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THE BISHOP OF WINCHESTER'S FISHPONDS IN HAMPSHIRE, 1150–1400: THEIR DEVELOPMENT, FUNCTION AND MANAGEMENT

By EDWARD ROBERTS

ABSTRACT

In the Middle Ages, fresh fish taken from specially constructed fishponds was a luxury food. The bishops of Winchester could afford to make fishponds near most of their residences in Hampshire. The development and management of these ponds are recorded in the pipe rolls of the bishopric of Winchester, of which 150 survive from the period between 1208–09 and 1399–1400 (Beveridge 1929). The material in this paper has been principally derived from an examination of a selection of 90 bishopric pipe rolls from this period.

DEVELOPMENT

The medieval bishops of Winchester held large estates which ranged across the counties of southern England (Hall 1903, xvi–xvii). The income from these estates enabled them to build and maintain fishponds at Brightwell and Harwell in Berkshire (Holt 1964, 57, 61), at Witney in Oxfordshire (Hall 1903, 17), at West Wycombe in Buckinghamshire (HRO. Eccl. 159290) and at Taunton in Somerset, where there was a 70 acre pond (Hall 1903, 65; Leach 1984, 76; Somerset County Gazette 24.12.1982). In Hampshire (see Fig 1 and Appendix), there were episcopal fishponds at Alresford, Highclere, Marwell, Bitterne, East Meon, Bishop's Waltham and Bishop's Sutton. Largest of all was the magificent Frensham Great Pond which still covers 100 acres on the Hampshire-Surrey boundary.

A majority of these ponds seem to have been constructed in an extraordinary burst of activity between *c* 1150 and 1208. None of the bishops' fishponds in Hampshire is mentioned in Domesday (Darby 1962, 341) and they are unlikely to pre-date the middle of the twelfth century when purpose-built fishponds began to be made in England (Steane 1970–71, 301; McDonnell 1981, 14). On the other hand, most of them cannot post-date the early thirteenth century, for the bishopric pipe rolls of that period describe them as going concerns. Of the ponds outside Hampshire which have already been mentioned, only West Wycombe post-dated the earliest pipe roll of 1208–09. Of those in Hampshire, Bitterne, Bishop's Sutton, East Meon and Alresford ponds were noted as going concerns in 1208–09 (Hall 1903, 31, 41, 45, 61), Frensham and Bishop's Waltham ponds in 1210–11 (Holt 1964, 41, 116) and Marwell in 1217–18 (HRO Eccl 159274).

Why did the bishops of Winchester spend considerable sums of money on building fishponds during such a relatively short period of time? A plausible economic explanation lies in the burgeoning profitability of demesne farming in the late twelfth and early thirteen centuries which encouraged both an interest in landed estates and in the investment of new wealth in conspicuous luxuries, such as deer parks and fishponds (Platt 1978, 47–8). A partial explanation, however, must lie in the wealth and enthusiasm of individual bishops. The first bishop of Winchester to construct fishponds was almost certainly Henry de Blois, who became bishop in 1129. Episcopal fishponds had been constructed by the time of his death in 1171 (Pipe Roll 18 Henry II, 86; I am indebted to Mr C Currie for this reference) and Giraldus Cambrensis, writing in *c* 1198, praised him for constructing huge ponds and 'difficult' water courses, *ductus aquarum difficiles*; things which up to that time had seemed almost impossible to achieve (Dimock

1877, 46). Henry de Blois was brother to King Stephen and, as a member of the royal family, he would have been among the first to adopt the latest fashions in high status food and estate management. He spent much of his huge income in building or rebuilding episcopal residences; in particular, Farnham Castle, Merdon Castle, Bishop's Waltham Palace and Wolvesey Palace in Winchester (*VCH Hants* ii, 12, 105; v, 13). He acquired Bishop's Sutton for the bishopric (*VCH Hants* iii, 42) and may well have built the palace there. It is reasonable to suppose that he would have wished to provide his new residences with fishponds.

A small pond at Bishop's Sutton can be attributed to Bishop Godfrey de Lucy (1189–1204), although the legend that de Lucy created Alresford Pond is not supported by documentary evidence (Hall 1903, 41; Roberts 1985). It is probable that either de Lucy or Peter des Roches (1205–1238) constructed a pond at East Meon which was called 'new' in 1208–09 (Hall 1903,45), but which was not called 'new' in subsequent pipe rolls.

During the thirteenth and fourteenth centuries, when the pipe rolls allow us to date the building of new ponds with confidence, it appears that policies of expansion were determined by a bishop's personal enthusiasm. After a fallow period of forty years which had seen only the creation of a small pond at Hensting, near Marwell in 1226–27 (HRO Eccl 159281), the brief episcopacy of William Ralegh (1244–50) witnessed a vigorous programme of pond construction. In 1245–46, he ordered the construction or reconstruction of Frensham Little Pond, a 47 acre *vivarium* just inside the Surrey border (HRO Eccl 159288), and in 1248–49, he made a new pond at West Wycombe in Buckinghamshire and a *vivarium*, probably the present Fisher's Pond, at Hensting (HRO Eccl 159290). After another fallow period of 60 years, the episcopacy of Henry Woodlock (1305–16) saw the construction of a small pond at Bishop's Waltham in 1310–11 and, in 1315–16, what was probably the first *vivarium* at the episcopal residence at Highclere (HRO Eccl 159458½; 159330). The surviving pipe rolls show that, in round figures, William Ralegh spent on average £10 *per annum* and Henry Woodlock £5 *per annum* on fishpond construction and maintenance, whereas during the episcopacies of John Gervais and Nicholas of Ely, that is between 1262 and 1280, less than £1 *per annum* was spent on episcopal fishponds in Hampshire. The accolade must go, however, to Bishop Aymer de Valence (1251–60), who spent on average nearly £16 *per annum* on pond maintenance and who, between 1252 and 1255 laid out at least £70 on refurbishing Alresford Pond (HRO Eccl 159291A/B; 159296).

