance of building the club house for new tennis courts within the enclosure adjacent to the site of Swavesey Castle. Thanks are due to Drs Ravensdale and Richards for advice.

The enclosure occupies a gravel terrace to the north-west of the market place. We cleaned down to the gravel without finding any clear feature. In addition, a sondage was cut at the inner edge of the bank, confirming that the stratigraphy was undisturbed by cultural activity: this means that except

at the north-west corner of the enclosure, where it forms a considerable mound, the bank itself was a relatively modest earthwork. Our excavation corroborates Ravensdale's and Haigh's suggestions that the enclosure was not used intensively and the ridge-and-furrow within and outside remains undated. A fuller report is filed with the County Archaeology Office.

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