

# Irrigation of Water Meadows in England

L'irrigation artificielle des prairies en Angleterre

Die Bewässerung von Riesselwiesen in England

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## Introduction

The irrigation of land is usually regarded as the supply of water to an otherwise arid region in order that it can be fruitfully cultivated. In England, however, irrigation can perhaps be more appropriately described as supplementing the natural rainfall in order to improve grassland. In the low-lying meadows beside rivers and streams, irrigation was achieved either by the natural seasonal flooding of land, which resulted in a consequent deposition of fine alluvial silts, or artificially, by the controlled diversion of water through a system of sluices and leats. Elsewhere, on suitable valley slopes, meadows were irrigated by cutting contour leats and directing water from a source, through the leats, and allowing it to flow downhill in a controlled manner.

Although it is not entirely clear when these artificially flooded (also known as floated) meadows were first developed, it was in the early 17<sup>th</sup> century that there is documentary evidence of large-scale irrigation. They continued in use into the later-19<sup>th</sup> century and early 20<sup>th</sup> century when, with the introduction of artificial fertilisers and cheaper crops from abroad, they began to decline. Artificially irrigated meadows were especially successful on the chalk downland regions of Wiltshire, Hampshire, and Dorset, and in the West Country (particularly in Somerset and Devon). They were also enthusiastically adopted elsewhere in the country wherever possible. It is, however, in the chalk regions in the south of England and in the West Country that the earthwork evidence remains so prolific.

The aim of flooding meadows was to encourage an earlier growth of grass. This was achieved by allowing a thin sheet of continually flowing water to pass over the meadow, which had the effect of raising the ground temperature as well as depositing nutrients. This ensured an earlier growth of grass for the sheep flocks (and in some cases a hay crop for cattle and horses) in the Spring when there was a lack of fodder. Since sheep provided dung for the arable fields, there was a direct relationship between the number of sheep that could be kept and the amount of land that could be cultivated. Later in the summer, after further flooding, a hay crop would be cut. The artificial flooding of meadows was thus regarded as one of the most important agricultural innovations of the post-medieval period and their monetary value reflected this importance. On Brendon Farm on the Brendon Hills in Somerset, for

example, the land was valued at 2s an acre in the 1840s, but when it was converted to a water meadow the value increased to 25s an acre (*Roals 1845*, 520). This increase appears excessive and may be an exaggeration, but nevertheless, similarly spectacular increases can be demonstrated elsewhere (*Betty 1999*, 184).

Much has been written about the history and the advantages and disadvantages of flooded water meadows (eg *Kerridge 1953*; *Bowie 1987*; *Betty 1999*). In contrast, however, with a few notable exceptions (eg *McOmish et al. 2002*, 132–36; *Wade-Martins – Williamson 1999*), relatively little detailed archaeological research has been undertaken. It is against this backdrop that this paper has been written. Using the evidence of field survey and investigation, coupled with aerial photographic interpretation from recent English Heritage research projects, this paper aims to analyse the main methods of artificially flooding meadows. It also questions the assumption that they were first used in the late 16<sup>th</sup> century and suggests that they probably evolved over a much longer period of time.

## The Characteristics of Artificially Flooded Water Meadows

There are two main types of artificially irrigating meadows, which are classified as either 'catchwork' or 'bedwork' water meadows.

### Catchwork Meadows

Catchwork meadows were mainly constructed on hill slopes, although examples on flatter ground near rivers and streams also occur (*Pusey 1849*, 469; *Acland 1893*). They are readily recognised by the series of water channels (also known as carriers or gutters) cut along the contours of a hill (*fig. 1*). Although commentators regarded them as relatively cheap to construct when compared to bedwork meadows they were, nevertheless, well engineered; for example, great care was taken to establish precise levels along the gutters (*Smith 1851*, 141). In addition, the downhill side of a gutter was invariably embanked to ensure an even flow of water along its full length. On occasions this bank may be breached at intervals to allow flooding of particular areas (*pers. comm.* Rob Wilson-North).