In the mid and late fourteenth century, the bishopric pipe rolls no longer gave details of fish caught or the hiring of fishermen. It is probable that the *vivaria* continued to be fished, but that this was accounted for elsewhere. This was certainly the case in the summer of 1393 when the bishop's household account book gave much information on these matters, whereas the pipe roll did not (WCM No 1; HRO Eccl 159399). No evidence has been found of pond construction during this period, but repair and maintenance work continued at the larger *vivaria*; for example, at Alresford in 1365–66, at Marwell in 1375–76 and at Frensham Great Pond in 1381–82 (HRO Eccl 159452; 159456; 159388).

Although it is beyond the scope of this paper, it can be said that the bishops continued to maintain at least some of their fishponds in the early fifteenth century; for example, Highclere Pond in 1412–14 and Bishop's Waltham Pond in 1451–52 (Dunlop 1940, 72; HRO Eccl 159442). However, the drift towards letting bishopric estates to farm at this time seems eventually to have involved the leasing of *vivaria*. An account of how some ponds, at Marwell for example, were breached and reverted to water meadow, while others like Frensham Great Pond continued to be leased and fished on a remarkably medieval pattern until the late nineteenth century, would be a subject for further study (Baker & Minchin 1948, ch. 2).

FUNCTION

Fish formed an important part of the medieval diet, for it was consumed in great quantity not only during Lent, but also on fish days through-

out the year. Dried and salted seafish were common fare, but what class of person ate freshwater fish from ponds? Was it food for villagers, or reserved for the tables of the great? And was it eaten fresh, or salted? Contrasting answers have been offered to these questions (Burnett 1969, 30–31; Steane 1970–71, 303; Steane 1985, 172; Hickling 1971b, 24). However, the evidence of the Winchester pipe rolls is unequivocal. In the thirteenth and fourteenth centuries, the catch from the bishops' fishponds was reserved exclusively for the bishops and their royal and aristocratic associates, and it was almost always eaten fresh.

Alresford Pond was fished when Bishop Peter des Roches spent Christmas 1211 at Bishop's Sutton and again when Henry III came to Winchester at Whitsun in 1236 (HRO Eccl 159271; 159284). In 1244, Bishop William Ralegh returned from overseas to pay his first visit to his diocese (VCH Hants ii, 18). Seven pike and 300 roach were taken from Bishop's Waltham Pond and sent to Bitterne to welcome the new bishop (HRO Eccl 159287). Great pike, which in the bishopric pipe rolls are given the striking name 'water wolves', *lupi aquatici*, were esteemed as fish for royal occasions. In 1268 four great pike caught in Bishop's Waltham Pond were carried to Henry III at Winchester and a great pike was sent from Farnham to London when Bishop Henry Woodlock had the honour of crowning Edward II at Westminster in 1308 (HRO Eccl. 159450A; 159323; VCH Hants ii, 23). Both Bishop's Waltham and Bitterne ponds were fished to supply the banquet in the Great Hall at Wolvesey Palace to mark the enthronement of Bishop John Sandale in 1317 (Baigent 1897, xxxviii). On the rare occasions when episcopal ponds were not fished to supply the bishop's own table, they provided gifts for men of influence. In 1264–65, when Simon de Montfort was effective ruler of England until his death at the battle of Evesham, Bishop John Gervais judiciously paid the expenses of both de Montfort's and the king's fishermen at Frensham (HRO Eccl 159295) and in 1289–90, fish from Bishop's Waltham were carried to the king at Bedhampton (HRO Eccl 159312; see Fig 2). No reference has been found to villagers, or even the bishop's own servants, eating fish from episcopal ponds.

It was probably in order to ensure a supply of fresh fish wherever they stayed on their estates, that the bishops of Winchester constructed a system of ponds close to their residences (Fig 1). It is noteworthy that fish from episcopal ponds were rarely sent more than a day's journey from the pond in which they were caught (see Fig 2), probably because, when wrapped in wet grass and carried in a sack, they will keep alive for a day and consequently fresh for eating (Hickling 1971a, 120). The importance of the ponds as a source of fresh fish is made clear by Bishop William of Wykeham's household account book which survives from April to September, 1393. During this period, the episcopal household mainly had to make do with smoked and salted fish. It was only when Richard II came to feast at Wolvesey on 16 September 1393 that the bishopric *vivaria* were fished. Some fishermen went to Bishop's Waltham Pond and others were sent to Highclere and Frensham to get pike, bream and perch (WCM No I).

No references have been found to the salting of pike, bream, perch or roach from episcopal ponds on a bishop's instructions and eels were only salted in exceptional circumstances. When Alresford Pond was drained in 1252–53 the eels were salted, probably because they were too numerous to be eaten fresh. Similarly, eels were salted to send to the bishop at London and Bitterne when Bishop's Waltham Pond was drained in 1257–58 (HRO Eccl 159291A; 159293). It has been claimed that the *saltatoria* which the pipe rolls record at Frensham Ponds, were in fact salting houses (Brooks 1983, 109), but no references have been found to the buying of salt for the *saltatoria*, nor to the actual salting of fish there. The latin '*saltatorium*' seems only to mean a leap (Latham 1965, 417) and it may be that the pipe rolls are here referring to a water leap (Baker & Minchin 1948, 13).

During a vacancy in the bishopric, when the king assumed the right to fish episcopal ponds for his own benefit, the picture was rather different. In December 1240, Henry III ordered that the episcopal ponds at Alresford, Marwell, Bishop's Waltham and Menes (East Meon)

