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## The millers' tales: sustainability, the arts and the watermill

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In 2009, the Nobel Prize-winning economists Joseph E. Stiglitz and Amartya Sen issued a report urging a shift from a purely economic analysis of a country's success or relative failure to one which includes (and is informed by) an analysis of wellbeing and sustainability (Stiglitz et al. 2009). The report concluded that wellbeing and sustainability, which comprise factors such as culture, education, health, water security and food production, are intimately linked. Although their terminology and modes of communication may have differed, the artists and writers of the past have also been attuned to this connection – a connection many of us today have almost lost – and to the various pressures that have threatened to undo it.

### **The watermill in time**

An important but often neglected site in the relationship between literature and the visual arts on the one hand, and sustainability on the other, is the watermill. Our concern here is with the water-driven mill, while we acknowledge there is also a tale to be told about windmills. Wind is a fickle source of power, as opponents of modern wind farms like to point out. Water, by contrast, is seemingly more controllable and predictable – in this sense, more sustainable – than wind, and therefore a more stable centrepiece of community life throughout the world and history. The watermill is frequently sentimentalised as what Terry S. Reynolds has called a 'picturesque artifact' in the modern mind, and abstracted from specific historical moments and social forces (Reynolds 1983: n. pag.). For many hundreds of years the watermill was the point at which food entered most transparently and immediately into the worlds of politics, governance, culture and social justice. It was a complex site within which communities were created and negotiated, through cultural as well as material relationships. The importance and intricacy of the work

performed in and by the watermill elevated it to symbol, ritual, myth and mystery. But, for as long as it remained an everyday part of town and village life, it was also an insistent and shaping material presence. The skilled miller, sifting through the grain, was an important guard against the corruption of the food chain by toxic agents such as darnel and ergot (Archer et al. 2014). The watermill made it possible for the owners of smallholdings to work their land and feed themselves. In it, the ongoing conflict between country and city, and their very different appetites, was played out. It was a place of urgency and contention, in which weights and measures – customary and standardised – were debated and resisted. In short, the watermill had an essential role in the formation of pre- and early modern communities: it enabled them to be self-sustaining; it made the people and their land sustainable.

There are several rich accounts of the history of the watermill in Britain – for example by Reynolds (1983), Steven S. Kaplan (1984) and Martin Watts (2006) – and Beryl Rowland (1969, 1970) has surveyed literary (including classical) representations of milling and millstones. Reynolds suggests that its very ubiquity in history and literature has made the watermill an overlooked subject for contemporary cultural and ecocritical study (1983: 3). This desertion perhaps also results from the fact that for much of British history (and English literary history), the physical structure of the watermill itself appeared resistant to change: in the period 1300–1850, the basic machinery and processes used in the watermill remained much the same (Reynolds 1983: 3). We see the unquestioning acceptance of traditional custom and practice in the lack of a definitive answer to, or even curiosity about, whether and to what degree overshot waterwheels deliver more power than undershot. It was not until 1759 that the engineer John Smeaton (builder of the Eddystone Lighthouse) finally resolved the matter in a paper to the Royal Society. As a result of experimental and mathematical modelling – among the earliest examples of the application of scientific method to engineering – Smeaton showed conclusively that the overshot wheel is twice as efficient as the corresponding undershot wheel (Capecci 2013).

It's a familiar story: scientific insight and technological advance that lead to first gradual, then rapid, sweeping away of 'inefficient' tradition and, with it, of hitherto homeostatic communities and cultures. We find that, just as much as the surrender of common ground to successive waves of enclosures, the loss of the watermill as a centre of food production – owned and operated by and for the community – marks a fault line, a profound trauma in British history. Industrialisation replaced the grain mill with the mills of manufacture – cotton, paper, wool, steel, as elegised by Richard Jefferies and celebrated by J. M. W. Turner (Jefferies 1880; Rodner 1997). The mill is a recurrent mystical symbol in the writings of William Blake and even has a walk-on part in the early history of the

