

# Chippenham and its history: Part II

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10<sup>th</sup> January 2022

## The draining of the Fen

*Today around 99% of the original fenland that once so dominated East Anglia has been drained, with just a few isolated sites remaining. One of those sites is [Chippenham Fen](#), in Cambridgeshire. Unlike [Wicken](#), [Woodwalton](#) and [Holme](#) fens, Chippenham Fen was at one time drained. But today it is wetland again. The Fen's story is interesting for what it tells us about the history of East Anglia, for what it tells us about our changing attitude towards nature and peatland, and for what it tells us about the fortunes of the family that has owned Chippenham Fen for over 200 years. These three things are all relevant to the draining of the Fen and its subsequent return to a more natural state.*

What has come to intrigue me since I started writing about the Fens is how the few small parcels of fenland that remain today managed to evade the mass draining that East Anglia has been subject to over the past four hundred or so years.

(In fact, it is longer if you consider that the Romans engaged in drainage during their occupation of East Anglia, that parts of the silt-land around the Wash were reclaimed in the 13<sup>th</sup> Century by the use of sea banks, and that in the late 15<sup>th</sup> century a straight channel called [Morton's Leam](#) was dug from Peterborough to Guyhirn).



Chippenham Fen Today

Early attempts to drain the Fens were usually motivated by the need to protect local people and their livestock from the frequent “floods and drownings” that the flat landscape was so vulnerable to. By the 17<sup>th</sup> Century, however, drainage projects were often driven by a desire to turn what were viewed as wild, lawless and, above all, unproductive swamps into fertile agricultural land. To encourage entrepreneurs to fund these projects large allotments of the

drained land were promised to them. For these speculators the goal was to make a return on capital.

Today, with around [99% of the original fenland](#) in East Anglia (an area of around [1,350 square miles](#)) now drained the few isolated sites that managed to evade the drainers are a rarity indeed. They appear to have survived despite the best efforts of the many “undertakers”, entrepreneurs, speculators, landowners and farmers determined to tame and monetise the marshes, wetlands and “[wastes](#)” of the region.

Ironically, many of the “gentlemen adventurers” (as they were often known) who organised, funded and oversaw the drainage schemes appear not to have profited greatly from their endeavours, not least because their attempts often failed, or provided only temporary relief from floods and inundations.

For instance, the foremost drainer of the 17<sup>th</sup> Century, [Cornelius Vermuyden](#), ended up near penniless. As the Dictionary of National Biography [notes](#), his ventures “resulted in great pecuniary losses, and he was compelled gradually to sell almost all his land, his last days being spent in poverty.”

### Complexities and costs

What the drainers appear to have repeatedly failed to appreciate are the significant complexities and sheer cost of draining peatland (and, vitally, of keeping it drained). One consequence of this was that ultimate responsibility for funding drainage works often fell to [monarchs](#) and governments, with taxpayers invariably footing the bill.

To further complicate the picture, not only did many of the projects fail to provide a long-term solution but it was discovered that – due to the activity of bacteria, fungi and other organisms – dried peat wastes. As a result, drained peatland sinks. The famous [Holme Fen Posts](#) in Cambridgeshire, for instance, indicate that as a result of local drainage schemes the land has fallen by four metres over the past 170 years.

For a part of the country generally below sea level this was not good news. It meant that draining the region made it *more vulnerable* to flooding, and necessitated constantly having to devise new mitigation techniques, including installing expensive pumping equipment to lift excess water up into the rivers and drainage channels before it could flow to the sea, and constructing ever higher banks to prevent the rivers and canals overflowing and re-flooding the surrounding land.

Another challenge was that turning peatland into productive agricultural land is not easy. For a sense of the difficulties and work involved one could do worse than watch [this video](#) of Adventurer’s Fen being “re-claimed” in 1941.

(In the event this proved only a temporary reclamation and today [Adventurers Fen](#) belongs to the National Trust and is part of the [Wicken Fen Vision](#), an ambitious plan to create a diverse and more natural landscape for wildlife that will eventually stretch from Wicken Fen to the edge of Cambridge).



In addition, the cultivation techniques used on drained peatland often provided only short-term gain, or ultimately proved too expensive or damaging. Historically, for instance, practices like “[paring and burning](#)” were used to remove unwanted vegetation and fertilise peatland after drainage. It was later concluded, however, that this causes the land to sink further (not least because it tended to burn the top layer of peat), and ultimately [exhausts the soil](#).

Dried peat is also light and friable. This, combined with the flat, generally treeless, landscape of East Anglia makes the drained land vulnerable to “[fen blows](#)”, where high winds whip up the peat and sweep it away, sometimes depositing it miles away. In the process, topsoil, expensive seeds, seedlings and fertiliser can be lost too.

Another technique used on dried peatland was “claying” – as in, mixing clay with the peat. As well as improving the soil, this was viewed as a way of avoiding the damaging effects of fen blows.

In his 1953 book [The Fens](#) Alan Bloom recounted his positive experience of claying two acres of land on which he was growing wheat. Following a strong wind episode, he reported, patches of the wheat on the unclayed land were “sere and yellow, with the roots exposed”. Those patches then struggled all summer.

By contrast, he said, on the strip where he had added clay the wheat looked strong and green till harvest. “We threshed straight from the field, clearing the clayed strip first. From those two acres we filled 36 four-bushel sacks of plump wheat and one of tail. From the remaining twenty acres came 123 sacks, none of which, but for the war, would have been fit for milling.”

But claying was labour intensive and often prohibitively expensive. Bloom tried to persuade the government to provide claying grants. But he was unsuccessful.

Today, the practice of claying has been replaced by [reduced tillage](#) and the use of [overwintered stubbles](#) and [cover crops](#). However, these methods generally require the use of

nitrogen-base fertilisers, which pose a long-term [threat](#) to soil health and pollute water courses. They also emit [nitrous oxide](#) (N<sub>2</sub>O) a greenhouse gas that contributes to global warming.

Meanwhile, fen blows remain a common occurrence on peatland (e.g., [here](#), [here](#) and [here](#)).

### Negative externalities

Of particular concern today is that draining peatland creates undesirable [negative externalities](#), including environmental damage, loss of flora and fauna and a dramatic decline in biodiversity.

But the greatest worry is that it also contributes to climate change, not just because farmers rely heavily on nitrogen-based fertilisers but because peat holds a large amount of a more concerning greenhouse gas – [carbon dioxide](#) (CO<sub>2</sub>) When peat is dug out, burned and/or dried it releases a [disproportionate](#) amount (relative to its size) of CO<sub>2</sub> into the atmosphere. As peatland experts [Richard Lindsay](#) and [Jack Clough pointed out](#) to me last year, “Peat soils drained for agriculture release around 25 tonnes of CO<sub>2</sub> per hectare per year.”

And the impact in lowland areas like East Anglia is much greater than in upland areas because it involves the most carbon intensive form of farming. As the [Climate Change Committee put it](#), “Although the lowland area accounts for 14% of UK peatland, it is responsible for around 56% of peatland emissions. This is due to the high level of degradation with historic and on-going drainage resulting in significant peat loss and shrinkage.”

But back to my question: how have a handful of peatland sites managed to remain in a wet state when so much of the East Anglian fenland has been drained? The answer is not immediately obvious. I have seen suggestions that in some cases making peatland fit for agricultural use proved too difficult, challenging, and/or expensive.