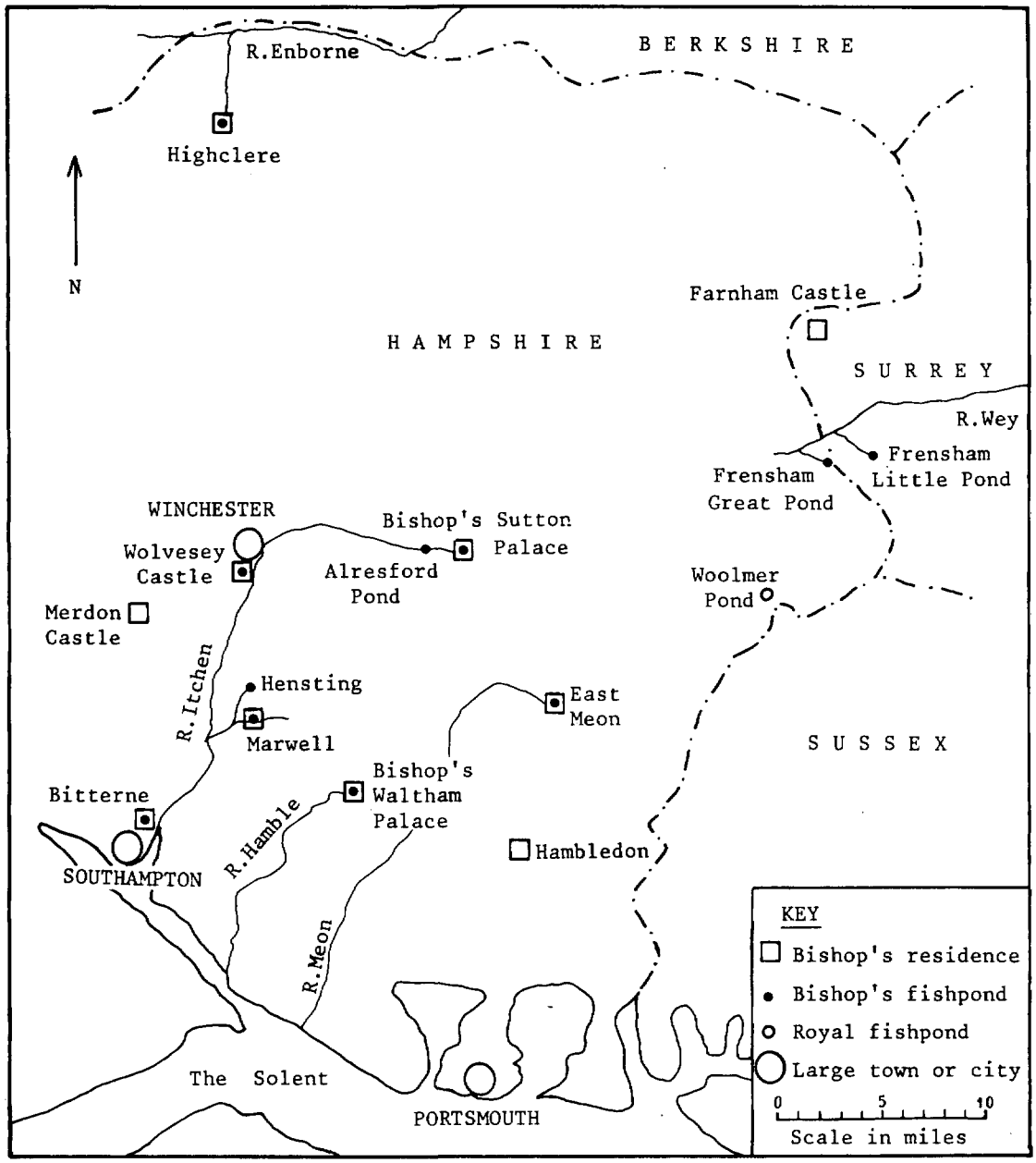

Fig 1. The Bishop of Winchester's fish ponds in Hampshire, 1150–1400. Two factors determined the site of bishopric ponds. Firstly, the larger ponds were made near the source of a river where the small feeder streams could be readily directed along by-pass channels when the ponds needed to be drained, or when there was a risk of flooding. Secondly, ponds were invariably situated near one of the bishops' residences in order to ensure a supply of fresh fish. Some were at a little distance, but as close as the water supply and the contours of the land would allow (e.g. Alresford and Frensham ponds which served Bishop's Sutton Palace and Farnham Castle respectively). Only Merdon and Hambledon appear to have lacked adjacent ponds (but see Appendix).