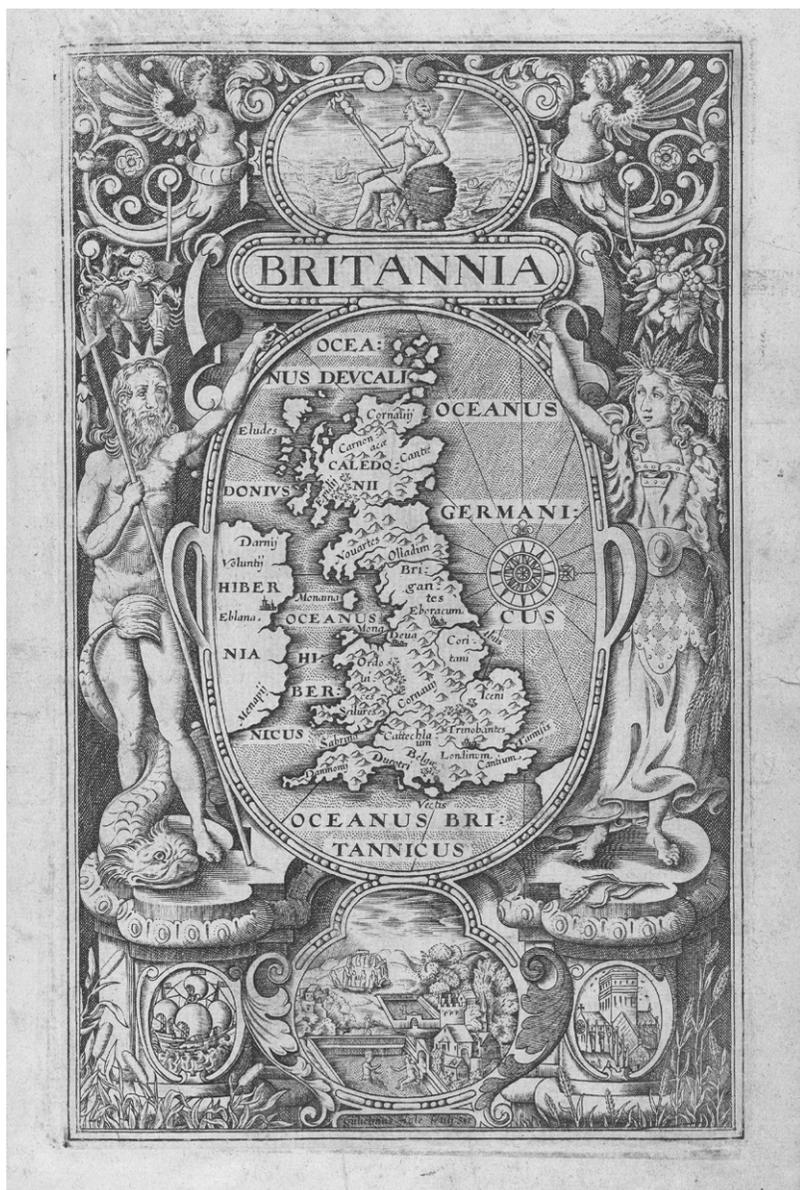
information age: the analytical engine of Charles Babbage comprised the 'store' and the 'mill', precursors of the memory and central processor of modern computers (Swade 2002: 105).<sup>1</sup>

One of the most famous literary watermills instructed its cultured, largely urban readership in the dangers of neglecting – and, importantly, neglecting by misreading – the watermill as a site. Although *Don Quixote* (1606, 1615) is better known for its 'tilting at windmills' episode, Cervantes' antique knight makes a similar mistake when he approaches two watermills. Sancho Panza, a former farmer, sees what is before him: 'two large watermills in the middle of the river', which he further explains as 'watermills ... where they grind wheat'. Don Quixote sees something quite different. '[A]lthough they seem to be watermills,' he explains, 'they are not': 'There, my friend, you can see the city, castle, or fortress where some knight is being held captive, or some queen, princess, or noblewoman ill-treated, and I have been brought here to deliver them' (Cervantes 2005: 650)

Their boat caught in the fast-flowing millrace, it is Quixote and Sancho who have to be rescued by two floury-faced and exasperated millers. As Harry Levin remarks, in the figure of Don Quixote Cervantes explores the relationship between 'literary artifice and that real thing which is life itself' (Levin 1959: 81). Elsewhere, we have considered the tendency among scholars and literary critics to read literary representations of watermills as something, anything, other than what they are, and for what they do: namely, places 'where they grind wheat' (Archer et al. 2015a). Like the Golden Age knight, on occasions literary critics and modern readers should perhaps be willing to attend to the words of Bishop Joseph Butler: 'Everything is what it is, and not another thing' (1726: 19). Watermills are 'real things', places where wheat is ground. Watermills happen to people, and as a result they are material presences in literature and culture. The cost of neglecting to consider the watermill in such terms is to fail to understand the important lessons millers' tales can tell us about the role of food production in sustainability – lessons that are vital to our own and future wellbeing.

### Tales of water, wheat and self-sustaining communities

In poetry, prose and the visual arts, Britain has been celebrated as an island formed and powered by the interaction of water and wheat. In the frontispiece to William Camden's *Britannia* (1586, 1610: 3), a cartographic rendering of the British Isles, seemingly certain in its locations and relative dimensions, is accompanied by two classical deities (Figure 1.1). To the left is Neptune, god of the sea, and to the right is Ceres, the corn goddess. Just as much as the mapped part of this frontispiece, the presence of the



**Figure 1.1** Illustrated frontispiece, William Camden. 1610. *Britannia, or A Chorographicall Description of the Most Flourishing Kingdomes, England, Scotland, and Ireland, and the Ilands Adioyning*

gods of sea and corn reveal an important truth about the history of these islands. The matter of Britain is enlivened by the meeting and interaction of sea and land, water and wheat – what Thomas Hobbes, writing in 1651 called ‘the two breasts of our common Mother’ (1985: 285). When these resources are exploited in a sustainable fashion, Camden explains, Britain can not only feed herself, she can afford to export overseas, thereby fuelling her own imperial ambition.<sup>2</sup>

Writing over 200 years later, John Keats was also able to imagine a ‘Kingdom of Corn,’ albeit one no longer associated with a particular place in the present, but one seemingly lodged in the mythical past: the golden age of a Virgilian autumn. Keats’s Apollo addresses the three Graces:

Which of the fairest three  
To-day will ride with me?  
My steeds are all pawing at the threshold of the morn:  
Which of the fairest three  
To-day will ride with me  
Across the gold Autumn’s whole Kingdom of corn? (Keats 1988: 56)

Embedded within these seemingly abstract and timeless visual and literary references is an urgent and determinedly time-bound politics of food supply. Camden and Keats wrote not in times of abundance, but in times of dearth. The period 1580–1610 witnessed a run of poor harvests. In a series of initiatives, the state attempted to control the production, processing and distribution of grain; when those measures were perceived to fail, riots broke out in London and the Midlands.<sup>3</sup>

Keats wrote amidst febrile debates concerning responses to the spiralling corn prices generated by the 1815 Corn Law and cheap labour exacerbated by the influx of soldiers returning from the Napoleonic Wars (Barnes 1930: 117–84; Gash 1978). Proposals for a second Corn Bill were debated in Parliament during late 1818 and early 1819. The impact of these factors on the prices and distribution of food led to increasing food insecurity (and profoundly influenced Keats’s poetry at that time; see Marggraf Turley et al. 2012). It was a situation likely to result in revolution, as Byron warned in *The Age of Bronze*:

For what were all these country patriots born?  
To hunt, and vote, and raise the price of corn?  
But corn, like every mortal thing, must fall,  
Kings, conquerors, and markets most of all. (Byron 1823: 28)

Allusions to corn, wheat and harvests in the works of Camden, Keats and Byron are not simply reworkings of a literary trope as old as Hesiod and Virgil. For all three British authors, the corn they write about is pressingly real and is part of a wider web of environmental conditions, political imperatives and socio-economic concerns – unsustainable times, with uncanny similarities to our own. Indeed, the interplay of water and wheat

is, in turn, part of a much bigger story concerned with the sustainability of food production and distribution. Globally, more than 80 per cent of the land used for growing crops depends entirely on precipitation to support plant production. The remaining cropland is irrigated and supplies almost 40 per cent of the world's food and fibre needs. Ours is a thirsty planet. It takes about 500 tons of water to make 1 ton of potatoes. A ton of wheat needs 900 tons, maize 1,400 tons, and rice comes in at a mighty 2,200 tons (Mekonnen and Hoekstra 2010). The international trade in food can therefore be understood an international trade in water.

In the sciences, a proxy is a measurement of one physical quantity that is used as an indicator for the value of another. Food can be considered to be a proxy for both water and for the chemicals required for human nutrition. Former ages were attuned to this fact: for example, owners of watermills who diverted water for their own use were considered guilty of 'hoarding' water – a crime equivalent to hoarding grain or other staples (Kaplan 1984: 225). The food chain, then, can be seen as a proxy for the flow of carbon (or nitrogen, phosphorus and sulphur) from agriculture to consumer. Alternatively, it can be seen as a proxy for the transfer of solar energy trapped by photosynthesis from autotrophs (green plants) to heterotrophs (humans, animals and all the other plant-dependent life forms). It can even become a proxy for information (from the genotypes of plants to the genotypes of animals, mediated by their phenotypes). How we think of sustainability depends on the particular proxy we favour. Proxies are essentially metaphors. And metaphor is nothing if not the warp and weft of literature.

In literature, from medieval times to the dawn of the industrial era, the watermill performed (to quote Byron) an 'Agrarian Alchymy': a dynamic, evolving force in narrative and metaphor, it helped to trace the changing imperatives within, and pressures felt by, self-sustaining communities (Byron 1823: 28). In earlier literary and cultural representations, the watermill was usually accommodated within specific interpretive schemes. Classical myth imagined the world as a giant mill, with the gods as the millers who grind mortals through lifetimes of suffering and endurance (Rowland 1970: 215–16). Echoed in the Old Testament, this symbolism was carried over into the Christian tradition of the 'Mystic Mill', in which threshing and grinding signified the apocalypse and Last Judgement, pure souls separated from impure. As the 'Mill of the Host' in medieval times, the watermill carried Eucharistic associations, representing the transformation by which Old Law is 'ground' into the New Law, and flour is transubstantiated into the body of Christ, the Host (Aston 1994; Delasanta 2002).

In the English literary canon, concerns about sexuality are never far from issues of class and legitimacy (sexual and parental). In post-medieval drama, such as John Fletcher and William Rowley's comedy *The Maid*

in *the Mill* (licensed for performance in 1623 and first published in 1647) and the anonymous *Faire Em, the Miller's Daughter of Manchester* (performed between 1589 and 1593), the watermill is a metaphor for the purity (or otherwise) of sexuality and breeding, and serves both to conflate these anxieties and to project them onto the body of the miller's daughter. In *The Maid in the Mill*, the name of the miller's daughter, 'Florimel', carries echoes of both 'flour' and 'flower', alluding to her social rank as well as her virginal status. But, just as a miller has to be able to recognise weeds in order to produce the finest (and, for the consumer, safest) flour, a woman needs to know how to play the harlot in order to preserve her chastity, and Florimel pretends to be sexually experienced in order to escape her abductor, Count Otrante (Fletcher and Rowley 1909).

