

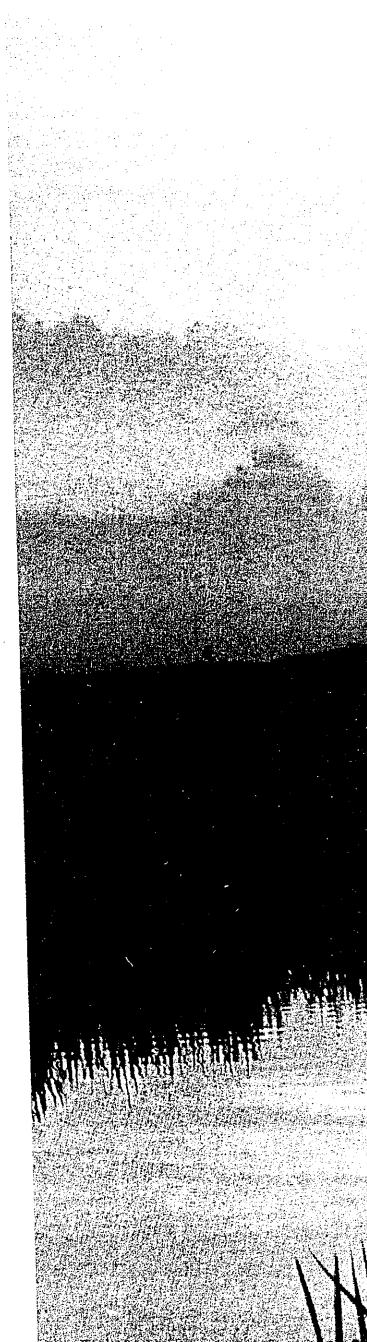
Taming a Wetland Wilderness – Romano-British and Medieval reclamation in the Somerset Levels and Moors

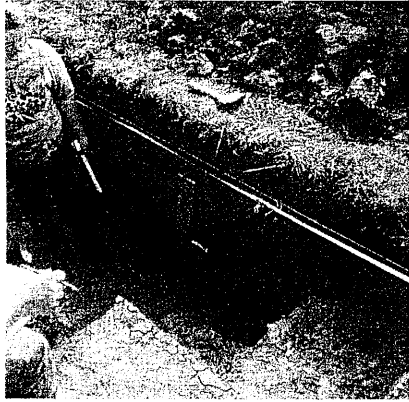
Stephen Rippon

Wetlands dominate the landscape of Somerset, and the drainage of the Levels and Moors represents a remarkable human achievement. These wetlands are quite rightly valued for their nature conservation interest but they are far from a 'natural' environment: the wide range of freshwater flora and fauna that the Levels and Moors support today are a direct result of a human transformation of this landscape, and the flood defences and drainage systems are very special cultural artefacts. This article is a summary of recent research into the creation of the 'historic landscape': the pattern of fields, roads, settlements and watercourses that we use today, but which in many areas is over a thousand years old.

On the eve of the Roman Conquest, the Somerset Levels were a complex mosaic of wetland environments, with intertidal mudflats and salt-marshes towards the coast being replaced by freshwater reed-swamp and sedge fens further inland. These wetlands offer human communities a range of natural resources that they could exploit, including rich grazing for sheep and cattle, alongside the opportunity for fishing and wildfowling. Sea water could also be gently heated to produce salt, and Late Iron Age salterns have been located at Badgworth near Brent Knoll in the main Somerset Levels, and at several locations on the North Somerset Levels (Banwell Moor, Puxton Dolemoor and West Wick near Weston-super-Mare (in the North Somerset Levels). In the two centuries following the Roman Conquest there was a marked intensification of this salt industry, notably around Burnham,

Autumn sunrise. LN





Palaeo-environmental sampling of an early Romano-British ditch at Puxton Dolemoor. The waterlogged conditions have ensured excellent preservation of plant remains including pollen, along with diatoms and foraminifera, that together suggest that this field system was dug on the surface of a high intertidal salt-marsh.