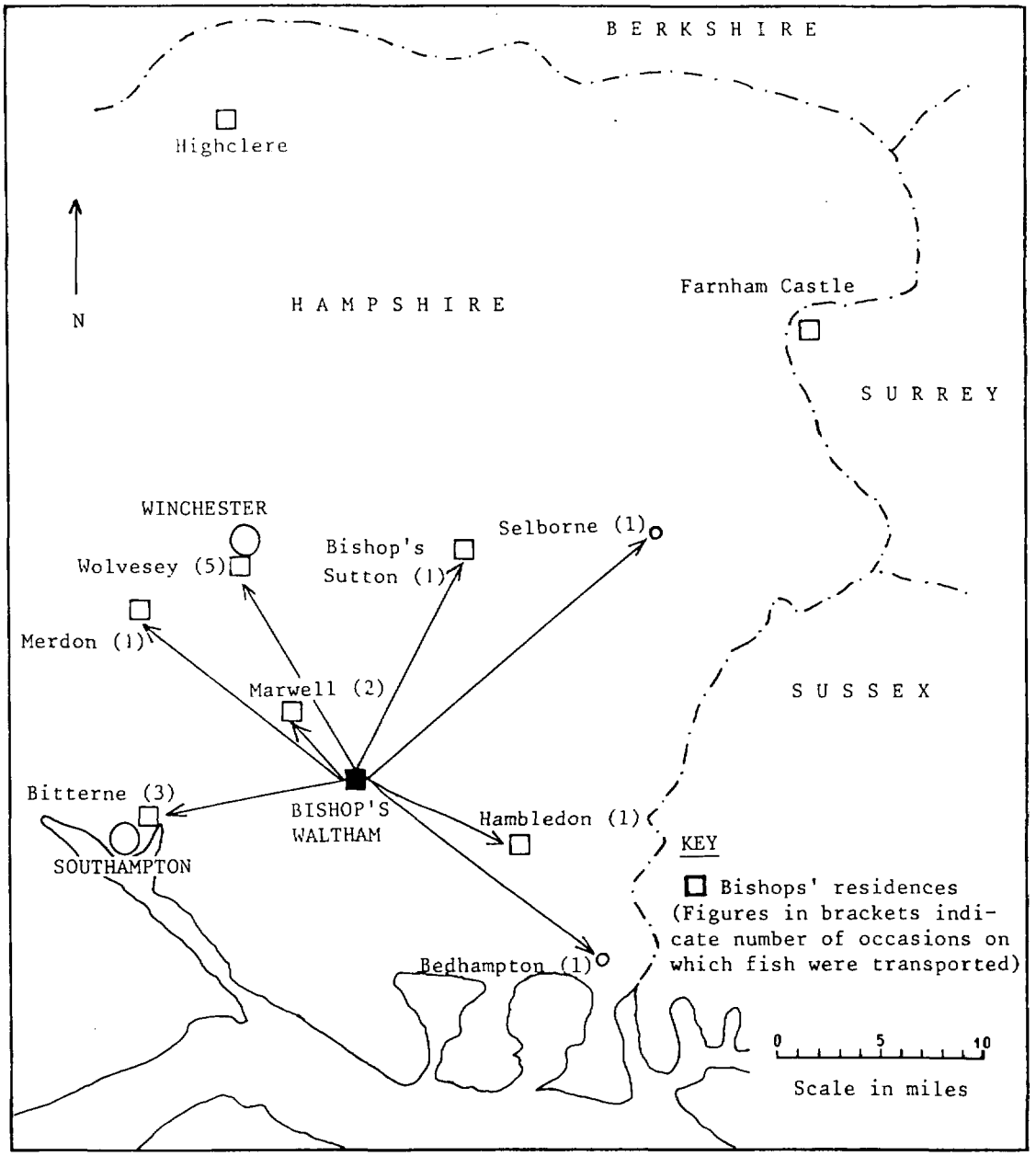

Fig 2. The Distribution of Fish from Bishop's Waltham Ponds, 1230–90. (excluding years in which the bishopric was vacant). Fish caught in Bishop's Waltham ponds during this period was, unsurprisingly, generally consumed at Bishop's Waltham Palace. Sometimes, however, it was carried short distances to supply banquets at other bishopric residences, but it was not carried outside the county, nor to Highclere which was more than a day's journey away. In 1236, fish was sent to Selborne, where Peter des Roches met and feasted with Richard, Earl of Cornwall (HRO Eccl 159285; Le Faye 1973, 49) and in 1289–90, fish was sent to Edward I at Bedhampton, where he had temporarily taken the manor into his hands (HRO Eccl 159312; VCH Hants iii, 142).

should be fished without delay; the pike caught were to be salted, the other fish to be put in paste (*pane*) and the whole carried to Westminster for delivery to the king's serjeant by the Saturday before Christmas. In February 1241, the king ordered that 100 pike and 200 bream should be taken in the bishop's pond at Taunton. The pike were to be salted and the bream put in paste (*pane*) and the whole sent in haste to the king at Woodstock (Cal Lib R 1240–45, 15, 31). It may be that Henry II preferred his fish salted and in paste, but equally these methods of preparing fish may have been a convenient way of keeping it edible after long journeys from episcopal ponds in Hampshire and Somerset to royal feasts at Westminster and Woodstock. It is significant that when Henry III was in Winchester at Michaelmas and Christmas in 1238, he did not order the fish caught for him at Bishop's Waltham, Marwell and Alresford to be salted (Cal Lib R 1226–40, 437). These ponds were within a day's journey of Winchester and consequently fish could be delivered fresh.

There is evidence that fishponds in other parts of the kingdom were managed for financial profit during the Middle Ages (Roberts 1966, 126). No record, however, has been found of the sale of pike, bream, perch, or roach from episcopal ponds during the period of demesne farming. These were the most highly regarded pond fish; salmon and trout were caught in rivers and carp were not introduced into England until the late fifteenth century (Hickling 1971b, 25). Even the lowly eel was frequently reserved for a bishop's feast, although its abundance in fishponds and in rivers necessarily led to a policy of selling off surplus stock.

Thus episcopal fishponds were not constructed or maintained for commercial gain, nor for sport (as we shall see), nor even to feed the bishop's servants, but mainly to supply the bishop's own table on great occasions.

POND MANAGEMENT

Vivaria

Several words were employed in the bishopric pipe rolls to denote fishponds. '*Stagnum*', meaning simply a pond, was applied to ponds of any size or function. The word '*vivarium*' was reserved for breeding ponds where fish multiplied and were eventually caught. *Vivaria* ranged in size from no more than an acre, for example the pond in the garden at Bishop's Waltham Palace, up to the 100 acre Frensham Great Pond (HRO Eccl 159326; Holt 1964, 41).

In the year 1244–45, records were kept of the catch from the *vivaria* at Alresford and Bishop's Waltham. At Alresford a total of 79 pike and 57 perch were taken, while at Bishop's Waltham the total catch was 19 pike and 800 roach (HRO Eccl 159287). It is noticeable that no bream were taken and this may be connected with a well documented attempt to build up the breeding stock of bream in episcopal *vivaria* during the mid thirteenth century.

If great care were taken, fish could be transported live over long distances in the Middle Ages, but this was an expensive and labour-intensive operation which was generally undertaken in order to stock *vivaria* with breeding fish. In this event, the fish were carried in canvas-lined barrels filled with water (Roberts 1966, 123). In 1231–32, live bream were taken from the bishop's pond at Taunton and placed in barrels lined with canvas to be carried to Winchester, a journey of some 100 miles (*In piscatione pro vivis bresniis capiendis ad portandum Wintonem. . . . . et tunellis emptis ad idem et canabo ad tunellos huciandos*). The manuscript is damaged, but it appears that the journey took 15 days and, with all expenses, cost the considerable sum of £8. 3s. 9d. At Winchester, 30 men were hired to carry the live bream a further 8 miles from Wolvesey Palace to Bishop's Waltham Pond (HRO Eccl 159282). On several occasions in 1262, during a vacancy in the bishopric, Henry III ordered bream to be taken from the bishopric ponds in Hampshire to stock the ponds of his favourites (Cal CL R 1261–62, 31–33). In fairness, however, it must be noted that in 1251–52, during the episcopacy of Henry III's half brother Aymer de Valence, the king allowed the bishop's fishermen to take 50 bream from the royal pond at Woolmer in Hampshire. Nineteen men, under the supervision of Master Nicholas the fisherman, were hired to carry the bream in

casks to stock Frensham Pond (HRO Eccl 159447).

