Some notes on the 'Acre' fields of Brislington Meadows

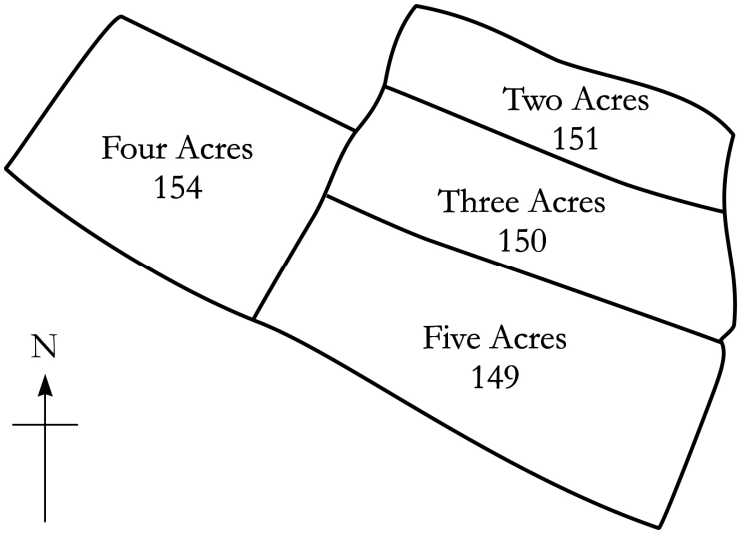
Ken Taylor (2023)

Summary

The following shows why it may reasonably be accepted that a particular set of four fields at Brislington Meadows appeared in the landscape at a single time. Attention is also drawn to the possibly the fields were laid out according to a carefully considered plan constructed using a baseline and perpendicular of two and one furlongs respectively.

The study area

In 1791 local landowner William Gore Langton had his estate in Brislington surveyed, and the resulting map gives us the earliest known detailed portrayal of the area now commonly known as Brislington Meadows. Accompanying the map is a book that provides additional insights by listing each field's size, use, name and occupier.



Sketch of the four 'Acre' fields from the 1791 survey map, annotated with numbers and names from the 1791 survey book.

The 1791 survey map shows a cluster of four roughly rectangular fields in the Brislington Meadows area that are named Two Acres, Three Acres, Four Acres, and Five Acres. A little to the north of these fields lies the swathe of Brislington Common that was enclosed by an Act of Parliament in 1778 and whose fields have characteristically precise straight edges (Two Acres

shared a boundary with one of those enclosures). The map shows the boundaries of the four 'Acre' fields aren't as straight as those of the 1778 enclosed fields to the north, but they're distinctly more regular than those of the surrounding fields to the west, south and east.

These four fields with their characteristic pattern of boundaries and names could, if they were created at a single point in time, yield clues about the evolution of agriculture at this site.

Do the names measure up?

If the hillside was surveyed and the field boundaries were set to conform to a predetermined series of sizes, then accuracy (name = area) should be high. Conversely, if the field boundaries evolved through use, and their names arose later as a haphazard or rough estimation of their relative size, then accuracy (name = area) ought to be low. It may be possible to deduce which came first - the names or the boundaries - simply by comparing the measured sizes of these fields with their names.

The dividing line for a basic test would place a field that's within half an acre of its named area in the high accuracy group, and a field that's more than half an acre outside its named area (larger or smaller), in the low accuracy group.

Several readily available sources for the area of each field are listed below.

- 1791 estate survey
- 1846 tithe map
- 1886 Ordnance Survey

We may assume surveying techniques increase in accuracy over the decades, but we must balance that with the natural habit of hedgerows to become disordered as they mature (making them more difficult to measure with precision). For that reason, and to facilitate further study, the average area for each field is provided below. The 1886 maps no longer name the fields.

Area of Two Acres

Year	Name	Number	Acre	Rood	Perch	Acres	Deviation
1791	Two Acres	151	2	0	21	2.131	7%
1846	Two Acres	514	4	1	11	4.319	116%
1886		432	4.282			4.282	114%
					Average	3.577	79%

The measurement in 1791 is just 0.131 of an acre larger than its name implies, but subsequent surveyors show the acreage more than doubles. A glance at the 1846 tithe map provides the reason - this field has incorporated both a large part of the field known in 1791 as The Hook, and a small part of Sawpit Tining (Bristol Archives 1846).

Area of Three Acres

Year	Name	Number	Acre	Rood	Perch	Acres	Deviation
1791	Three Acres	150	3	1	14	3.338	11%
1846	Three Acres	504	3	1	14	3.338	11%
1886		433	3.453			3.453	15%
					Average	3.376	13%

In 1791 there's an 11.3% deviation from the size indicated by this field's name. In many circumstances a margin of error in the region of 10% is perfectly acceptable, but here this field is a third of an acre larger than expected, and that's large enough to require specific explanation beyond any premise of inaccurate surveying.