In his book, *[The Great Fen](#)*, for instance, Alan Bowley notes that when [Whittlesey Mere](#) was drained in 1851 the following summer “the bed cracked and the bog surface collapsed” and by 1860 “no tenant had been found who was prepared to take the considerable risk of bringing this into production, so it was never farmed.”

For all that, much of the area around the mere is now agricultural land (see below for instance).





However, Bowley's anecdote may go some way to explaining why Holme Fen – which is at the south-western edge of the former mere – has never been drained. ([This map](#) suggests that the Fen was never part of Whittlesey mere).

Or perhaps the Fen was saved from draining because the locals were more determined to protect it than some? In his book *The Changing Fen* H C Darby describes how in 1632 “a crowd of women and men, armed with scythes and pitchforks, uttered threatening words” against anyone attempting to drive their cattle from Holme Fen.

Either way, the draining of the mere had a significant effect on both Holme Fen and the surrounding area – as the Holme Fen Posts demonstrate. In addition, a small part of the Fen was at one point cultivated and during WWII some of its trees were felled to make charcoal. Nevertheless, the original bog surface survives, and some believe the raised bog that the Fen once was can be recreated.

Perhaps this is the hope of those responsible for the [Great Fen project](#), which has a long-term plan to link Holme Fen with Woodwalton Fen and to rewet/rewild a large part of the former mere and the land around. As we shall see, the tide is turning against the uncontrolled and remorseless draining of peatland.

### What about Chippenham?

But what about Chippenham Fen? How has it survived as wetland? Again, I have seen suggestions that it proved too difficult to drain. As Chippenham Parish Council [puts it](#), “the Fen was enclosed, and a path and ditch network created, but later attempts to drain the Fen for agriculture failed.”

I am not convinced this is accurate. As I shall explain, to all intents and purposes the Fen *was* drained in the late 18<sup>th</sup> Century; and crops were grown on it. The puzzle, therefore, is why it is fenland again today; and why is it no longer used for agriculture?

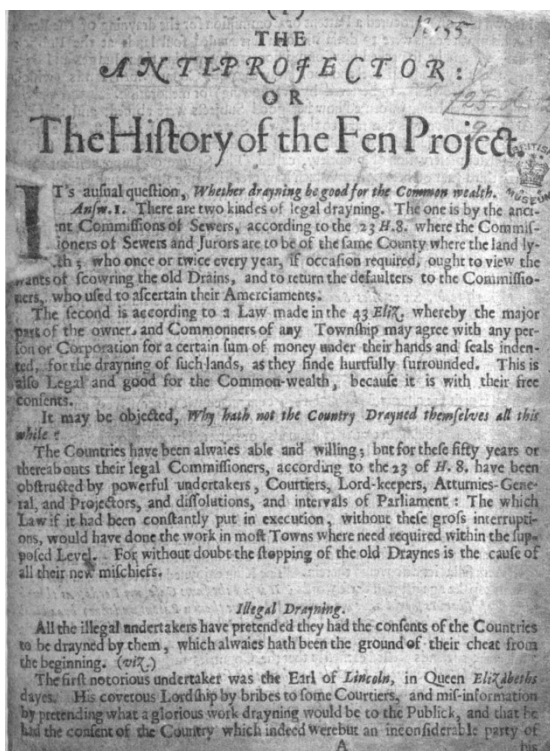
In search of an answer, it might help first to explore the Fen's past a little, and to set that past against the larger backdrop of some important economic and social changes that the country has experienced.

The first attempt to drain Chippenham Fen that I am aware of was around 1630, when the then lord of the manor Sir William Russell cut a new river through it – an initiative mentioned by Margaret Spufford in her 1974 book [\*Contrasting Communities; English Villagers in the Sixteenth and Seventeenth Centuries\*](#).

However, it is unlikely that Russell would have been able to drain the Fen in any meaningful way. Certainly, it would have been surprising if he had, since the Fen was not at that time private property, least of all Russell's private property. As Spufford points out in another book – [\*A Cambridgeshire Community: Chippenham from Settlement to Enclosure\*](#) (1965) – in 1544 all 200 acres of Chippenham Fen were [common land](#), and (as we shall see) most, if not all, of it remained common until the dawn of the 19<sup>th</sup> Century.

Either way, had he attempted to drain the Fen Russell would surely have faced resistance. And it would have been understandable if he had since from time immemorial local cottagers (i.e., local [rural labourers](#)) in East Anglia had been dependent on the region's extensive wetland for their survival. It provided fish and fowl for sustenance; peat and turbary for heating; rushes, reeds and sedge for making ropes, mats and baskets, not to mention for thatching roofs.

A 1646 pamphlet called [\*The Anti-projector, or, The history of the Fen project\*](#) pointed out that – contrary to the claims of adventurers that “all the Fens is a meer quagmire, and that it is a level hurtfully surrounded and of little or no value” – many thousands of cottagers depended on it for their survival. They were reliant on it, the pamphlet noted, for “reeds, fodder, thacks, turves, flaggs, hassocks, segg, fleggweed for flegeren, collors, mattweede for churches, chambers, beddes and many other fenn commodityes of greate use in both towne and countrey.”



To better understand the concept of [common land](#) it might help to step back briefly to medieval times, a period when land was not owned as private property in the way it is today.

After invading England in 1066, for instance, William the Conqueror granted manorial rights in English estates to his French barons. However, he did not give them ownership of these estates in a way we would understand. Rather they held them on William's behalf courtesy of a [feudal grant](#). That is, they held them at William's discretion, and he (and later feudal kings) could (and often did) give and take them away at will.

In 1086, for instance, rights in the manor of Chippenham – along with manorial rights in eleven other counties – were [granted to Geoffrey de Mandeville](#). These estates were subsequently granted to his son, William de Mandeville, who was Constable of the Tower of London. When William de Mandeville allowed an important political prisoner to escape, however, [Henry I](#) (William the Conqueror's son) punished him by confiscating one third of his holdings.

One of the benefits for William the Conqueror of assigning rights in this way was that it allowed him to delegate management of the defeated Saxon population to his barons effectively. This was important not least because he was still Duke of Normandy and had frequently to return to France to control his French lands. The barons were expected to maintain law and order in his absence, but William did not want to give them too much power.

Vitality, however, William [preserved and protected](#) the ancient rights of access and privilege associated with common land that had long been a feature of England.

Under William's feudal system the lord of the manor would farm some of the estate himself (the [demesne](#)) and [sub-enfeoff](#) other parts to small tenants, who were required to provide labour and services in return.

At the same time, however, cottagers without land tenure retained the traditional usage rights associated with [cropland](#) and common land, including the entitlements associated with [common grazing](#) and the [open-field system](#). This allowed them to use the local open fields, and graze their animals on the "manorial wastes"

For cottagers in East Anglia fenland was a particularly important part of the commons and, as noted, essential for their subsistence. As H C Darby points out (*The Changing Fenland*), "in no other part of England were common rights more important".

And William's feudal system continued after his death in 1087.

### Accumulation and enclosure

However, the situation changed in 1536 when Henry VIII [disbanded](#) the monasteries, priories, convents, and friaries in England, Wales, and Ireland, expropriated their income and disposed of their assets. Since the largest landowners in East Anglia at the time were its abbeys and the diocese of Ely, the impact in the fens was considerable, as wealthy and powerful individuals replaced religious institutions as the new landowners.