The most detailed account of stocking that has been found in the bishopric pipe rolls deals with the winter of 1254–55, when Alresford Pond was completely re-stocked after draining; 115 pike, 229 perch, 603 bream and 1072 roach were brought from the episcopal ponds at Frensham, East Meon, Marwell, Bishop's Waltham, and from the royal pond at Woolmer (HRO Eccl 159296). It was common practice to stock *vivaria* during winter months when fish can be handled with less risk of damage than in summer (Hickling 1971a, 120). In January 1333, seventeen men were hired to carry fish from Bishop's Waltham to Marwell to stock the *vivarium* there and, in the same month four barrels were bought to carry fish from Bishop's Waltham to Wolvesey (HRO Eccl 159345).

It has already been noted that the bishopric *vivaria* were not fished for sport in the Middle Ages. On the contrary, the approach was entirely utilitarian and the favoured method was seine-netting. A long seine net was attached at one end to the shore, while the other end was taken by boat out into the *vivarium* and brought back to the shore in an arc, catching the fish in what was effectively a large bag. Between four and eight men were hired to pull the net in and especially detailed accounts of these hirings have survived for Alresford Pond in 1224–26 (HRO Eccl 159279; 159280). Hauling the nets, being a relatively unskilled task, was probably undertaken by local men, but on some occasions fishermen from the sea coast and river estuaries were sent to inland ponds to employ their special skills, or perhaps to bring their nets. In 1224, three fishermen from Hamble and one from Hampton (Southampton) were sent to Alresford Pond and, in the same year, two fishermen were sent from Bitterne to fish at Marwell pond when Peter des Roches was feasting at Bishop's Waltham (HRO Eccl 159279). Although fish might be required for celebrations at any time of year, the ponds were more commonly fished during the winter and especially for Christmas, Easter and in Lent. Between 1210 and 1226 the pipe rolls record the times of year at which bishopric *vivaria* in Hampshire were fished. In 20 instances the time of year is noted and, in 16 of these, fishing took place between Michaelmas and Easter, that is, during the winter months.

Most *vivaria* had their own boats for fishing, but there may also have been a boat-building yard at Bishop's Waltham. In 1220–21 an old boat was mended, two boats were newly made and a boathouse (*domus ad batellos*) was built there. In 1282–83, a quay was made for the boat at Frensham Great Pond, while in 1365–66, pitch was bought to repair the boat at Alresford (HRO Eccl 159277; 159305; 159452). Occasionally, boats had to be transported overland. In 1257–58, a boat was carried the twelve miles from Bishop's Waltham to Alresford Pond on three occasions and, in 1265–66, a horse was hired to pull a boat from Alresford to Marwell ponds (HRO Eccl 159293; 159297). Nets too, were transported. In 1270–71 nets were carried from Farnham for fishing at Alresford Pond and the same nets were afterwards sent on to Bishop's Waltham. In 1312–13, a cart was hired to take nets from Farnham to Marwell ponds. (HRO Eccl 159299; 159327). This transportation of boats and nets across Hampshire indicates a fairly complex system of administration.

The fishermen and their helpers are frequently mentioned in the bishopric pipe rolls. The fisherman was a skilled workman, who probably acted as foreman during seine-netting and his pay reflected his superior status. At Alresford, between 1224 and 1226, the men who pulled in the seine net were paid a penny a day, whereas the fisherman received 3½d. a day for himself and his servant, together with provender for his horse (HRO Eccl 159279; 159280). The career of Master Nicholas the fisherman is particularly well documented. He had sole charge of the bishopric fishponds in Hampshire between 1244 and 1262. In 1244–45, he was at Marwell and he was fishing in preparation for Easter at Alresford in 1245. In 1245-46, he went to East Meon where the *vivarium* was being cleared of mud and to Bishop's Sutton where his advice was sought on filling in a corner of a pond. In the same year, he went to Farnham where Frensham Little Pond was under construction and he hired men at Farnham and at Bishop's Waltham to carry

fish to Bishop's Sutton – probably in canvas lined barrels, since six ells of canvas were bought for his use (HRO Eccl 159287; 159288). For eighteen years or more, Master Nicholas travelled in this way around the episcopal fishponds of Hampshire, advising on fishing, draining and re-stocking ponds. Nor was he only concerned with the ponds, but also with the associated channels where he laid traps for eels. At Alresford, before Whitsun 1254, he supervised ten men who were deepening a channel flowing out of the pond so that eels could be more effectively caught, while at Bishop's Waltham, in 1257–58, he was making traps, probably for eels (HRO Eccl 159291B; 159293).

Eels were caught in abundance at mills and in eel traps along the rivers of Hampshire, but only seem to have been caught in *vivaria* when they were completely drained. At Alresford, a small annual rent was received from the men who collected eels *per vivarium*, but these eels were probably moving along channels near the pond (Hickling 1971a, 119–121).

Servatoria

In the bishopric pipe rolls, the word '*servatorium*, or '*cervorium*' was, in the context of fishing, used to denote a holding pond, or stew pond, where fish were temporarily stored after they had been caught in a *vivarium* (Hickling 1971b, 25).

The value of a holding pond was twofold. Firstly, *vivaria* were regularly drained and on these occasions it was essential to have holding ponds in which the fish stock could be stored and sorted. This process is still carried out at Fisher's Pond, Hensting (pers com, Mr J Paton, Fisher's Pond Fishery). When Alresford Pond was drained in 1252–53, two great *servatoria* were cleaned of mud at Bishop's Sutton in order to store the fish stock. '*In portandis piscis ad servatorium de Sutton . . . In ij magnis servatoriis mundandis de luto . . . ubi pisces reponentur*' (HRO Eccl 159291A). Secondly, fish caught in a *vivarium* which were not needed for immediate consumption, could be put to one side in a *servatorium* and easily netted as required (Taverner 1600). When a church dignitary, probably Archbishop Kilwardby of Canterbury, visited Wolvesey Palace in 1274–75, the preparations for the banquet included the scouring of the *servatorium* there for putting in fish caught elsewhere. '*In cervorio [es]curando contra adventum arch' ad piscem imponendum*' (HRO Eccl 159302).