Aerial photograph of the relict landscape at Kenn Moor, the earthworks of which can be seen on the left. A series of carefully targeted small-scale excavations in the fields at the bottom and on the right provided a range of palaeo-environment assemblages that show that, unlike the intertidal setting of the earlier enclosure system at Puxton Dolemoor, the late Roman landscape on the North Somerset Levels was freshwater and therefore reclaimed.

Highbridge and Huntspill, but in addition to the exploitation of these natural resources, human communities also started to modify their environment to improve its agricultural productivity. On the Puxton Dolemoors, for example, a ditched enclosure system dating to the 1st/2nd centuries was dug on the surface of a high intertidal salt-marsh, and was used for grazing livestock.

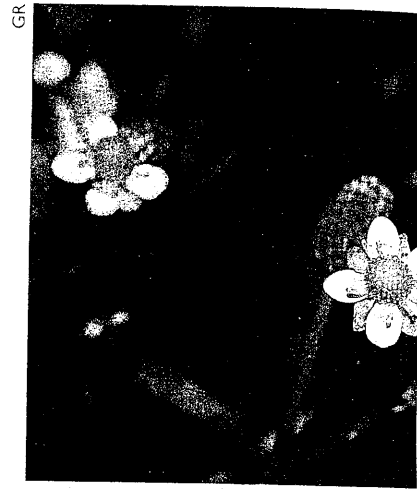
Nigel Cameron, Paul Davies, Julie Jones, Annette Kreiser and Heather Tinsley, have looked at the well-preserved palaeo-environmental material (the waterlogged plant and animal remains) from several of the ditches. They report that the herbaceous pollen from the basal fill is characterised by high frequencies of *Chenopodiaceae* (10-20% TLP) and values of this order are normally interpreted as originating from salt-marsh communities. The *Chenopodiaceae* family includes many halophytic taxa such as Sea Blite *Suaeda maritima*, glassworts *Salicornia* spp, and oraches *Atriplex* spp. and with other pollen taxa such as *Solidago virgaurea*-type (which includes Daisy and Sea Aster, as well as a range of other related *Asteraceae*), suggesting that the source of the pollen is likely to have been from upper salt-marsh communities growing on tidal flats very close to the ditched enclosure system. The local vegetation immediately around the ditch appears to have been a somewhat disturbed community of grasses (*Poaceae* – grasses, forming 11-23% TLP) with Ribwort Plantain *Plantago lanceolata* and



mugwort *Artemisia* sp. Occasional pollen grains of pondweed *Potamogeton* sp. indicate the presence of some freshwater in the ditch system even in this early stage of reclamation from salt-marsh. Diatoms suggest tidal conditions with marine species comprising almost 50% of the assemblage, with over 35% brackish water and almost 10% marine-brackish taxa. Freshwater and even brackish-freshwater diatoms are absent. Foraminifera preservation was poor with only a few tests of agglutinated forms from vegetated high or middle marsh habitats. Somerset was not alone in seeing such improvement being made to the drainage on intertidal marshes: very similar ditched enclosure systems have recently been recorded further up the Severn Estuary at Avonmouth, and across the Estuary on the Caldicot Level.

These localised drainage systems would have improved the agricultural productivity to a certain extent, but the landscape was still prone to flooding. Around the 3rd century AD, however, the communities living on and around the Somerset Levels embarked on a major transformation of their wetland, through constructing a set of embankments along the coast (where it was not protected by sand dunes) and along the major tidal rivers. None of these embankments has survived an episode of late/post-Roman coastal erosion and flooding but the evidence for this Romano-British reclamation is widespread, albeit usually buried under later alluvium.