The Renaissance stage used milling and grinding as metaphors for sexual intercourse – especially intercourse of an illicit variety.<sup>4</sup> Although William Shakespeare made extensive use of this metaphor, it is significant that one of the two mentions of actual mills in his works is of a paper mill (in *Henry IV Part 2* [1597–8]: 4.7.67); the other allusion is made by Poor Tom as part of the ancient, broken world of *King Lear* [1605]: 3.1.90–3). Perhaps because of the playwright's extensive acquisition of food-producing land in Warwickshire (see Archer et al. 2015b) – but also, no doubt, to boost sales – the first printed edition of *Faire Em* was attributed to Shakespeare (Chambers 1923: iv.11; Tucker Brooke 1908). In this comedy, set during the reign of William the Conqueror, the miller is a disguised nobleman who regains his rank by the end of the play, and his chaste daughter, the eponymous Em, represents not simply her father's honour but that of the pre-Conquest English. First performed in the wake of the Spanish Armada, *Faire Em* celebrates the miller as representative of Englishness itself, and it is perhaps no coincidence that to Elizabethans, France was notorious for the poor quality of its cereal crops and bread.<sup>5</sup>

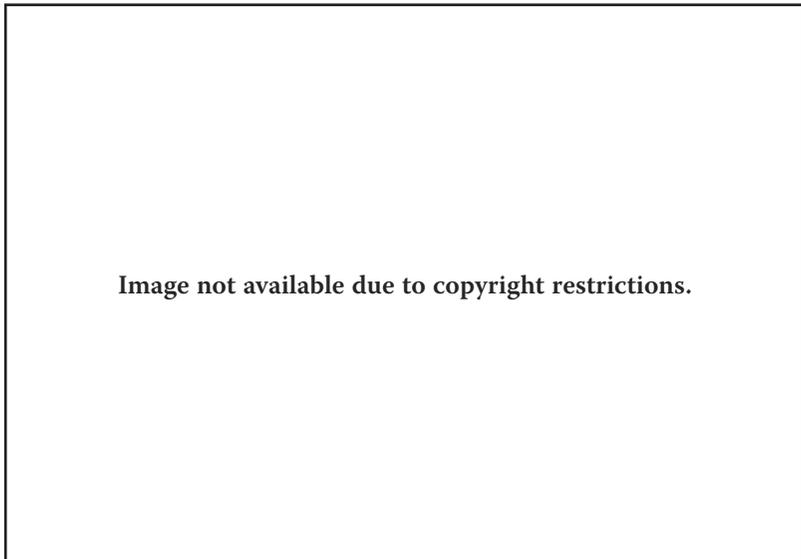
By the late eighteenth and early nineteenth centuries, literary portrayals of the watermill assume an elegiac tone, whether in the tragi-comedies of George Eliot's *The Mill on the Floss* (2010, first published 1860) and Thomas Hardy's *The Trumpet Major* (1880), or the maudlin poetry of Robert Bloomfield.<sup>6</sup> Alfred Lord Tennyson's 'The Miller's Daughter' (published in 1833 and again, with substantial revisions, in 1842) was supposedly inspired by Trumpington Mill in Cambridgeshire (Pinion 1984: 87), but this poem, like Bloomfield's, is abstracted by its author from time and place, the lost life or love of the miller's daughter standing in generalised terms for the lost communities and ways of life sustained by the watermill.

In the second half of this essay, we turn to the stories of four watermills, actual and (re)imagined: Flatford Mill in East Anglia, often associated with John Constable's 1821 painting now known as *The Hay Wain*;

Trumpington Mill in Cambridgeshire, setting for Geoffrey Chaucer's *The Reeve's Tale* (c.1390); Dorlcote Mill, home to the Tulliver family in George Eliot's *The Mill on the Floss*; and Felin Ganol in Llanrhystud, Ceredigion, a building with medieval origins and recently restored to working order. The stories of these watermills, the tales told by and about their millers, mediate important (sometimes inconvenient) truths about our fraught relationship with the worked land and remind us of the particular role of the creative arts in helping shape alternative, more sustainable relationships with the material resources available to us.

### **The tale of Flatford Mill**

Our first miller's tale takes the form of a painting that visualises a particular, less predatory, aspect of the dynamic relationship between land (in the form of a crop) and water (in the form of a mill stream and imminent storm). Successive misreadings of John Constable's iconic Romantic canvas *The Hay Wain* have much to tell us about our inability to recognise the processes and priorities involved in milling as well as the embeddedness of the watermill within the contingencies of social and environmental history (see Figure 1.2). *The Hay Wain* depicts an unladen hay wagon in shallow water between Flatford Mill in East Anglia and the cottage of tenant farmer Willie Lott. The miller whose tale is told in this painting



**Figure 1.2** John Constable, *The Hay Wain* (1821)

was the artist's landowning father, Golding Constable, who held the lease on Flatford Mill.