It is probable that a separate *servatorium* would be required for pike, which are fiercely carnivorous fish. At Bishop's Sutton in 1224–25, small fry (*menusa*) were bought to feed the pike, which were probably being temporarily stored in the *servatorium* there and at Marwell in 1262–63, an enclosure was made around a small *servatorium* in order to guard the pike (HRO Eccl 159279; 159294).

'Breaking' a vivarium

The complete draining of a *vivarium*, commonly called 'breaking' in the bishopric pipe rolls, was a deliberate and valuable part of pond management. At Alresford Pond, in 1252–53, the bishop's steward came to make preliminary arrangements about the breaking of the *vivarium, circa fraccionem vivarii* (HRO Eccl 159291A). The bishops' fishermen generally supervised the breaking, as when Master Ralph the fisherman and Geoffrey Belquit broke Fensham Great Pond in 1236–37, *quando fregerunt vivarium de fermesham*, and when Master Nicholas the fisherman, with his two men Aure and Burdon, broke Bishop's Waltham Pond in 1247–48 (HRO Eccl 159285; 159457). The breaking of bishopric *vivaria* in the thirteenth century was a regular, and probably quinquennial, practice. Bishop's Waltham Pond was broken quinquennially in 1247–48, 1252–53 and 1257–58 (HRO Eccl 159457; 159291A; 159293) and there is evidence of quinquennial draining in Warwickshire in the late thirteenth century and at Frensham Great Pond in the nineteenth century (Roberts 1966, 126; Baker & Minchin 1948, 19).

The value of regularly breaking a *vivarium* lay in the convenience for catching and sorting and in the increased fertility after the pond had lain dry and exposed to the air for a season (Taverner 1600, 10; Hickling 1971a, 121). In 1241, during a vacancy in the bishopric, Henry III ordered 100 pike and bream to be caught in the pond at Taunton. It was specifically stated that

this could be done without breaking the pond, which thus, by implication was recognised as an effective means of obtaining a large catch (Cal Lib R 1240–45, 87). Occasionally, a crop of barley was taken from the dried pond bottom (Taverner 1600, 10) and it was not uncommon for the accumulated mud and silt to be removed before the *vivarium* was refilled. When Bishop's Waltham Pond was broken in 1257–58, it was dug with spades before planting with barley and when Alresford Pond was broken in 1252–53, sixty acres were sown with barley (HRO Eccl 159293; 159291A). After the barley had been harvested at Alresford, up to 122 men with up to 24 carts worked for three weeks, carrying earth and stones. This probably represents the clearing of accumulated mud from the pond bed before it was refilled with water. When the *vivarium* at East Meon was broken in 1231–32, five feet of accumulated mud had to be dug out and ten men spent forty days cleaning out the same *vivarium* when it was broken during 1244–46. On that occasion, stretchers and twelve wheelbarrows were made to carry away the mud (HRO Eccl 159282; 159287; 159288).

Sometimes, the opening of the main sluice-gate was insufficient to drain the water from the deepest part of the *vivarium*. When Alresford Pond was drained in 1253–54, four scoops were bought to draw off the water. A similar process was described at Frensham Great Pond in the nineteenth century.

> 'From the opening of the Penstock [sluice] it took about six weeks for the Pond to be sufficiently drained for the actual fishing to begin. Before this . . . a structure consisting of four upright posts about eight feet high with a crossbar at the top, from which two large wooden scoops were suspended, was erected . . . When the water ceased to flow by gravitation . . . these scoops were worked by relays of men, who continued bailing until the completion of the fishing. . . . By the day of the fishing, a small area of mud and water . . . had become a seething mass of fish; men provided with landing nets and baskets waded into the mud and scooped up the helpless prey. They were brought ashore, where farm carts were waiting to take them to the stew-ponds. There they were sorted. . . .' (Baker & Minchin 1948, 20–21).

At such times, the fish stock was especially vulnerable to poachers. When Alresford Pond was broken in 1253–54, a lodge was walled and thatched and three men kept watch both night and day. A lodge was also built at Frensham Great Pond when it was broken in 1316–17 (HRO Eccl 159291A/B; 159331). However, lodges were also of use at these ponds because they were at some distance from the nearest episcopal residences (Fig 1). In the nineteenth century, there was still a hut at Frensham Great Pond where a watcher lived night and day while the pond was being drained (Baker & Minchin 1948, 20).

The channels and streams which ran into and out of a *vivarium* were sometimes blocked with a fence of wattle hurdles, which allowed the water through, but prevented the fish from escaping. At Alresford Pond, between 1254 and 1257, thirty three hurdles were placed across the two feeder streams which flowed into the *vivarium* in order to stop the fish escaping upstream. At the same time, hurdles were put in front of the sluices to stop small fish from slipping downstream (see Fig 3). Wattle hurdles were similarly used at Bishops Waltham in 1224 (HRO Eccl 159296; 159292; 159279). When the sluice-gates were opened in order to drain a pond, there was clearly a danger that fish from the pond would be swept downstream by the force of escaping water. When the *vivarium* at Marwell was drained in 1283–84, wattle hurdles were made to catch the fish at the open sluice-gates, but apparently it was necessary for carpenters to make a wooden device on which to support the hurdles in the strong current. This device was called '*ingenium ad pisces capiendos*', an engine for catching fish (HRO Eccl 159309). Similar engines were in use at the head of Frensham Great Pond where the water flowed out. Hurdles were made, apparently to attach to this engine, and it was strengthened with iron bands (HRO Eccl 159318). It has been plausibly suggested that these *ingenia* were the forerunners of the iron gratings which were placed across the stream