In 1540, the Chippenham manorial estate (the rights in which had been enjoyed by the religious group the [Knights Templar](#) since the 12<sup>th</sup> Century) was given by the [Court of Augmentations](#) to [Edward North](#), who [subsequently sold it](#) to Thomas Bowles.

Amongst other things, the dissolution led to important changes in the attitude towards, and practices around, land ownership, changes that would see the slow decline of the medieval system.

Keen to enlarge their estates, for instance, the new landowners began to buy up [copyhold](#) (which required tenants to provide labour to the lord of the manor) or to exchange it for [leasehold](#). This saw feudal duties of service replaced by more financially mediated relationships.

Both Thomas Revet and Lord Orford bought copyhold when they were lords of the manor at Chippenham. In 1696, for instance, Lord Orford [purchased c. 500a of copyhold](#) in order to enlarge his demesne. As a result, leasehold became the predominant tenure arrangement in the village.

In addition, a new breed of yeoman farmers emerged who began to buy and acquire the tenancies of other farmers in order to increase their own landholdings. In Chippenham the number of farmers fell as a result of this process of accumulation.

Another way in which landholdings were enlarged was through the enclosure of common land. This saw both common land and the commoning rights associated with it come under growing pressure and undergo a process of [attrition](#), one that would ultimately pave the way for [the rise of capitalism](#).

As Joan Thirsk points out in her book [Fenland Farming in the 16th Century](#), “The incentive to enlarge a farm was blunted so long as the common lands were extensive and common rights unstinted, for grazing was most profitable to all when organised as a common”.

In East Anglia the new landowners viewed fenland as having little or no value in its wet state. If, on the other hand, it was enclosed and drained, they reasoned, it could be transformed into valuable new agricultural land that they could profit from.

This led to a rapid increase both in enclosure and in drainage activity, with many new lodes, canals and cuts built, rivers straightened and embanked, and sluices and dams constructed.

The first *grand* drainage projects in the Fens began in the 17<sup>th</sup> Century – notably with the construction of the [Old Bedford River](#) (1630) and the [New Bedford River](#) (1650). Soon all East Anglian fenland was viewed as fair game for enclosure, for draining, and for private exploitation.

It is no surprise, therefore, that both Wicken and Chippenham Fens attracted the attention of adventurers and “improvers”. To their credit, in 1638 the cottagers of Wicken managed to [see off the drainers](#) – thanks in great part to a sympathetic local justice (Isaac Barrow) and his son-in-law (and curate of Wicken) Robert Grymer. H C Darby suggests that the Fen was subsequently saved from draining because it became the washland for storing water from the floods of nearby upland.

Chippenham managed to hold off until the last decade of the 18<sup>th</sup> Century before succumbing to both enclosure and drainage.





## Distinctive

Before discussing the details of this, it might be useful to review the characteristics of Chippenham Fen, which today is a 155.9-hectare (385 acres) site located about 20 miles to the north-east of Cambridge, 5 miles to the north of Newmarket and about 2 miles to the south-east of Fordham.

To guide us in our exploration of the Fen, we can turn to the late Egyptian botanist and environmentalist [Mohamed Kassas](#), who in 1950 conducted a study of Chippenham Fen and then shared his findings with the world in a series of papers published in the *[Journal of Ecology](#)* in 1951/2.

Kassas [noted](#) that when compared to the majority of Cambridgeshire Fens, Chippenham is distinctive, both in origin and nature. As he put it, “The natural physiography of Chippenham puts it out of contact with the development of the great fenland area surrounding the Wash and under the influence of changing sea-level.”

As he explained, the Fen occupies part of a depression that forms an independent unit at (and somewhat above) the margin of the Cambridgeshire Fenland. This depression forms a natural drainage basin (for the surrounding calcareous land) and overlies a peat bed varying in depth from a few cm. to 2 m. (6 ft.). The peat covers a layer of boulder clay that separates it from the chalk bed.

It is striking that, although just six miles from Wicken Fen, Chippenham Fen is so different. “Wicken Fen is obviously a relic of a fen proper (Niedermoor), whereas Chippenham Fen is a spring fen (Quellmoore),” Kassas explained. “The former fen lies over a ground below mean sea-level, whereas the latter fen occupies ground which is almost everywhere above 40 ft. O.D.” [[ordnance datum](#), or mean sea level].

Kassas described Chippenham as a spring fen because it is fed by a series of springs. From these developed a number of discrete spring-fens, which later combined to form a big fen on the deepest part of the basin. As he put it, “The local fens eventually expanded and coalesced into a great expanse of fenland covering the whole basin.”

But however distinctive it may be, by the end of the 18<sup>th</sup> Century Chippenham Fen was – like all wetland in East Anglia – attracting the attention of improvers, who declared it to be “ripe for drainage.”

In his 1794 “[General view of the agriculture in the county of Cambridge](#)”, for instance, the Anglo-American agricultural writer [Charles Vancouver](#) wrote of Chippenham: “[T]here are about 200 acres of Fenland which ought to be drained through Fordham.” These, he added, are “at present, drowned and in a very deplorable state. They produce little more than sedge which is cut for thatch, litter and fuel.”

(Fordham, the adjoining village, has a separate [wet valley woodland](#) that has also survived as fenland).

Interestingly, while Chippenham had been subject to an [Enclosure Act](#) in 1791, the Fen had been excluded, on the grounds that it was “all inundated the greater part of the year”. This might seem to imply that (*pace* Vancouver) it was not thought suitable for improvement. By contrast, the neighbouring Snailwell Poor’s Fen – now part of Chippenham Fen (see map further down) – *was* included in a separate Act of Enclosure in 1805.

[Enter John Tharp](#)

However, the same year as the 1791 Enclosure Act the nearby Chippenham estate had been bought (for £40,691) by a Jamaican plantation and slave owner called John Tharp.

Tharp set about developing and expanding Chippenham Park – increasing its size by 350 acres, rebuilding and extending the brick wall that surrounds it, constructing a lake that stretches for nearly three-quarters of a mile, and building hot-houses that stretched for 440 feet. He also restocked the Park with deer.

As a result, [wrote](#) Brayley & Britton in their 1820 book *A Topographical and Historical Description of the County of Cambridge*, Tharp’s demesne grew to 7,000 acres.



Chippenham Park Lake

With a reputation as a great improver, Tharp then proceeded to acquire and enclose Chippenham Fen. And by 1796 he had to all intents and purposes drained it.

Interestingly, Tharp acquired the Fen not by means of an Enclosure Act but by buying village cottagers out of their common rights – a precedent that Lord Orford had set in 1702 when he created Chippenham Park. This had seen the centre of the village completely reorganised, with part of it appropriated and enclosed within the Park. I shall discuss this in a future post.

Writing in 1805 the agriculturist [Arthur Young](#) reported that, as part of the deal he did with cottagers, Tharp agreed to set aside around thirty-six acres of the Fen for the poor to cut turves for fuel. However, there is uncertainty both as to the true size of the set-aside area and its exact location.

We could note in passing that while one might assume [enclosure](#) was invariably the product of an Act of Parliament there were in fact [a number of ways](#) in which common land was privatised (and the common rights associated with it removed) – as Tharp’s successful enclosure of Chippenham Fen demonstrates.