On Banwell Moor and Kenn Moor in North Somerset a series of extensive field systems were laid out, and unlike their early Roman counterparts on Puxton Moor, these ditches contained a range of wholly freshwater habitats directly comparable to the field boundary ditches and rhynes in today's landscape. At Puxton Dolemoor the old ditched enclosure system was left to silt up and the change to a freshwater, reclaimed environment is reflected by its colonisation by bur reeds *Sparganium* spp. and/or Lesser Bulrush *Typha angustifolia*, Common Club-rush *Schoenoplectus lacustris*, with herbaceous taxa such as Tubular Water-dropwort *Oenanthe fistulosa*, Water Mint *Mentha aquatica*, Gipsywort *Lycopus europaeus* and Celery-leaved Buttercup *Ranunculus sceleratus*. Within the ditch itself, spores of *Spirogyra* and *Mougeotia* (an alga of the family Zygnemataceae) suggest the development of algal mats, while much of the water's surface would have been covered by duckweed and Rigid Hornwort *Ceratophyllum demersum*, both taxa suggesting still water conditions. Taxa like Water Plantain *Alisma plantago-aquatica* and Mare's-tail *Hippuris vulgaris* also point to a predominantly freshwater environment. Occasional leech cocoons, caddis fly larvae and statoblasts of *Lophopus crystallinus*, freshwater bryozoans often found adhering to stems of water plants and duckweed fronds, also indicate freshwater conditions.



Celery-leaved Buttercup
Ranunculus sceleratus.

This later Romano-British landscape appears to have been used for mixed agriculture, with the cultivation of cereals (wheat and barley) and the grazing of livestock (notably cattle and sheep). The economy at Kenn Moor appears to have been diversified with some metalworking, as was common elsewhere around the Severn Estuary. Most settlements on the Levels appear to have been fairly low-status, perhaps the tenant farms of one of the villas which occur all around the North Somerset Levels at Locking, Banwell, Congresbury, Wraxall, Tickenham and Clevedon. These villas are, however, fairly modest, especially in comparison with that at Wemberham which lies at the very centre of the Levels. Was it the builders of Wemberham who were responsible for reclaiming the North Somerset Levels? South of Mendip, the Brent Marsh area also appears to have been reclaimed as another villa has been identified at Lakehouse Farm, beneath the M5 motorway, along with several substantial stone buildings near Lympham and Rooksbridge. This reclamation did not, however, extend as far south as the Brue Valley as here salt production continued to flourish, producing the distinctive 'briquettage mounds' that still survive as earthworks around Burtle. Clearly, human communities living in and around the Somerset Levels were making conscious decisions as to whether they could more profitably exploit the rich natural resources of coastal wetlands, or invest in sea defences and drainage systems and improve their agricultural potential.

The Somerset Levels appear to have been abandoned in the later 4th century, possibly due to the declining economy, or possibly due to increased flooding. Large areas were certainly covered in a blanket of estuarine alluvium that seals the villas at Wemberham and Lakehouse Farm, and their associated landscapes. Palaeo-environmental evidence from Banwell Moor, Kenn Moor and Puxton Dolemoor shows that this alluvium was deposited in the context of a range of salt-marshes and mudflats identical to those that were displaced a few centuries earlier: nature had briefly reclaimed the Levels.

By the time of the Domesday survey in 1086 the coastal parts of the Somerset Levels, around Huntspill, Burnham and Brent to the south of Mendip, and around Kingston Seymour in the north, were extensively settled. The date when this occurred is unclear, though it is tempting to see the reclamation of marshland as part of the same process of improving the productivity of the landscape that also saw the reorganisation of dryland landscapes across much of central and south eastern Somerset into villages and open fields. Very little archaeological work has been carried out on this initial phase of the medieval re-colonisation, though at Puxton in North Somerset a programme of archaeological survey, excavation, and palaeo-environmental work has shown that the earliest stage was not the construction of a sea wall