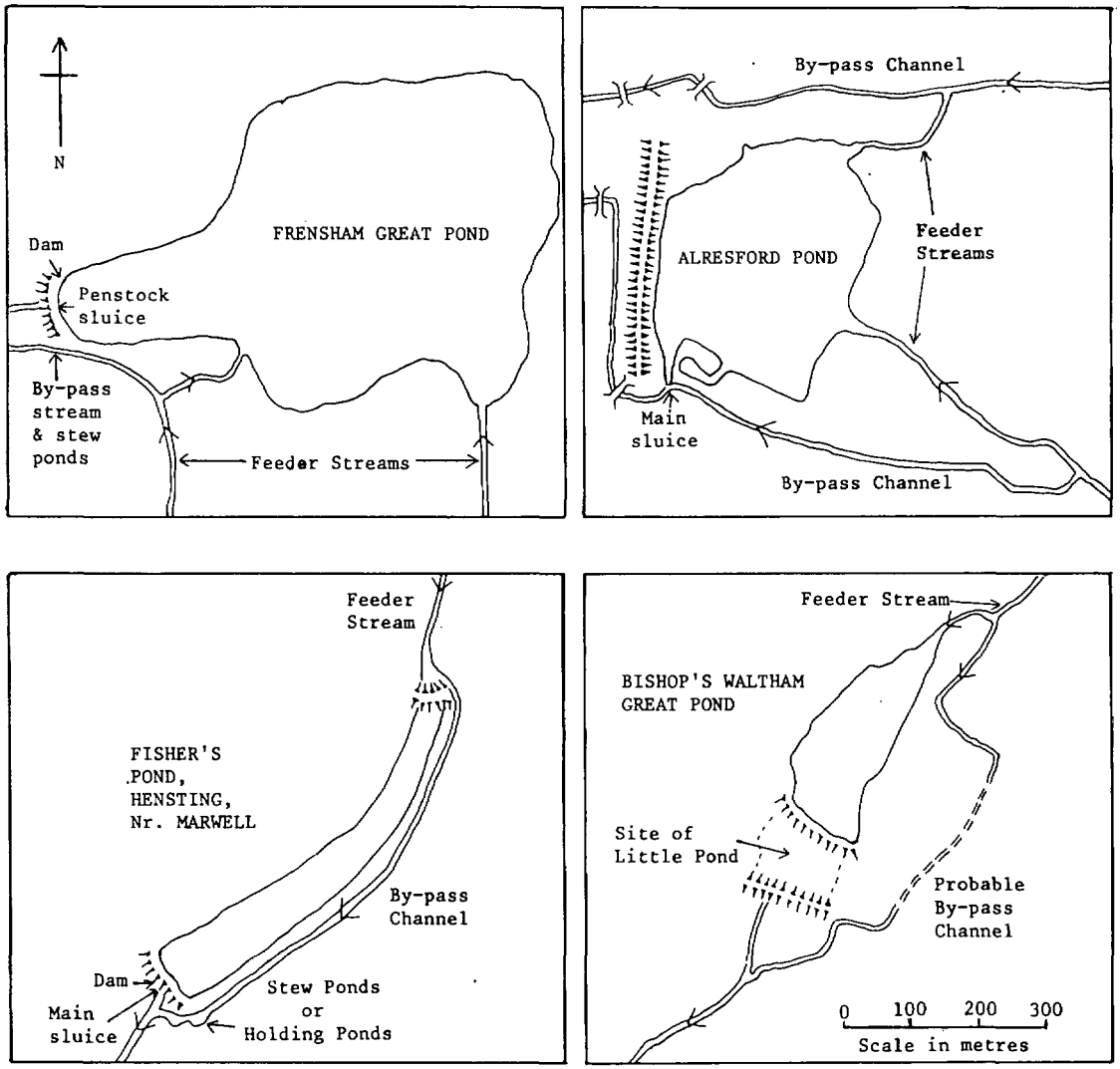

Fig 3. Bishopric *vivaria* and by-pass channels. These plans show how feeder streams could, by means of sluices, be diverted along by-pass channels and past the pond dam. All the plans are based principally on the O S 6 inch 1870 edn., but the plan of Bishop's Waltham ponds has been partly based on earlier maps (HRO 78M71; HRO Eccl 155513/292) and the plan of Frensham Great Pond has been partly based on Baker and Minchin who do not indicate the by-pass channel for the eastern feeder stream there. The by-pass channel at Hensting is not shown on OS maps, but has been restored by the present owner. These plans may well over-simplify the medieval arrangement of channels and at Bishop's Waltham there was probably another by-pass channel to the west of the ponds (Currie forthcoming).

flowing out of Frensham Great Pond as late as 1885 (Baker & Minchin 1948, 19). This was the date of the last draining of the Pond on the traditional system. When the main sluice-gate called the Penstock was opened, 'the rush of water carried with it . . . large numbers of the fish which, being stopped by the gratings, were taken out and put in the stewponds' (Baker & Minchin, *loc cit*).

The dams which held back the *vivaria* were called, in the bishopric pipe rolls, 'pond heads', 'causeways', or 'weirs'. It appears that in thirteenth century Yorkshire, adjustable sluice-gates were not set in the dams and consequently when ponds needed to be drained, there was no alternative to breaching the main dam walls (McDonnell 1981, 35–6). In thirteenth century Hampshire, by contrast, the bishops' pondkeepers constructed a sophisticated arrangement of the sluices and by-pass channels about their *vivaria* which allowed them to be drained without dismantling the dam (see Fig 3). The streams which normally fed the *vivarium* could, by closing sluice-gates, be diverted around the side of the *vivarium* and past the dam. These channels were often repaired or cleaned out in preparation for pond drainage and at Marwell, in 1283–84, a channel was dug at the pond head to make the water pass by it more easily, '*In quodam fossato fodiendo ad caput dicti vivarii ad aquam leviter transeundam*' (HRO Eccl 159309). By-pass channels also served to minimize the risk of flash floods destroying the dam, by diverting excess water away from the *vivarium*. This was especially important at Frensham, where both ponds were susceptible to flooding and where, in 1342–43, a channel was dug to carry water away lest the dam should be destroyed (HRO Eccl 159353). In the nineteenth century, the feeder stream from Hindhead was only allowed to flow directly into Frensham Great Pond during the summer, when there was little risk of flooding (Baker & Minchin 1948, 14–15).

When Alresford Pond was refurbished in 1252–54, at least nine sluice-gates were needed to control the flow of water through and around the pond. Welf the carpenter and his workmates made sluice-gates, which were adjusted by winding gear (*le Wyndarum*), and grease was bought to lubricate this winding gear (HRO Eccl 159291A/B). At Marwell, in 1299–1300, seven carpenters worked for five weeks on the sluice-gates around the dam of the great pond (HRO Eccl 159318). This indicates the complexity of channels and sluices that was required around a large *vivarium*, but even the small pond at East Meon needed at least three pairs of sluice-gates in various places, when it was drained and cleansed in 1305-06 (HRO Eccl 159321).