What it also demonstrates is that – due to the social and economic changes that Britain was undergoing – Chippenham Fen was no less vulnerable to enclosure and draining than any other fen in East Anglia.

### How successful?

In order to drain the Fen Tharp straightened the river that runs through it, cut ditches and installed sluices – a process that saw the water table lowered by 5 ft. In his study, Kassas says that Tharp “partly reclaimed” the Fen, which might seem to imply that he was not entirely successful. As we saw, this seems to be the view of the Parish Council too.

But those commenting at the time painted a somewhat more upbeat picture of Tharp’s endeavours, both his draining of the Fen and his subsequent growing of crops on it. Arthur Young noted in his 1805 “Minutes concerning Parliamentary inclosures in the County of Cambridge” (published in the *Annals of Agriculture* 43) that after examining Tharp’s work he had concluded it was a success. “I viewed this drainage and cultivation with great pleasure”, he said.

Young was keen to highlight the financial benefits that drainage can bring. “The cuts are numerous and deep,” he said. “Powerful springs running now, August 1800, after a long drought, a good stream. Plantation formed: paring and burning, and cropping, and everything looking well and thriving. Mr Causton [a Tharp tenant] had a part of this fen that was not common, which he offered for 2s. an acre, for which he would now give 20s.” [[The pre-decimal £](#)].

In a 2018 report on the Fen a group of consultants called the Sheffield Wetland Ecologists cite Young and comment: “It is a moot point whether Young recognised that some of the ‘powerful springs cut into’ may previously have been confined by the [Drift](#) before the numerous and deep drains were cut, and in that sense the drainage may have increased groundwater outflow into the site, at least into the drains.

“On the other hand,” they add, the drains “may well have been located specifically to dry out areas of Fen that were known normally to be particularly wet. The water contained by the drains seems to have been seen as an agricultural asset for maintaining a water supply during

summer droughts, and the approach became one of water management rather than just drainage.”

They concluded: “It would thus seem that the 19th century land-managers, as with latter-day conservation managers, found a need to maintain high dyke water levels in summer in order to irrigate the drained peatland sufficiently well to grow crops.”

In a second report in the *Annals of Agriculture* (“New information on paring and burning”, also published in 1805), Young might seem to confirm this, “The [Chippenham] Fen, of 300 acres, has been thus managed: first drained most effectually, but with attention to keep the water so under command by a sluice, as to be able to flow it back in the ditches at pleasure to any height, for the purpose of moistening the bottom of the bog...’

Writing in an 1813 update to Vancouver’s “[General View of the Agriculture of the County of Cambridge](#)”) local cleric [William Gooch](#) also drew attention to the importance of water management. He [noted](#): “At Mr Tharp’s mill, where a very deep cut was made to carry off the tail water; the effect on the land on each side (a Fen moor) is, it cracks in summer to a degree that it produces nothing, and no cattle can go upon it in safety; when, therefore, Fen is drained it is necessary to have a command of water to be kept within a foot of the surface. Mr Tharpe [*sic*] has done this with great judgement by sluices.”



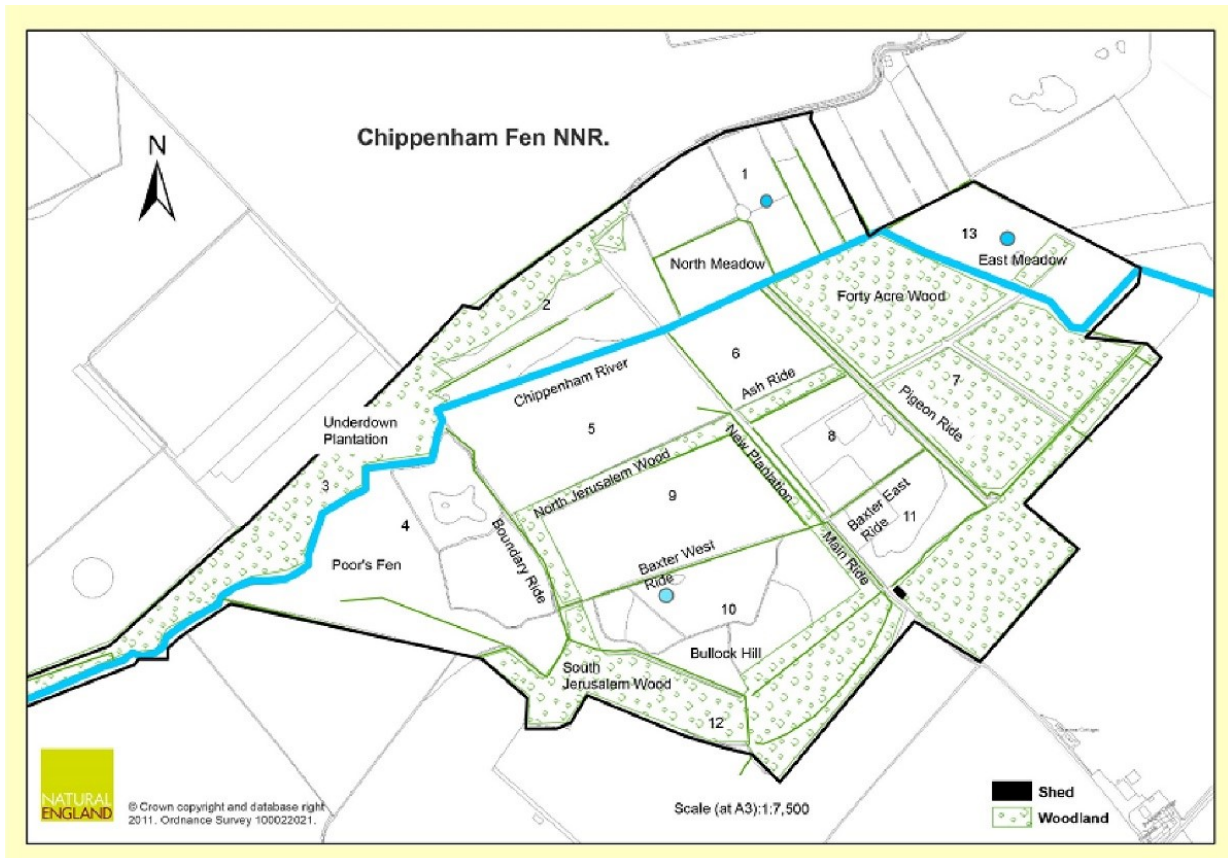
In short, Tharp realised – or, more likely, was advised by experienced landowners like Norfolk’s [Richard Dashwood](#) and [Thomas Coke of Holkham](#) (both of whom he consulted) – that draining a Fen is just the first task if you want to create useful agricultural land from it.

It is worth stressing this point: turning a fen into productive agricultural land requires more than simply cutting ditches and waiting for the water to drain away. The fen vegetation then needs to be removed (no easy task) and a drainage system created that is able to retain water as well as discharge it – because peat needs to be kept moist. This means being able to adjust water levels to meet the needs of the moment and the season, which implies the use of sluices and dams.

So what did Tharp grow on his drained Fen? We don’t know for sure, but the Sheffield ecologists suggest that the principal crop was probably cabbages, not least because at the time they attracted a higher price than most other crops. Young noted, the ecologists point out, that “Their value [*is*] estimated at much more than that of turnips, most growers think double.”