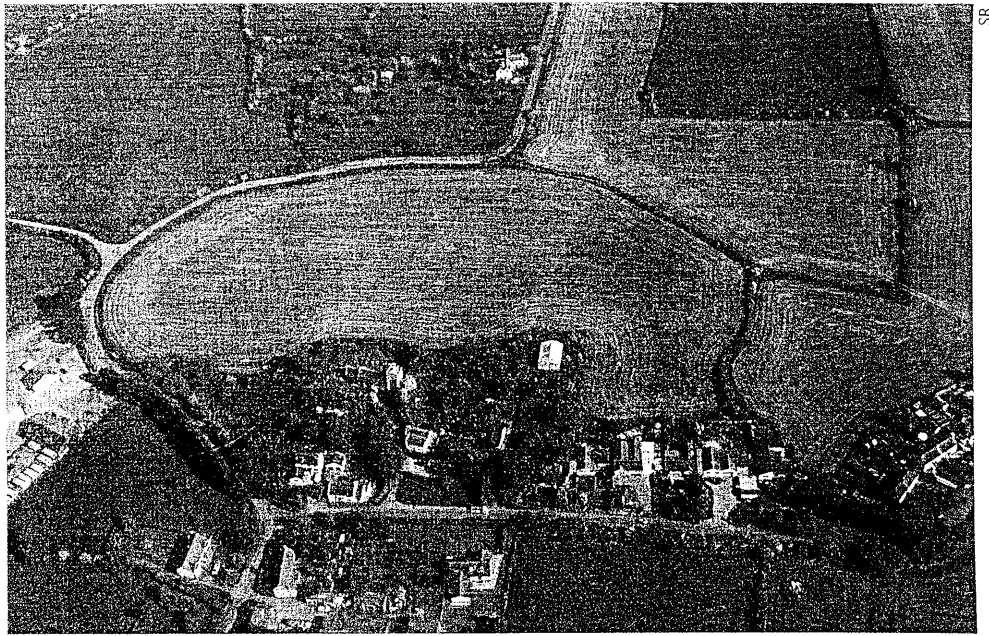
Greater Pond-sedge *Carex riparia*.

along the coast. Instead, the earliest colonisers constructed very broad but low banks around small areas of marsh in order to protect areas of meadow or crops from summer flooding. These oval-shaped enclosures are a common feature on the coastal marshlands of the Somerset Levels, and indeed elsewhere around the Severn Estuary, and at Puxton at least, can be dated to the 10th/11th centuries. These are the earliest parts of today's wetland landscape to have been created, and the fields they enclose still form a functioning part of the historic landscape.

The maintenance of numerous, individual, small reclamations, which would not have been sufficiently substantial to protect the enclosed areas all year round, soon became impractical and at some point the decision was taken to construct more substantial embankments along the open coast and tidal rivers. The numbers of settlements, population and plough teams recorded in Domesday suggests that this process occurred some time before the mid 11th century. Protected by these sturdy embankments, the medieval colonisers set about enclosing and draining the higher, coastal land and by the 13th century most of the alluvial marshes as far east as places like East Huntspill and Mark had been reclaimed and settled. Once again, the best palaeo-environmental evidence for the nature of the flora and fauna living in the watercourses at this time comes from Puxton. The material studied by Nigel Cameron, Paul Davies, Julie Jones, Annette Kreiser and Heather Tinsley reveal a range of freshwater ditch environments exactly the same as those we have today. Aquatic mollusca *Valvata piscinalis* and *Bithynia tentaculata*, for example, are indicative of larger, well-oxygenated water bodies, although other aquatics present are more typical of small ditches, possibly prone to drying. Plant remains point to water-filled ditches with aquatic taxa including duckweed, Water Crowfoot and Water Plantain, with bankside communities of Bulrush, Spike-rush, Celery-leaved Buttercup and Greater Pond-sedge *Carex riparia*. Diatoms provide additional evidence for freshwater conditions notably aerophilous (semi-terrestrial) species such as *Hantzschia amphioxys*, *Pinnularia* spp. and *Navicula mutica*. These are all taxa tolerant of desiccation suggesting that the ditch was subject to drying out.

Terrestrial mollusca show this was a damp, well-vegetated environment next to the ditches, with *Carychium tridentatum*, *Discus rotundatus*, *Aegopinella nitidula* and *Oxychilus cellarius* all indicative of shade, although the absence of any true woodland component to the assemblage indicates a non-wooded environment: tree pollen values are low, and while a shrubby boundary to some ditch sides may have been provided by Bramble and Hazel, the field boundaries do not appear to have been lined with hedges and mature trees as is common today. The ditch sides appear to have supported a rich soil colonised by Nettles with other plants that thrive on rich fertile soils, such as Elder and Fig-leaved

Aerial view of the oval shaped 'summer dike' (Church Field) at Puxton. These small enclosures were built around the 10th century on the surface of a high salt-marsh in order to prevent summer flooding of cultivated areas.