Perhaps one or more of the field's boundaries shifted between the day they were laid out and the date of the survey in 1791, after all, occasional informal enclosures had been occurring throughout England for more than a century). If we accept that premise, we need only move this field's southern edge a little to produce a combined acreage with Five Acres of 8.156 acres - a combined deviation of less than 2%.

Area of Four Acres

Year	Name	Number	Acre	Rood	Perch	Acres	Deviation
1791	Four Acres	154	3	2	30	3.688	-8%
1846	Four Acres	516	3	3	7	3.794	-5%
1886		429	3.974			3.974	-1%
					Average	3.818	-5%

This field is nearly a third of an acre smaller than its name indicates. That deviation may be explained by a shift of field boundaries, but the southwest corner of this field is very close to the gully of a significant watercourse (a tributary of Brislington Brook). The source of its flow moves with the seasons: in dry months water only appears above ground several metres downstream from the start of the gully, while after prolonged rainfall water will arrive in the gully after flowing above ground across the surface of the field itself. It may be the field boundaries were surveyed in dry weather, but in practice the boundaries were slightly moved to avoid that occasionally waterlogged patch of ground.

In passing we should note an error in the 1791 survey book. The book records field sizes twice, firstly almost as a list of contents, with fields in numerical order, and then arranged by the name of the person who rents or otherwise occupies the land. The figure used above is taken from the latter listing, which contains more detailed information about the fields (including their value). The first listing stated there are 20 (not 30) perches.

Area of Five Acres

Year	Name	Number	Acre	Rood	Perch	Acres	Deviation
1791	Five Acres	149	4	3	11	4.819	-4%
1846	Five Acres	501	4	3	36	4.975	-1%
1886		434	5.187			5.187	4%
					Average	4.994	-0.1%

We've already considered a possible explanation for this field being a little smaller than its name indicates, by a movement of its northern boundary into Three Acres. Other explanations may be available.

Summary of field areas

The measurements for the fields in the 1791 survey are all are within 11.3% of their named size, and the average disparity is 7.3%. The largest divergence is 0.338 of an acre, so all four fields pass the basic test of being less than half an acre larger or smaller than their names.

Remarkably, when all the figures for the 1791 survey are added together, the total area of the fields is 13.975 acres (13 acres, 3 roods, 36 perches), just 0.025 of an acre smaller than the fourteen acres that is the sum of their names (a divergence of less than 0.2%).

The high precision of overall area is likely to be accidental, but is a strong indicator the correlation was planned (literally), and justifies the assertion these fields were designed to conform to the area designated by their name.

If the fields were originally designed to comprise 14 acres, and the surveyor was aware of this, we should perhaps not entirely rule out the possibility of a desire to conform with that tradition - if not consciously then perhaps in a form of unconscious bias that favoured the rounding of fractions in a certain direction. But such effects would be constrained by the surveyor's professionalism, and should be minimal.

The fields in the landscape

Having met the primary goal of this piece of research, it's tempting to see what else becomes visible from this new platform of knowledge. The following observations are presented as opportunities for further research (sadly beyond the capacity of the author at the time of writing).

Three of the four fields are neatly stacked so their outer boundary forms a single large rectangle (its northeast corner is dented by the proximity of a farmhouse and another house). The other field is situated adjacent and shares its eastern boundary with the 'large rectangle', and also shares the alignment of its southern border with that of the large rectangle.

The landscape in which these four fields were created was presumably a long-established form of the medieval open field system. One field - Three Acres - has a series of linear features (LiDARFinder 2022) that have been interpreted as faint relics of medieval ridge and furrow ploughing. The long sides of this field run parallel with those striations on the LiDAR image, suggesting its boundaries were aligned to respect those earlier landmarks. Being contiguously rectangular, the other fields naturally follow that same alignment (ridge and furrow may have been more extensive on the hillside, but its remains could have become unrecognisable over time, probably by later ploughing that produced the prominent lynchets that border these fields).

A footpath conjectured to be a medieval Priest's Path between Keynsham Abbey and the home of the chaplains of the Chapel of St Anne in the Wood, runs along the lower (southern) boundary of Four Acres and Five Acres. The footpath also respects the alignment of the suggested ridge and furrow but it's unclear whether the fields follow the footpath or the footpath was re-routed to accommodate the fields.

At the southwest corner of Four Acres (the most westerly point of the four fields) the footpath narrowly avoids the necessity of crossing the watercourse (noted above) that has its head just a few metres downhill (OS map ref ST62457109). The water almost immediately cuts a deep channel or gully, so this point on the footpath is likely to be original.