Young also suggested that Tharp grew cole (perhaps kale or rape?) on the Fen as sheep feed. Where exactly the crops were located is not clear, but the ecologists suggest that the cabbages could have been grown in the area south-east of Compartments 5 and 6 (see map below).



### Trees too

But the story of Tharp’s improvement activities isn’t one of drains and cabbages alone. He also set about planting millions of trees – notably in the Fen’s Jerusalem and Forty Acre woods (see map above).

Brayley & Britton [noted](#): “Many great improvements have been effected on the estate since it became the property of this gentleman [Tharp], who has expended large sums on drainage, planting and enclosing. The plantations are very considerable. They chiefly consist of oak, beech, elm, Spanish chestnut and spruce and Scotch fir. The number of trees planted by Mr Tharpe [*sic*] is upward to two millions.”

In [a study](#) of Tharp, his family, and his estates (both in the UK and Jamaica) posted online in 2018 former diplomat Alan Furness [reports](#) that Tharp had plans for “ten thousand trees to be planted every year on his Cambridgeshire estates.”

So committed to this project was he that, in his Will, Tharp instructed that 10,000 trees continue to be planted annually after his death – a fact noted by Margaret Spencer-Thomas in a recent MA thesis about Chippenham Park (see further reading).

As one might expect, this was as much about making money as it was about planting trees for their own sake, or for purely aesthetic reasons. Tharp wanted the woods to generate profits, both from the sale of timber and from leasing shooting rights.



In a 2015 [article](#) published in *Nature in Cambridgeshire* Alan Leslie, former Cambridgeshire County Recorder for the Botanical Society of Britain & Ireland ([BSBI](#)), quotes a letter Tharp sent home to his son from Jamaica in 1803. “If I am right there are many spruce firs planted in the Fen and more will hereafter be there when I return but we must have other trees to give beauty and profit to that creation”, he said, adding that “when mature [they] will give ample room and cover for all the pheasants Chippenham can support.” (Alas, Tharp died a year later, having never returned to Chippenham.)

It is possible that the trees were also intended to help keep the Fen’s peat moist. Farmers today are [advised](#) to plant trees around peatland in order to “prevent soil drying out and being eroded by wind or by water run-off”. However, it may be that there was not that level of understanding in the 18<sup>th</sup> Century.

The plantations Tharp established in the Fen remain today, although they have changed over the years. As the Parish Council [explains](#), “Some of the woodlands [in the Fen] were planted in the 1790’s and have developed their own ecological character. Trees of dry land, such as Scot’s Pine and Yew, can be found in the woods dating from this period. Younger woodland developed in the 1950’s and 1960s’ on Fen habitats.”

Significant to the changes experienced by the Fen will have been the state of its drainage at different times. So too will have been the degree of management (or lack of it) that the Fen and woodland were subject to. As these two things changed so some of the trees and vegetation planted in Tharp’s time declined and/or died, and others invaded the Fen. In other words, while the plantations have continued to exist their nature and composition has changed.

A key moment will doubtless have been when the Fen was designated a nature reserve and its management taken over by the Nature Conservancy Council (now Natural England) in 1963. At this point the purpose and perceived role of the Fen will undoubtedly have changed significantly and its management altered accordingly. However, I will not be looking beyond 1950 in this post.



## After Tharp

What interests me here is the period between Tharp's death and Kassas' study of the Fen. In other words, my aim is to try and establish how the Fen changed, and how it was managed (or not), between 1804 and 1950.

With this goal in mind I emailed Hugo Nicolle who, with his wife Rebecca Crawley (by my reckoning Tharp's 5<sup>th</sup> great granddaughter), is one of the incumbents of Chippenham Park today. He replied: "I can't shed much light on this I'm afraid. As you say, it [the Fen] has been leased by the estate to Natural England for decades now."

Nicolle then referred me to Christopher Hainsworth, the Fen's current reserve manager, who replied to my enquiry in this way: "My understanding is that Mr Tharp tried to drain the fen, was unsuccessful and then decided to keep it as a pheasant shoot."

As noted earlier, however, this is not what commentators like Young and Gooch were saying in Tharp's day. They appear to have viewed the draining as a great success.

So, we are still left with the question: what happened to the Fen between Tharp's death in 1804 and the point when Kassas visited it in 1950? Was it left to its own devices? If so, did it gradually revert to a more natural fenland landscape? Or was it managed in some way?

Kassas is able to shed some light on this question although his research would seem to have been based as much on deduction as certain knowledge – which is fair enough!

He starts by [suggesting](#) that the Fen's history can be divided into two eras. As he put it, "[T]he first commences with its formation and ends in the last decade of the eighteenth century, the second begins in 1791 and includes the present time [1950]."



(We need to keep in mind that Kassas undertook his study prior to Natural England taking over management of the Fen.)

It is Kassas' second era I am interested in and it is this era that Kassas was primarily concerned with. And to understand the history of the Fen during this period he undertook a vegetational and tree-ring analysis, particularly of the Forty Acre Wood.

That is, by examining tree rings and looking at how different types of vegetation had fared Kassas set out to map how the Fen's ecosystem and its management changed after Tharp died. His working assumption was that drainage conditions would have been key, and that different trees and plants are able to tolerate different drainage conditions to different degrees.

He [explained](#): "During the 150 years' life of the Forty Acre Wood one of the major environmental factors, namely drainage, has undergone important changes. A change in the drainage system towards efficiency or inefficiency means a fundamental change in several most important components of the [edaphic](#) environment."

And he [added](#): "It is realised that the establishment of the wood on an immature fen in 1791 meant the imposition of an 'artificial climax' or 'Pseudo-climax' [*sic*, I assume Kassas means "climate" here] under the artificial support of drainage. It is also realised that peat drainage needs continual maintenance and negligence will lead to its rapid degeneration."



Tree rings are a helpful guide because the health of a tree during successive growing seasons is recorded in [the width](#) of its annual rings. Very broad rings generally indicate a good growing year; narrow rings signal that the tree has been struggling.

Kassas found that during the first four decades of the nineteenth century the tree rings in the Fen were successively wide, leading him to [conclude](#) that conditions for tree growth over that period were favourable, and so drainage conditions must have been good.

As he [put it](#): "[T]he paramount factor influencing the life of the vegetation in the fen is and was the drainage conditions. When the water regime was adequately maintained by the effective activities of Tharp, conditions for tree growth were fairly favourable."



Later, however, the tree rings began to narrow, suggesting, says Kassas, that Tharp's drainage system began to deteriorate, most likely because it was not maintained.

“During the second half of the nineteenth century, we may assume that the efficiency of the drains diminished through negligence and consequent filling” he [explains](#). “We must expect to find that period, which lasted for over half a century, has had a decisive influence on both past and present structure of the woodland. Not every species of tree would tolerate such prolonged unfavourable conditions.”

Essentially, like any vegetation, trees require a stable supply of water, but not too much – although, as noted, different species can tolerate wetter or drier conditions than others.

In addition, if a wood is not actively managed other species will begin to invade it. In the case of Chippenham Fen, trees like ash, downy birch, and alder began to seed themselves. “Ash is not mentioned among the trees planted by Tharp,” says Kassas. “It may be assumed that it invaded the area of the plantation through natural agencies.”