For many who will remember the image from place mats and biscuit-tin lids, *The Hay Wain* depicts rural life as a calm, bucolic idyll where the miller's seemingly contented labourers gather a picturesque crop of hay that has been drying on the fields. The scene is so pretty, the central character seems to have stopped work to admire his surroundings. Constable's painting has become synonymous with what we expect to see in historical portrayals of English village life. So much so that Jack Higgins's *The Eagle Has Landed* (1975), in which a waterwheel exposes a German plot to assassinate Winston Churchill, is set in a fictional Norfolk parish called Studley Constable. Karl Kroeber (1992) urges us to consider *The Hay Wain* as something other than a realistic representation of the processes and technologies involved in haymaking. Now more than ever, Kroeber warns, Constable's depiction of the Dedham Vale was, and is, 'addressed to an audience of non-haymakers' (1992: 29). The temptation is to view the canvas as an artful assembly of haymaking images, rather than as an accurate record of work. Kroeber quite rightly, in broad terms, suggests that *The Hay Wain* 'recall[s] our imagination to a function of our society that we have grown accustomed to overlooking' (1992: 29). Like most viewers, though, he also appears to have overlooked certain clues *vis-à-vis* farming techniques that were integral to haymaking in 1820, and which would certainly have been a matter of everyday experience for contemporary audiences.

Consider hay wains themselves. '[W]hat', asks Kroeber, 'is this one doing in the middle of the river?' (1992: 30). It's an interesting question, but is it the right question? In fact, the hay wain is not in the 'middle of the river', but is positioned off the river Stour in a mill stream, which is something quite different. Leaving milling nomenclature aside, though, perhaps a more fruitful question to pose is this: where has the hay wain come from? Because if the wagon's destination seems clear enough – the fields being harvested by the stooped labourers in the right of the composition – the other end-point in its journey is less obvious, at least in the critical literature on the painting. The most often-mooted destination is Flatford watermill itself, which stands just behind the painting's viewing perspective. Ann Bermingham is not alone in asserting that the wagon has come from there: she writes of 'Flatford Mill from which the hay wain returns' (1989: 142). But in agricultural terms, this makes no sense. Grass and hay belong to pastoral agriculture, whereas the business of watermills is with arable produce such as wheat and barley. The most likely place from which the hay wagon is returning, as Roger Friedland and Deidre Boden (1994) point out, is a barn – there's one a little further behind the mill.<sup>7</sup>

The potential for such misreading arises only when we forget our historical relation with the worked land and, specifically, the relationship

between its produce and water sources. Constable's portrayal of the latter has also posed problems among critics. Kroeber refers to the hay wain's crossing of the river Stour (and mill stream) as a 'short cut' (1992: 29). The route from the meadows and back again would have been the most direct and traditional route to the landowner's barn. Such journeys across fords are critical for the sustainability of communities, as reflected in the countrywide profusion of ancient place names in which the *ford* element occurs (Mills 2003). They also underlie a vexed legal ecosystem of leaseholds, tenancies, water rights and wages, as well as arrangements between tenant farmers and landowners, and in broader terms, local power structures, at the heart of which lay Constable's father.

While *The Hay Wain* might appear to transcend material history, offering an escapist's paradise, the work, as John Barrell points out, actually struggles to ignore, or absorb into its aesthetic, wide unrest and 'social divisions' affecting East Anglian agricultural communities (1980: 132). In 1816, just five years before the painting's composition, the region had witnessed 'bread or blood' food riots as a result of rising corn prices (Peacock 1965). Constable, in fact, commented dismissively on this unrest in an 1821 letter to his friend John Fisher – a letter in which he also discusses *The Hay Wain* (Leslie 1845: 90–3, 142–3, 145–6). It is perhaps reasonable to assume that the fact Constable's father owned the local granary might have inflected the painter's views on 'bread or blood.' The year 1822 saw a spate of hayrick and barn firings, resulting in transportations and executions for arson. Constable may be keen to paint, as it were, over the cracks in a community where his own family were influential landowners and merchants, but whatever calm the painting offers is only calm in the sense of that which precedes a storm – a literal storm.

According to the National Gallery's notes on the work, the hay wain appears to be serenely static, 'stand[ing] in the water' (National Gallery 2015). Agricultural labourers were rarely able to stand idle on the job, especially when there was a crop to be harvested. Water in a different form, the menacingly dark clouds in the upper left of Constable's painting, invites us to read the hay wain's short journey in a different context. Rain could spell disaster for a harvest of cut hay. What looks like the stationary pose of the central figure in fact shows him contemplating the imminent storm, and perhaps judging where it is headed, and how long it will take to arrive. He may also be considering whether the downpour is likely to make the mill stream impassable, and what he needs to do next in order to save as much of the hay harvest as possible. In the light of John Middleton's advice to farmers in *General View of the Agriculture of Middlesex*, the stasis many have seen in the central figure and hay wain is, in fact, a moment of tension and incipient action: 'In the very common case of approaching rain, when the hay is fit for carrying, every nerve is, or ought to be, exerted to ... [get] all the carts and waggons loaded, and drawn

into the barns' (1813: 316). The alternative was to leave the hay to 'take its chance' and to risk the valuable crop rotting and spoiling (Middleton 1813: 316). This very specific detail has wider ramifications. As Paul Muskett (1984) points out, the year after Constable finished his painting, heavy rain, which resulted in interrupted labour and lost wages, was a contributory factor in the East Anglian agrarian riots.