It is perhaps remarkable that within a hundred years of the introduction of purpose-built fish ponds in England, a technology of pond management had been developed which, in some ways, survived little change into the nineteenth century.

SWANS ON THE BISHOPS' PONDS

It is well known that swans were much esteemed as a prestigious dish for feast days in the Middle Ages (Seebohm 1927, 224). By the mid-thirteenth century, swans were kept at most bishopric *vivaria*, including those at Marwell, Bishop's Waltham, Bishop's Sutton, Alresford and Bitterne. In the last three, there are still small islands providing suitable nesting sites. In 1252–53, four nests for swans were made and placed on a pond in the manor of Twyford, probably Fisher's Pond at Hensting. However, swans could not always be protected in this fashion. Foxes ate five swans at Bishop's Waltham Pond in 1251–52 and, in 1299–1300, a great and sudden flood at Twyford carried the swans' nests away (HRO Eccl 159291A; 159318; 159447).

There was frequent carriage of swans between bishopric manors, both for re-stocking ponds and for supplying feasts. This carriage was organised by the bishop's poulterer who, for example, sent twenty swans to Alresford Pond to supplement the stock there in 1282–83. Again, in 1257–58, carts were hired to take six swans, three peacocks and eighteen *bestias* – probably beasts of the chase – from Bishop's Sutton to a feast at Westminster (HRO Eccl 159305; 159293).

CONCLUSION

The episcopal ponds are of interest both because their early development, function and management are exceptionally well documented, and also because most of them have survived intact into the twentieth century (see Appendix). The impressive size of the dams at Alresford and Marwell and of the ponds at Alresford and Frensham contribute to their importance as landscape features. It is to be hoped that, in future, none will be despoiled, as was Bishop's Waltham Pond in the 1960's.

APPENDIX

A LIST OF EPISCOPAL FISH PONDS IN HAMPSHIRE

Alresford (Fig 3)
Constructed some time before 1208–09, this pond probably covered 60 acres in the thirteenth century, since 60 acres of barley were sown when it was drained in 1252–53. It should be noted that the modern, standard acre was used in Alresford records at that time (Titow 1972, 17). By 1839, it was 39 acres (HRO Old Alresford tithe map) and silting has reduced it to 30 acres today. The legend that it once covered 200 acres is not supported by the evidence of the pipe rolls (Robertson 1937, 20).

Bishop's Sutton
There was a pond here by 1208–09. Two ponds of 2 and 3 acres respectively are marked on modern OS maps beside the site of the bishops' palace.

Bishop's Waltham (Fig 3)
A pond was here by 1210–11. The Little Pond was first noted in 1226–27 (HRO Eccl 159281), so presumably there was a Great Pond then, as well. The Great Pond covered about ten acres in 1785, but, by that time, the Little Pond had already been breached (HRO 78M71). In 1859, the Little Pond was represented by two meadows called Penstock and Flowses covering about four acres and situated just downstream from the Great Pond (HRO Eccl 155513/292). The Great Pond was sadly disfigured by roadworks in the 1960's. In 1310–11, a small pond was made in the palace garden (HRO Eccl 159458½).

Bitterne
A *vivarium* was here by 1208–09. Today there is still a two acre fish pond beside South Stoneham manor house which is at Bitterne. This is probably the pond referred to in the pipe rolls (VCH Hants iii, 481–84).

East Meon
There was a 'new' *vivarium* here in 1208–09. Its position is unknown, but it is unlikely to have covered more than a few acres, since no dam remains to be seen. At least one pond seems to have been in the garden of the manor house and there may have been others.

Frensham Great Pond (Fig 3)
In existence by 1210–11, this pond covers 100 acres (VCH Surrey ii, 608). A 'fysh which' was kept at the dam and in 1299–1300, a carpenter was paid to make one (HRO Eccl 159318). The word 'whitch' means a hutch or box (Cash 1966, 200). It was probably a perforated box in which live fish could be stored (pers com, Mr C Currie).

Frensham Little Pond
This 47 acre pond lies inside the Surrey boundary, but has been included in this paper for convenience (VCH Surrey ii, 608). It was probably built in 1245–46 (Robo 1935, 23), although a possible interpretation of the pipe roll is that the pond was only restored at that date (HR Eccl 159288; Brooks 1983, 61). The relevant pipe roll merely refers to a *vivarium* at Frensham and does not specify the Little Pond, but Robo and Brooks, with their detailed local knowledge, are confident of the identification.

Hensting (Fig 3)
First made in 1226–27 and extended in 1248–49, this pond covers about ten acres and is still managed on a fairly traditional pattern. It is called Fisher's Pond, Hensting today, but appears as Fish House Pond in 1759 (HRO 34M62/3).

Hambledon
Although no reference has been found to a fishpond here within the period of this paper, in 1552, William Bruyning held an acre of land in the manor of Hambledon where lately there had been three fishponds called Anthyll Ponds (HRO Eccl 158819:6/10). There is still a flight of two small rectangular ponds at Anthill which are marked on OS 6 inch maps.

Highclere
A pond was first made here in 1315–16. Today, two ponds in Highclere Park cover 52 acres (VCH Hants iv, 285; Dunlop 1940, 73).

Marwell
A pond is first noted here in 1217–18. There were at least four ponds in the thirteen century. Two small ponds, which covered 8 acres, were allowed to revert to meadow in 1247–48. The small and great *vivarium* are frequently referred to after this date. The total area of the four ponds may have exceeded 70 acres, but they had all been breached by 1759 (HRO 34M62/3).

Merdon
Merdon Castle appears not to have had its own fish pond. Although there were ponds in the adjacent Hursley Park in 1588 (HRO photo-copy 390), no record has been found of these ponds in the bishopric pipe rolls.

Wolvesey
A small holding pond is noted here in 1274–75.

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Author: Edward Roberts, King Alfred's College, Winchester, Hants SO22 4NR