Kassas [sums up](#): “Conditions of efficient drainage prevailing during the first 50-year period favoured the growth of both planted trees and self-sown ash, birch and alder. This marked the first change in the wood, that is, from a coniferous wood to a mixed one.” (The comments of Brayley & Britton I cited earlier might seem to suggest that the woods were always more mixed than Kassas suggests, but his larger point surely stands – as drainage conditions and the management of the Fen changed so the composition and nature of the woods changed.)

As drainage conditions continued to decline, [says](#) Kassas, most tree species began to suffer, including those that had invaded the Fen. “Almost all the original conifers and birch trees disappeared. Ash survived in the strips of land fringing the drains, but in the central parts it was seriously affected and only a few trees were able to survive. Conditions causing the death of mother trees would naturally inhibit their regeneration.”

The upshot, [says](#) Kassas was that “Both the planted and the self-sown trees gradually died off. The trunks fell to the ground and decayed. Their remains, which are still recognisable, showed that they had once attained considerable sizes. This drastic thinning process affected the different species in different degrees and its influence varied in intensity in the different parts of the wood.”



These changing conditions had implications for other plants too. In his 2015 [report](#) on the Fen, for instance, Leslie noted, “Some significant species have been lost from the Fen over the years, in some cases probably reflecting the much wetter conditions prevailing at the end of the nineteenth century when they were first recorded and also subsequent changes in use and management.”

In short, poor drainage is not good for trees (or indeed most types of vegetation) and by following the evidence that they leave behind it is possible to map historical changes in drainage (and other environmental conditions).

### Not continuous decline

But it was not a case of a continuous decline at Chippenham Fen, reports Kassas. For instance, he [says](#), there were two periods when things improved. In 1918, for instance, the drainage system was repaired, with the result that “The soil conditions in areas fringing the cleared drains were consequently reopened to favour tree growth. Surviving trees were able to accelerate the rate of growth, thus producing wider annual rings. Tree regeneration was favoured and hence tree colonisation of open gaps was encouraged.”

And in 1942 the main drains of the Fen were cleaned. Again, this led to wider annual tree rings, notably in the trees located near enough to the drain to be influenced by its clearance.

As part of his study Kassas also examined a number of bush species and other vegetation, including [Hedera](#), [Molinietum](#), [Eupatorium cannabinum](#), [Mentha aquatica](#), [Rubus caesius](#). What he found supported the evidence provided by the tree rings. So, for instance, as a result of the drainage improvements of 1918 and 1942, says Kassas, “[Hedera](#) was able to carpet the best drained [area] and to re-climb its trees.”

Kassas does not provide much detail about the wartime drainage improvements, but quotes Benaiah W Adkin, who in a 1933 book called *Land Drainage in Britain*, [noted](#) that in 1917-18 schemes were “propounded for improving Waterbeach Fen, Barway Fen, Chippenham Fen and Wilbraham Fen.”

He also [reports](#) that between 1932 and 1942 parts of the marginal pastureland at Chippenham were brought under plough. And (writing in 1951), he said: “the south-west part of the depression (Snailwell Fen) has now been completely brought under plough.” This too would have been dependent on improved drainage.

However, it does not appear that these drainage improvements, or the renewed agricultural activity in the Fen, were maintained for long. My guess is that they were a temporary response to wartime concern over the need for the UK to be more self-sufficient in food. And I suspect the drainage work was funded through government grants.

Be that as it may, Kassas concludes his study by suggesting that the history of Chippenham Fen from Tharp’s death until 1950 could be divided into roughly three main periods:

**Period I:** The first half of the nineteenth century – “the period during which the influence of Tharp’s improvements prevailed”, he explains.

**Period II:** From 1860 to about 1915 – a period that the annual ring record showed to have been one of successive years of poor development. “This was probably caused by neglect of the drains after the strong initiative of J. Tharp had faded away,” Kassas notes. He adds: “The result of these processes was that during period II the peat surface became lowered and hence liable to flooding.”

**Period III:** From 1915 to 1950. “The growth improvement denoting the beginning of period III commenced at about 1910,” [says](#) Kassas. “It reached its maximum at about 1920, coinciding with the drainage reform of that time.”

All in all, says Kassas, “The influence of three main elements can be recognised: historical changes in the drainage efficiency, present conditions of drainage and the [biotic](#) effects of competition.”

As noted, Kassas’ study was undertaken prior to Natural England taking over management of the Fen. We might, therefore, want to suggest a **Period IV** – between 1950 and today. We can assume that this would have seen a significant change in the way the Fen is managed. But to do this period justice would require a separate article.

What we can say here is that creating an artificial climate on an isolated Fen is complex and can be difficult. Action taken to support and improve the Fen, and its flora and fauna, for instance, may not have the desired effect. Thus the introduction of water buffalo into Chippenham in 2011 in order to keep the landscape open, and assist wetland and grassland plants become established so that the wildlife that depend on those plants can flourish did not turn out as hoped – as I discussed in the [first part](#) of this series of posts.



Family tragedy, public good?

Kassas’ analysis aside, we are still left wondering *why* the Fen’s drainage system was neglected after Tharp’s death, and *why* the agricultural activity he initiated appears to have ceased at that point.

Did the work required to keep the Fen drained prove too onerous for the Tharp family? Did the profits from crops like cabbages prove too modest? Did the family simply lose interest? Or is the Parish Council right to say that – contrary to what Young and Gooch reported at the time – the drainage attempts ultimately failed?

Whatever the reason, by the 19<sup>th</sup> Century Chippenham Park and its Fen were being used not for agriculture but for shooting, stag-hunting, hare coursing, fishing, and skating. And by the end of the 20<sup>th</sup> Century the Fen was (as Hainsworth suggests) used solely as a shelter for game birds and let to shooting syndicates.

The upshot is that I don't really know why the Fen appears to have been neglected after Tharp died. However, I am inclined to suggest that it was the result of two tragic events that overtook the Tharp family.

First, in 1795, John Tharp's eldest son (Joseph) died prematurely (at the age of 26). Rather than pass his estate on to one of his surviving sons (John II or Thomas), however, Tharp decided to leave it to his grandson John III (Joseph's son).

This decision seems to have been informed by the fact that Joseph had married into the aristocracy, in the shape of the [Earl of Dunmore's](#) daughter [Lady Susan Murray of Dunmore](#). Margaret Spencer-Thomas suggests that Tharp viewed Joseph's marriage as a way of elevating the family to a higher echelon of society. And to further this objective Tharp organised for John III (Joseph's son), to marry Lady Hannah Hay – a daughter of the [7th Marquess of Tweeddale](#).

In addition, to “demonstrate the nobility of the family,” says Spencer-Thomas, a Tharp coat of arms was created.

We could note that the local pub – the Hope Inn – was later renamed the [Tharp Arms](#). And its sign still features the Tharp coat of arms.





In a second blow to the family, John III failed to produce an heir and, at the age of 24, was [declared a lunatic](#). This triggered a period of extended family bickering and resulted in the Chippenham estate being stuck in [The Court of Chancery](#) until John III's death 60 years later.

It was not until [William Montagu Tharp](#) (Tharp's great grandson through the line of John II) was able to inherit the estate in 1883 that the family finally regained full control of Chippenham Park (and thus of the Fen).

If my theory is correct then – unfortunate as they were for the family – these two private tragedies may have saved the Fen from being permanently drained, and by doing so delivered a public good.