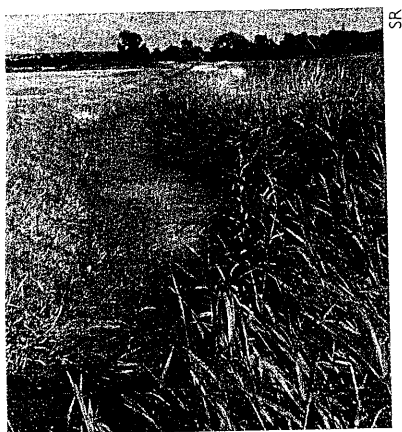


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Aerial view of the estuary of the Congresbury Yeo, showing the sea walls constructed to completely protect the North Somerset Levels from tidal inundation. The historic landscape was created behind them through the gradual process of enclosure and drainage as population, and the demand for agricultural land, increased throughout the medieval and post-medieval periods.



Blackstones Rhyne, Puxton. Palaeo-environmental assemblages from the excavation of medieval ditches at Puxton, and indeed late Romano-British sites at Banwell Moor and Kenn Moor, reveal very similar freshwater flora and fauna to that found on the Levels today. The wetland landscapes of the Somerset Levels are highly valued for their ecology, but it is important to remember that these ditches and rhynes are also cultural artefacts and their nature conservation interest is only there because of human engineering and management of the drainage system.

Goosefoot. Other taxa present include damp pasture and meadow species, buttercups *Ranunculus acris/repens/bulbosus*, Hemlock *Conium maculatum* and Hairy Buttercup *Ranunculus sardous*; the pollen assemblage is dominated by grasses, while the mollusca *Vallonia costata* and *Vertigo pygmaea* suggest an environment of long grass/herbs. Annuals of disturbed and waste ground, chickweed, orache, Swine-cress *Coronopus squamatus* and Fat-hen *Chenopodium album* also occur, while pollen includes large numbers of Brassicaceae, plus a range of other weeds of disturbed ground, are suggestive of arable cultivation.

A number of ditches contained dumps of kitchen waste that included cattle, sheep, pig and poultry bones, fish scales and bones, egg shell, plus a well-preserved charred cereal assemblage with wheat dominant but also with barley, rye and oat. Additional field or garden crops include Garden Pea *Pisum sativum* and Celtic Bean *Vicia faba*, which, as rich sources of protein, would have formed an important addition to the diet, as well as being part of the crop rotation system used for improving soil fertility. Large numbers of pollen grains of Brassicaceae, the cabbage family, also occur, but although this family includes domestic brassicas such as cabbage, turnip, rape and mustard, there are weeds like Shepherd's Purse *Capsella bursa-pastoris* that cannot be distinguished from the cultivated crops, and so this pollen could either suggest additional garden crops or weeds from grazed fields or cultivated land. Seeds, capsule and stem fragments from flax were recovered which could have been grown for both its fibre, made into linen, and the seeds which are rich in linseed oil. Documentary sources, notably from the Glastonbury Abbey manors such as Brent also show extensive arable cultivation on the reclaimed Somerset wetlands, though there was also very successful livestock husbandry, including extensive herds of dairy cows and pigs.

This medieval reclamation did not occur throughout the Somerset Levels but was largely restricted to the higher, coastal, alluvial marshes, and while there was some enclosure and drainage of the inland peat bogs, most of these backfens were left unreclaimed. Although they were not cultivated or agriculturally improved, these areas should not be thought of as waste land. The peatlands supported grazing that was sufficiently valued to lead to a series of disputes, for example between the Abbots of Glastonbury and the Dean and Chapter of Wells Cathedral. In 1278 for example the abbot's men destroyed a piggery belonging to the Dean in Godney Moor, and in 1315 the Dean demolished some of the Abbot's walls, dykes and sluices in Blackford and Mark Moors to the west of Wedmore. In 1326 Bishop Drokensford and Abbot Adam of Sodbury agreed to appoint three men to settle the disputed rights within the moors, but just four months later someone set fire to the Abbot's



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Now you see it, now you don't.
Flooding on Hay Moor in 1994.