When we look closely, then, we see that Constable's painting is far from timeless and unchanging, but is forensically accurate in depicting the rhythms in motion of loading and unloading hay wagons. (There is a second wagon in the painting – often missed, tiny in the fields on the right, which is having stooks of hay lifted onto it. In visual 'dialogue' with the returning unladen wain, it again emphasises process rather than stasis.) The painting also insists on the importance of being able to 'read' water correctly, whether it takes the form of rainclouds or mill stream. Managing food (fodder for livestock) and water is shown to be essential to the livelihoods of the miller, his family (including the miller's gifted son) and employees. If we can read these material resources correctly, Constable's hay wain (and *The Hay Wain*) can be seen to exist at the centre of a fraught network of economic and social relations on the point of violent upheaval.

### The tale of Trumpington Mill

Our second miller's tale, *The Reeve's Tale*, situates the working watermill in a particular geographical setting and historical moment. Chaucer's Reeve tells the story of Symkyn, the corrupt miller from the site of Tennyson's later inspiration, Trumpington near Cambridge. Like the thieving miller in the *General Prologue* of the *Canterbury Tales*, Symkyn has a 'thombe of gold' (Chaucer 2008: i.563). The miller's golden thumb is both metaphorical and literal, signifying the profit to be made by a talented miller who can winnow bad seed by hand, but also the use of cereal grains in determining the weight of gold and hence the currency, with one 'grain' being the weight of a grain of barley (later, a grain of wheat, which is lighter).<sup>8</sup>

Having defrauded his customers for many years, Symkyn gets his comeuppance, not by finally giving his customers what they are entitled to, but by suffering the indignity of having his wife and daughter fornicate with two students from the nearby university. The metaphor is plain and the economy of the story is the very definition of poetic justice: Symkyn grinds his customers' grain, and his customers grind his womenfolk. The satirical treatment of the miller, and the tale's concern with sex and social status, are responses to the power of the miller in medieval England. As guardians of the food chain, millers were regulated by the Assize of Bread (1266–1820) by which the government and local authorities regulated

the ingredients, weight and price of bread (Davis 2004; Ross 1956). Chaucer's satire, and other aspects of this tale, suggest that in spite of the Assize, it was felt that the miller held a disproportionate amount of power.

In framing *The Reeve's Tale*, Chaucer's most arresting departure from his source text (a thirteenth-century French fabliau) is to locate Symkyn's mill in a very particular place: 'At Trumpyngtoun, nat fer fro Cantebrigge, / Ther gooth a brook, and over that a brigge, / Upon the whiche brook ther stant a melle' (Chaucer 2008: i.3921–3). The lines read like instructions to a traveller. Their specificity suggests that the tale the Reeve is about to tell is intimately related to this particular location. Chaucer's first readers are likely to have known this area, for in the immediate aftermath of the Peasants' Revolt (June 1381), the royal court was transferred to Cambridge. The relationship between the two places mentioned by the Reeve is one of antagonism, and for a very simple reason: the Cambridge colleges rely on the surrounding rural areas (including Trumpington) for their food. Within Cambridge itself, the river Cam was too weak to power a watermill, meaning the colleges had to take their grain elsewhere to be milled. Commandeering the spot at which the Cam flows with greatest strength, Symkyn has a monopoly over milling in the region, and this monopoly ('Greet sokene') is written into law:

Greet sokene hath this millere, out of doute,  
 With whete and malt of al the land aboute;  
 And nameliche ther was a greet collegge  
 Men clepen the Soler Halle at Cantebregge;  
 Ther was hir whete and eek hir malt ygrounde. (Chaucer 2008: i.3987–91)

Universities are hungry places. Unable to either produce or process their own food, and within water rights, the Cambridge colleges were vulnerable to high prices and unscrupulous millers.

Chaucer's positioning of *The Reeve's Tale* in a particular landscape and historical moment has the potential to open up a new, politicised interpretation of the poem. Both before and after the Peasants' Revolt of June 1381, the rural areas of Cambridgeshire had been subject to violence and protest – largely by agricultural labourers angry at the erosion of their customary rights by government legislation and landowners (Aston 1994). During the feast of Corpus Christi in 1381, local labourers broke into Corpus Christi College and destroyed its property, burning many of its books. The symbolic weight of this act, taking place during a celebration of the 'host', the body of Christ prepared from the finest wheat by millers and bakers, cannot be underestimated. Thomas Walsingham (2003: 458–9) chronicled how, in nearby Hertfordshire, protesters refused to take their grain to St Alban's Abbey (also a site used by the royal court), which held a monopoly on milling rights in the region, and instead used hand mills. When the authorities seized the tenants' hand mills, protesters broke into the abbey, seized and smashed its millstone and distributed the fragments

among rioters. By imitating the breaking of the host in communion, the protesters attacked the inequitable distribution of food and justice in the parish. Chaucer's *The Reeve's Tale* seems to echo and engage with these events, using Symkyn's watermill to dramatise the ongoing struggle between the competing interests of town and country, food producers and consumers.