### New awareness

What is also important perhaps, is that by the time William Montagu Tharp took control of the estate there was much greater awareness of the way in which human activity was posing a serious threat to the natural world. It had also become apparent that – while fenland landscape can support a very rich and diverse mix of flora and fauna – 400 years of drainage had put this bounty of nature in considerable jeopardy. To have set about re-draining Chippenham Fen at that point would likely have attracted unwelcome criticism.

In response to the deteriorating situation that nature faced, a group of influential “new naturalists” had begun trumpeting the urgent need to preserve natural sites, especially those able to support at-risk flora and fauna and that could ensure continuing biodiversity – people like [Charles Rothschild](#), [Charles Waterton](#) and [John Muir](#) for instance.

This was also a time when organisations like the [National Trust](#) were emerging. Founded in 1895 (twelve years after Montagu Tharp inherited the Chippenham estate), the mission of the National Trust was to “promote the permanent preservation for the benefit of the Nation of lands and tenements (including buildings) of beauty or historic interest.”

And in 1912 Rothschild formed the Society for the Promotion of Nature Reserves ([SPNR](#)). Now known as [The Wildlife Trusts](#), the mission of SPNR was very specifically to protect environmentally important sites.



To this end, SPNR compiled the so-called [Rothschild's List](#) – a register of 284 sites deemed “worthy of preservation”. Amongst those identified were Wicken Fen, Adventurers' Fen (now [part of](#) the Wicken Fen Vision) Woodwalton Fen and Chippenham Fen.

Needless to say, saving and preserving such sites was – and still is – a constant struggle. While some of those on Rothschild's List subsequently became nature reserves others were “[devastated by development, or simply vanished in the mists of time.](#)”

Rothschild deserves special mention not least because he was willing to put his money where his mouth was. In 1899 he bought [Wicken Fen](#) and donated it to the [National Trust](#). In 1910 he bought [Woodwalton Fen](#) and offered that too to the National Trust. When his offer was [turned down](#) Rothschild kept the Fen as a private reserve until 1919, and then gave it to the SPNR. (Today it is owned by the [Wildlife Trust BCN](#) and managed by Natural England.)

And in 1913 Rothschild/SPNR offered to buy the freehold of Chippenham Fen – an offer, however, that Mrs Montagu Tharp [rejected](#). (Interestingly, at the time the shooting rights for the Fen were being rented by a [member](#) of the representative council of SPNR – the Liberal politician [Edwin Montagu](#).)

A key moment for the new environmental movement came when it managed to persuade politicians that governments have an important role to play in protecting the natural world. Amongst other things, this led to the 1949 [National Parks and Access to the Countryside Act](#), which paved the way for the creation of National Parks and Areas of Outstanding Natural Beauty in England and Wales. It also addressed public rights of way and access to open land.

As evidence of the influence and authority that conservationists had by now acquired we could note that the 1949 Act was in part drafted by environmentalist [Edward Max Nicholson](#) (who in 1961 went on to found the [World Wildlife Fund](#).)



## Historical context

In writing this I have been keen to put the story of Chippenham Fen in a both historical and geographical context. Kassas [suggests](#) that its story can be viewed as a miniature of the history of peat agriculture in Cambridgeshire. “During the first half of the nineteenth century agricultural writers (Vancouver, 1794; Young, 1805; Gooch 1813; [Johnson, 1841](#); [Pusey,](#)

[1841](#), etc.) were describing the benefits of draining the peat and urging the fenland farmers to this activity”, he said.

“During the second half of that century the agricultural depression was felt (Fox, 1895) and farmers were unable to maintain their drains,” he added. “Agricultural writers ([Skertchly, 1877](#); [Miller & Skertchly, 1878](#); [Wheeler, 1888](#)) now changed their advice and began to warn the fen farmers against uncontrolled drainage.”

I want to suggest we could restate and broaden this and say that the story of Chippenham Fen has been shaped by a number of things, including the decline of the commons, the history of drainage in East Anglia (and the associated rise of peatland farming), our changing attitude towards both peat and nature, and the fortunes of the Tharp family.

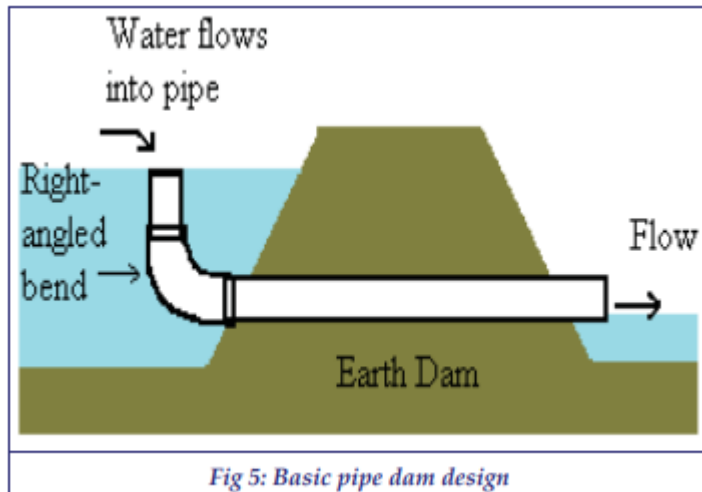
I also think we can say that – while the Tharps rejected SPNR’s offer to buy it – Chippenham Fen became a beneficiary of the 1949 Act. I say this because the Act also introduced the concept of nature reserves and [Sites of Special Scientific Interest](#) (SSSI) and, as noted, the Fen was designated a nature reserve in 1963. Subsequently it was also designated an [SSSI](#).

In addition, the Act created the [Nature Conservancy](#) which, amongst other things, provided a framework for [the legal protection](#) of national nature reserves. Later renamed the [Nature Conservancy Council](#) and then [Natural England](#), today it also manages a number of national nature reserves, including Chippenham Fen. That is why I suggest that the Fen has been a beneficiary of the 1949 Act.

Nevertheless, Chippenham Fen remains the property of the Chippenham Park Estate, which leases it to Natural England. In practice, therefore, Natural England (ultimately the taxpayer) pays for the privilege of managing the Fen.

In thinking about the history of the Fen I am also struck at the fact that water management is as important today as it was in Tharp’s time – although for a different reason. Tharp built ditches and drained the Fen with the aim of profiting from it – growing timber and crops to sell for instance. To do this effectively he realised that careful water management was essential. As the Sheffield ecologists put it, he viewed water as an *agricultural asset*.

Today Natural England’s goal is very different. Their aim is to preserve the peat, and to encourage and protect the flora and fauna that the Fen is able to support, not to make money. However, this too requires careful water management. Perhaps we could say that for Natural England water is a *preservation asset*. Certainly, one of the first things the Nature Conservancy Council did when it took over the Fen was to install collar dams (see below).



What is a collar dam? Hainsworth sent me the above image and explained “We call these structures Collar dams / Pipe dams. At Chippenham we can change the height of the upstream bit i.e., make it higher or lower by adding or removing sections of pipe. Generally, in winter we have too much water, so we sometimes drop the levels. In summer we are short so try and keep as much on site by adding sections.”

Are these not Tharp’s sluices by another name? Either way, it provides a further reminder that, whatever the objective, peat needs to be kept moist if it is not to degrade. And to ensure this careful water management is essential.