The baseline and the perpendicular

If we take the southern boundary (along the footpath) as a baseline, then the 'large rectangle' rises up the hill perpendicular to it at a tolerable right angle. These two lines provide a simple geometric starting place from which to divide and enclose an open landscape.

The book accompanying the 1791 survey doesn't provide linear measurements, and although the 1791 map itself is reasonably accurate when superimposed on, say, the 1886 Ordnance Survey (OS) map, the scale drawn on the map is sadly of inferior draughtsmanship. The author of the present work is hampered by the current necessity of working from a photograph of the map, which inevitably introduces some distortion both from the curvature of the camera lens and the oblique angle from which it was taken. Both tend to shorten distances toward the north, which particularly affects the perpendicular. For what it's worth, using the scale to measure the map, this combination of flawed sources produces a baseline of approximately 426 yards (which is 14 yards short of 2 furlongs); and a perpendicular of around 209 yards (11 yards short of 1 furlong).

The boundaries of the fields that form baseline appear not to have shifted far over time, and the 1886 OS yields a length of approximately 429 yards (11 yards short of 2 furlongs). Determining the perpendicular isn't as straightforward because the northern boundary of Two Acres was removed after 1791. In an attempt to extrapolate the length of its western boundary we may use the ratio of the 1791 boundaries of Three Acres and Two Acres, (noting again limitations produced by photographic distortion). The perpendicular so produced using the 1886 OS is around 209 yards (11 yards short of 1 furlong).

Other factors affecting these calculations are the slope of the hillside, and the presence of ridges and furrows (relics of medieval ploughing), both of which would tend to increase the distance measured on the surface of the ground relative to the distance measured on a two-dimensional

map. Such refinements of our figures will grow the lengths of baseline and perpendicular toward the hypothetical original design of 2 furlongs and 1 furlong respectively. Currently, the maximum divergence from integer furlongs is only 3.2% for the baseline and 5.2% for the perpendicular. Knowing those percentages would be reduced by further investigation, encourages some optimism that having a baseline of 2 furlongs and a perpendicular of 1 furlong was intentional.

Other observations

Every planned development needs a starting point: the place from which measurements can be taken so the design can be laid out on the landscape. In the absence of documentary evidence, we'll need to discover its location from clues in the landscape, fortunately it's most likely this starting point will be at one end of the baseline.

The west end of the baseline is marked by the natural landmark of the watercourse, which may have suggested a good place to start, but the other candidate is arguably preferable.

The east end of the baseline terminates in a T junction with an access route to the farmhouse and another house mentioned above, approaching from the south. The farmhouse (most recently known as Emery's Farm, but demolished in the latter half of the 20th century) was occupied by Thomas Harrill who rented three of the four fields, and the house by Sarah Goby who farmed the other (Three Acres). Both of these occupiers also farmed other fields appearing in the 1791 survey book, and it's possible their homes were originally built to provide accommodation conveniently close to these fields and were contemporaneous with the laying out of this set of fields. That the farmhouse and other house predate the Enclosure of Brislington Common is evidenced by the curved perimeter of their grounds being respected by the otherwise orderly pattern of the Enclosure fields (SHC 1780).

The curved perimeter of the farmhouse etc. is also significant in two other ways. Firstly, the large rectangle comprising Two Acres, Three Acres and Five Acres gives way to it, resulting in a concave distortion of its northeast corner. Secondly, the northern boundary of Two Acres (and, therefore, of the large rectangle) is continuous with it (apart from a break for a corresponding access route approaching from the north).

With access to an accurate copy of the 1791 map, it should be possible to undertake some sort of analysis of the lengths of the field boundaries (perhaps along similar lines to the above investigation of their areas). That could reveal more of the methodology behind the creation of this fascinating set of fields in Brislington Meadows.

Bibliography

Bristol Archives 1846, *Brislington Tithe Map and Apportionment*, EP/A/32/9; this map is also available online from Bristol City Council (https://maps.bristol.gov.uk/kyp).

LiDARFinder 2022, https://lidarfinder.com (accessed 10 Apr 2023).

Ordnance Survey 1886, *Somerset VI.8*, 25 inch to the mile, National Library of Scotland, https://maps.nls.uk/view/106018559#zoom=5&lat=5655&lon=10697&layers=BT (accessed 7 Apr 2023.

Pryce, B 1791, *A Survey of the Estates belonging to Willm. Gore Langton Esqr. Situate at Brislington in the County of Somerset and at Thornbury in the County of Gloucester.* Somerset Heritage Centre, SRO DD/GLd 4.

SHC 1780, *A Plan of the Exchanged Lands in the Fields within the Parish of Brislington otherwise Bustleton in the County of Somerset 1780*, Somerset Heritage Centre, Q/RDE/130.