### **The tale of Dorlcote Mill**

The power afforded by water rights is key to Chaucer's study of food production, and our penultimate miller's tale shows what happens when millers, managers of river ways for many centuries, are threatened with the gradual erosion of their water rights. Telling the story of the Tullivers, a family of millers who have lived and worked at Dorlcote Mill on the fictional river Floss for several generations, most of the events described in George Eliot's novel, *The Mill on the Floss*, take place in the first two decades of the nineteenth century. Eliot is as careful as Constable and Chaucer in her depiction of a precise agricultural and environmental world. As at Flatford, Dorlcote Mill abuts arable land, which is also owned and worked by the Tullivers; their produce is distributed overland and by water. In the haunting opening chapter, Eliot's narrator remembers, as if in a vision or dream, the cornfields, orchards, mill and malt house owned by the Tullivers. This is, however briefly in the timeline of the novel, a sustainable model of a community which feeds itself.

The diversion of water upstream of Dorlcote anticipates and, it is implied, contributes to the eventual destruction of Tulliver's grain mill, home and, most importantly, the family's future, when the siblings Tom and Maggie Tulliver drown as freak storms coincide with the Floss's biannual tidal bore. Writing forty years after the events described, Eliot's narrator remembers the mill just as its role as centre of the sustainable community is vanishing. The ensuing analysis of the reasons for this loss are sharply critical and insightful:

Our instructed vagrancy, which has hardly time to linger by the hedge-rows, but runs away early to the tropics, and is at home with palms and banyans – which is nourished on books of travel and stretches the theatre of its imagination to the Zambesi – can hardly get a dim notion of what an old-fashioned man like Tulliver felt for this spot, where all his memories centred, and where life seemed like a familiar smooth-handled tool that the fingers clutch with loving ease. (Eliot 2010: 299)

Why has the sharp satire of Chaucer's miller turned to elegy? Because of 'Our instructed vagrancy.' Eliot explains that we have lost a vital connection with the land because we no longer know how to occupy and take responsibility for it. Serving as a metaphor for the rootless individual,

the food chain has also become ungovernable. In 1820, the Assize of Bread had just passed out of legislation. The authorities no longer undertook to guarantee the price, ingredients and size of bread. Millers, having lost their powerful role in the community, were pitiable subjects of tragedy rather than satire.

Eliot's analysis of sustainable food production, and the pressures it faced, goes much further. As we have seen, the 1820s were times of food riots and rural violence – customary rights were not to be given up without a fight. This violence, which hovers at the edges of *The Mill on the Floss*, is most obviously manifested in the flood and drowning of Maggie and Tom Tulliver at the end of the novel. Critics have tended to neglect the very careful research Eliot undertook into such matters as water management, arable farming and the laws pertaining to property and water rights. Informed by this knowledge, the tragic flood is far from a 'melodramatic contrivance' (to quote E. A. Baker (1937: 247)), but is shown to be the consequence of abandoning the mill as the centrepiece of sustainable food production. This trend in criticism of the novel is summarised and discussed by Larry Rubin (1956). Elsewhere, we have argued that Eliot's knowledge of the agri-environmental world inhabited by the Tullivers was acquired first-hand (Archer et al. 2015a). In particular, she was interested in different types of river systems, including mill streams, tidal rivers and waterways with contested water rights, and her research included trips to the river Wey (and at least one of its mills) and Gainsborough, Lincolnshire, on the river Trent. In the novel, Eliot carefully documents the way in which the flood is the result of the failure in river management. The destructiveness of the flood is shown to be a consequence of the emergence of mills (paper, cotton, oil and iron mills) upstream, the conversion of arable land into meadow and pasture, and because grain mills such as Dorlcote are purchased by the likes of Pivart, a 'new name'. The Tullivers owned Dorlcote Mill 'a hundred year and better' (Eliot 2010: 174); new names, it is evident, do not have the knowledge, passed down the generations, to manage their land and water. The result is catastrophic:

Nature repairs her ravages – repairs them with her sunshine, and with human labour. The desolation wrought by that flood had left little visible trace on the face of the earth, five years after. The fifth autumn was rich in golden corn-stacks, rising in thick clusters among the distant hedgerows; the wharves and warehouses on the Floss were busy again, with echoes of eager voices, with hopeful lading and unloading. (Eliot 2010: 598)

What is taken by critics as a 'hopeful' ending means something very different to those more attuned to the fragility of the food chain. 'The fifth autumn' sees an eventual restoration of cereal crops. But four autumn and five spring harvests have failed – impossible conditions for those

who used to live on the Floss and work its land. Trading towns like St Ogg's can endure a short period of dearth, but for the innumerable smallholding families like the Tullivers – and the workforce which relied on them – five years of dearth signals the destruction of the self-sustaining community.

### **Conclusion: food at the watershed**

It is one of the themes of this essay that, throughout history, the coming together of flowing water and harvested food, in the shape of the grain mill, has been decisive for sustaining thriving communities in time and space. In recent years, mill restoration projects have become widespread and even fashionable, driven in part by the heritage industry and by interest in hydropower as an alternative energy source. The Community Heritage Fund (financed by the Landfill Tax) instigated the Windmill and Watermill Challenge in 2007 and awarded £600,000 to eight watermill and windmill projects across England. More recently the Heritage Lottery Fund has made contributions to a few watermill conservation schemes, including Howsham mill in Yorkshire and the Sacrewell mill near Peterborough (Society for Protection of Ancient Buildings 2009). Many other restorations have been community or private initiatives.