This invites a further question: how did the fenlands of East Anglia and its peat manage before man’s interventions? Of course, to ask that question is to be shamelessly anthropocentric and overlook the fact that the landscape of East Anglia, especially around the Wash, has experienced many periods of dramatic change over the ages, with the sea variously rising and falling, for instance, and peatland (not to mention [forests](#)) emerging and disappearing, entirely regardless of the wishes or needs of mankind. What has always been a constant in this consistently changing landscape are regular floods and inundations – the very things man has so assiduously sought to eradicate.

The fact is that when we set out to control, to contain, and to manage, the region’s water courses and its coastline, we – like Tharp and Natural England – sought to create an artificial environment. This has allowed us to transform a vast area of swamps and wetland into the [breadbasket of England](#). But this has come at a high price in terms of damage to the natural world. More worryingly, it has helped create the existential threat that climate change now poses for us. In the long view of history, perhaps we could characterise this as a short-term gain for long-term pain.

The good news is that – whatever the reason for its survival – Chippenham Fen’s future looks more secure today than it has since 1630, when Russell set out to cut a new river through it.

That future might seem all the more secure given the role that peat can play in remediating the threat of climate change. As noted earlier, when peat is drained or burned it releases a disproportionate amount of CO<sub>2</sub>. But it also means that if we rewet and restore peat we can sequester large amounts of CO<sub>2</sub> – as this [visualisation](#) demonstrates. That is, by renewing



peat we can hope to create a vast carbon store able to reduce the amount of CO<sub>2</sub> in the atmosphere.

For this reason, when it [published its strategy](#) for achieving net zero emissions by 2050, the UK government committed to restoring approximately 280,000 hectares of peat in England.

This is further good news for Chippenham Fen. It is also good news for the other fenland sites that somehow survived the “great drainage episode” of East Anglia; and it is good news for initiatives like the Great Fen project and the Wicken Fen Vision – both of which hope to rewild and rewet large tracts of former fenland that have been turned into agricultural land.

A real challenge for those responsible for managing Chippenham Fen, however, lies in protecting it from external threats like air and water pollution. (Some of the issues that Chippenham Fen faces are outlined in [this](#) Natural England document.)

More broadly, all wetland in East Anglia today faces the threat of negative hydrological changes. As a result of a continuing increase in population, for instance, there is growing pressure on water supplies. With towns and cities, industry, and farmers all looking to [abstract](#) ever greater quantities of water from rivers, streams and underground water sources wetland could find that its most vital resource – water – is drying up.

For their part, fenland farmers face the ironic situation where, after 400 years of drainage, they may find it increasingly difficult and/or expensive to keep their crops adequately irrigated. As a result of the pressure on water supplies, and concern about the environment, for instance, there have recently been proposals to [increase the costs of water abstraction licences](#), to [introduce permits](#) instead of licences, and to [revoke or vary permanent abstraction licences](#). These changes, say farmers, could see their historic rights eroded. In East Anglia, it seems, we could be moving from a situation in which there is too much water to one where there is too little water!

The irony here did not escape H C Darby, who nearly 40 years ago noted: “Some districts suffer from drought, and there have been complaints that water levels are kept too low in the drains during summer. It comes as a surprise to see spray irrigation at work on peat fens”.



Irrigating crops in Swaffham Bulbeck (Wikimedia Commons, [Nigel Cox](#))

But the greater danger is that as sea levels rise, and the East coast of England continues to erode, fenland farmers will find that – however profitable it may be today – farming in the Fens will at some point become unfeasible. Either way, it seems that at some point we will have to accept that East Anglia’s current role as the breadbasket of England will have to end, if only because the cost of flood defence looks set to become prohibitively expensive.

In his recent book – *[Land Renewed: Reworking the Countryside](#)* – agricultural writer and journalist Peter Hetherington talks of “the urgency of relocating agriculture from parts of flood-prone East Anglia to safer areas, sometimes dominated by livestock – former arable acres, and new mega-glasshouses, for instance – to take up the slack if some Fenland is returned to a natural, pre-drained state of soft salt marsh and pasture.”

It is hard not to conclude that parts of East Anglia will at some point have to return to the watery landscape they once were. With the UK government currently [committed](#) to restoring large areas of natural habitat in England – including wetland – this seems all the more likely.

Perhaps, all we have done over the past 400 years is borrow the fens from nature. It looks like nature now wants them back.

The above is my attempt to explain why, despite having been drained in the 17<sup>th</sup> Century, Chippenham Fen survives as wetland today. I have tried to do this within a wider historical and geographical context.

But I am no historian. I am also not a specialist in farming or the Fens, so if anyone is able to provide further details, clarifications or corrections, to what I have written I would be more than grateful to receive them.



One of Chippenham Fen’s Pipe Dams

The first post in this series can be read [here](#). More will follow.

#### **Further reading:**

*[A Cambridgeshire Community: Chippenham from Settlement to Enclosure](#)*, by Margaret Spufford (1965)

*[A Topographical and Historical Description of the County of Cambridge](#)* by Brayley & Britton (1820)

[\*An East Anglian Village: or, Epochs in the history of Chippenham, Cambs.\*](#) By Robert William Barber (1897)

[\*Annals of Agriculture and Other Useful Arts: Volume 43\*](#) by Arthur Young (1805)

[\*Chippenham Fen NNR. Botanical, Invertebrate & Hydrological monitoring 1991- 1995\*](#) Final Report (ENRR191) (1996)

[\*Contrasting Communities; English Villagers in the Sixteenth and Seventeenth Centuries\*](#), by Margaret Spufford (2008)

[\*Fenland Farming in the 16th Century\*](#), by Joan Thirsk (1965)

[\*Flora of Chippenham Fen\*](#) in *Nature in Cambridgeshire* by Alan Leslie (2015)

[\*General view of the agriculture in the county of Cambridge\*](#) by Charles Vancouver (1794)

[\*General View of the Agriculture of the County of Cambridge\*](#) by William Gooch (1811)

[\*Inter-War Land Drainage and Policy in England and Wales\*](#) by John Bowers in *The Agricultural History Review* (1998)

[\*Land Drainage in Britain\*](#) by Benaiah Adkin (1933)

[\*Land Renewed: Reworking the Countryside\*](#) by Peter Hetherington (2021)

[\*Studies in the Ecology of Chippenham Fen: I. The Fen Water-Table\*](#) by M Kassas (1951)

[\*Studies in the Ecology of Chippenham Fen: II. Recent History of the Fen, from Evidence of Historical Records, Vegetational Analysis and Tree-Ring Analysis\*](#) by M Kassas (1951)

[\*Studies in the Ecology of Chippenham Fen: III. The Forty Acre Wood\*](#) by M Kassas (1952)

[\*Studies in the Ecology of Chippenham Fen: IV. Tree and Bush Colonisation in South Chippenham Fen\*](#) by M Kassas (1952)

*The Architectural and Social Influences on the Development of Chippenham Park in the late eighteenth and the 19th centuries* by Spencer-Thomas, Margaret (2017). (An unpublished draft MA manuscript held at the University of Buckingham)

[\*The Changing Fenland\*](#) by H C Darby (1983)

*The Eco-Hydrology of Chippenham Fen, Cambridgeshire – An Assessment* by the Sheffield Wetland Ecologists (2018)

[\*The Tharp Estates in Jamaica\*](#) By A. E. Furness (2018), unpublished manuscript.