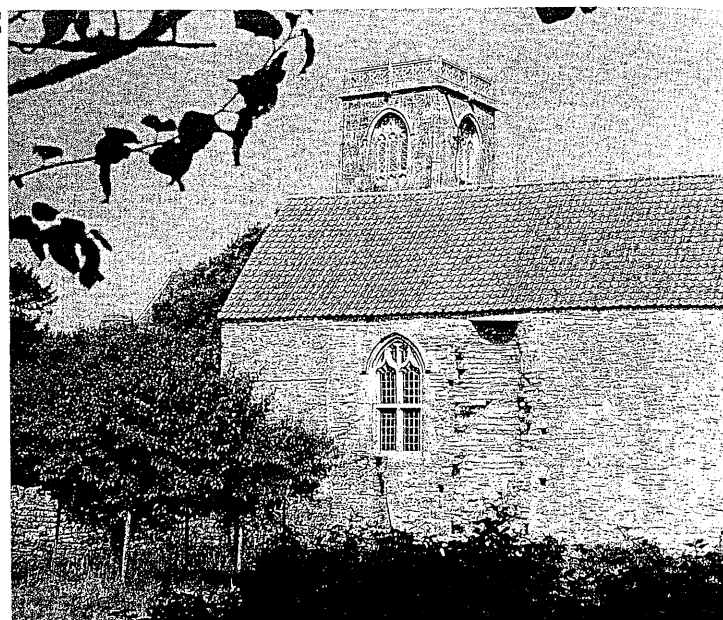
peat moors between Burtle Priory and Glastonbury, threatening the abbey itself. The Bishop then excommunicated the Abbot after four of his men allegedly destroyed buildings on his moor of Thealmoor (Tealham Moor), and in the following year the abbot was accused of burning the Dean's timber and grass in Mudgley, and the Dean of destroying houses at Meare and taking trees, 12 horses, 60 oxen, 50 cows, 100 bullocks and 100 pigs worth £200.

In much of the discussion so far, water – in the form of flooding and the need for drainage – has been seen as a problem, and the emphasis has been on removing it from this landscape. It is important, however, to also appreciate that water in many respects was a precious resource. The high water table supported exceptionally fertile pastures. The Somerset Levels supported Glastonbury Abbey's most important herds of cattle and pigs, and a series of artificial canals, such as the Brue, and canalised natural rivers, such as the Axe, were extensively used as a means of communication.

The Somerset Levels and Moors are a supreme example of how the countryside of today is almost wholly hand crafted by generations of human communities: the rich freshwater flora and fauna that are



Above left: The canalised Pilrow Cut as it passes through Mark. While water was a problem when present in too great a quantity, when efficiently managed it was a vital resource providing a means of navigation – as in this 10th/11th century canal – and in keeping the agricultural and grazing land amongst the most fertile in Somerset.



Above right: Woodspring Priory.

so highly valued today are only there because, initially, Romano-British and then medieval communities transformed the intertidal mudflats and salt-marshes. During the medieval period large parts of the Somerset Levels were controlled by the Church, notably Glastonbury Abbey, Wells cathedral, and Woodspring Priory, and these institutions were instrumental in transforming the landscape. Significant areas were in lay hands, notably around Huntspill, Burnham and Kingston Seymour, and the Dissolution of the Monasteries in the 16th century had meant that the great monastic estates, as well as some of those belonging to Wells, were transferred first to the Crown and then to the laity. This enormous upheaval in landownership, however, appears to have had little immediate effect on the Somerset Levels, other than perhaps to make maintenance of the drainage and flood defence systems more difficult because its ownership was fragmented. The late medieval period appears to have seen some enclosure and drainage on the small areas of alluvial soil in the backfens, but the major phase of reclamation was completed by the 14th century by which time all of the coastal, alluvial, marshes were densely settled with only the lowest-lying backfens and raised bog in the Brue Valley left in their natural state. Major changes occurred in these peatlands from the 17th century when there was a national revival in wetland reclamation, but on the alluvial marshes the typical character defining features of today's historic landscape are essentially medieval, and reflect the remarkable achievement of medieval communities.