One such venture is Felin Ganol (Figure 1.3), a centuries-old watermill site in the Ceredigion village of Llanrhystud, which until the Second



**Figure 1.3** Felin Ganol, Llanrhystud, Ceredigion

World War was producing flour and ground animal feeds, and generating electricity through an Armfield turbine. The mill's website describes the history of Felin Ganol and its current produce (Felin Ganol Watermill 2015; see also O'Sullivan 2014). The mill was central to village life as a source not only of cereals and electrical power but also of apples from its orchard, of milk and butter from its cows, of livestock including pigs, hens and ducks reared for sale by the miller's family, of tea from an importing business operating from mill premises, and of timber from a carpenter in the mill loft who used a saw driven by the turbine.

Relative isolation meant that the revolution in agricultural practices that occurred in the eighteenth and nineteenth centuries in England did not have much impact on the rural way of life in Wales until well into the last century. Topography and climate make cereal production precarious. Almost 60 per cent of land in Wales is above 500 feet and unsuitable for arable cultivation. Even in the areas where cereals were grown, the absence of large grain markets inhibited widespread wheat cultivation in favour of livestock and oats (Moore-Colyer 2000). Measures such as liming to improve soils relied on deliveries by canal and sea (Moore-Colyer 1988). Sustaining a food chain under these circumstances is difficult at the best of times. As the twentieth century progressed, major changes in lines of communication and in popular tastes and aspirations contributed to the opening up of formerly self-sufficient communities and the loss of the mill's social and economic status. Felin Ganol fell idle as the demand for stoneground flour dwindled.

Recommissioning derelict grain mills should also be considered in the context of the growth of the local food movement. In this respect, Felin Ganol has a significant story to tell. Anne and Andy Parry bought Felin Ganol in 2006 and set about rescuing the neglected water supply, wheel gear, grindstone mechanisms and the grain handling and flour grading machinery. The fully functioning mill now produces and sells wholemeal, white, semolina, spelt, rye and triticale flours and is organically certified. Since September 2010 Felin Ganol has been milling the spring wheat variety Tybalt, grown locally on Aberystwyth University Organic Farm, and is part of a project with Aberystwyth and Bangor Universities to develop naked oat and barley varieties specifically suited for growing in the mid-Wales area. The Parrys represented Wales at the 2014 Salone del Gusto and Terra Madre in Turin and presented Hen Gymro wheat to the Slow Food Ark of Taste, a project created in 1996 to defend endangered foods from globalisation. At a time when the risks to food security and sustainability associated with grossly extended and vulnerable supply lines make headline news, the re-establishment of long-defunct local food chains is welcome.

The watermill has been a site of intense scrutiny in British culture. The stories we have told about these structures form part of the larger

narrative of our own lost connection with the land and the literature embedded in it. They continue to be sustaining, meaningful presences in our lives. The vigorous literary stream, flowing from William Langland through Chaucer, Shakespeare, John Clare, George Eliot and Thomas Hardy, has petered out in the swamps of *Cold Comfort Farm* and *Scoop*; a chronicle, like the history of mills, milling and millers, of the failing sustainability of a tradition. By recovering the lost contexts of the mill as the heart of self-sufficient communities throughout history, we stand a better chance of understanding how we got here, and how we may prepare, as sustainably as we are able, for a future that seems to be brewing up a perfect storm of food, energy, biodiversity and climate calamity.

## Notes

- 1 William Blake writes of mills in 'There is No Natural Religion' (1788), 'The Marriage of Heaven and Hell' (1790–3), 'America a Prophecy' (1793), 'Milton a Poem' (1804–11), 'Jerusalem the Emanation of the Giant Albion' (1804–20) and his letter to William Hayley, 23 October 1804 (Eaves et al. 1996).
- 2 Britain is also figured as Ceres in the illustrated frontispiece to *Poly-Olbion* (Michael Drayton 1612, 1622).
- 3 The agrarian crisis of the late sixteenth and early seventeenth centuries is documented by Andrew McRae (2002), R. B. Outhwaite (1991) and John Walter (1991). Literary and cultural representations of dearth and food riots in this period are discussed in Elisabeth Angel-Perez and Alexandra Poulain (2008) and Chris Fitter (2000).
- 4 Gordon Williams lists literary examples of this usage between 1525 and 1720 (Williams 1994: ii.887–9).
- 5 See, for example, Burgundy's speech at the end of *Henry V* (1598–9: 5.2.33–62), discussed in Archer et al. (2013: 532–3).
- 6 'The Miller's Maid: A Tale' was first published in Bloomfield's 1801 publication *Rural Tales* (Bloomfield 1857: 121–9). It was made into an opera by John Davy in 1804 and formed the basis for a two-act melodrama by John Faucit Saville in 1821.
- 7 For the literary and technological significance of barns, see Marggraf Turley (2014).
- 8 This is discussed by Bee Wilson (2008: 64) in her history of adulteration and swindling in the food supply chain.

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