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“Books of Reference (Area books)”

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The Charles Close Society was founded in 1980 to bring together all those with an interest in the maps and history of the Ordnance Survey of Great Britain and its counterparts in the island of Ireland. The Society takes its name from Colonel Sir Charles Arden-Close, OS Director General from 1911 to 1922, and initiator of many of the maps now sought after by collectors.

The Society publishes a wide range of books and booklets on historic OS map series and its journal, *Sheetlines*, is recognised internationally for its specialist articles on Ordnance Survey-related topics.

OS Books of Reference (Area books)

Paul Bishop

When the Ordnance Survey mapped Britain by County and Parish at a scale of 1:2500 in the second half of the nineteenth century, the land-use and area of every mapped parcel of land were also recorded and published in the Parish Books of Reference (also called Area Books and Parish Area Books).¹ The fact that the mid- to late nineteenth century land-use was recorded makes these books an invaluable resource, and here I briefly summarise some issues associated with the Books of Reference land-use data. I then assess the quality of the data for Baldernock Parish, a small rural parish covering 4,411 imperial acres on the northern outskirts of Glasgow, comparing the Parish's mid-nineteenth century OS land-use data with farm plans of part of the Parish in 1805 and 1830.

The land-use data

Just as the National Library of Scotland has scanned many OS map series at various scales, including the 25-inch First Edition mapping to which the Books of Reference relate, and made these superb digital versions of the mapping available on-line,² so also has the Library had the Books of Reference themselves scanned and made available on-line.³ The pages reproduce clearly and legibly (*figure 1*) and it is also relatively straight-forward (if a little tedious) to import pages from the Books of Reference into an Excel spreadsheet for subsequent manipulation. Once in Excel, the data can be sorted by land-use and/or by land parcel area, and areas can be summed and so on.

Each parcel of land larger than an unspecified minimum size on a First Edition 25-inch map (in effect, each enclosed [fenced or dyked] field and other area of ground [e.g., road, house] that is larger than the unspecified minimum size) was given a number, as recorded in the first column in the Book of Reference (column 1 in *figure 1*; see *figure 2* for the corresponding map showing some of the numbered land parcels as mapped). The area of each parcel is given in column 2. Some separately numbered mapped areas are very small – parcel 7 in *figure 2* is only 0.08 acre – and there is considerable rationalisation of these areas and their numbering on the Second Edition 25-inch mapping. As well, the Books of Reference ceased publication in the 1880s and the area of each parcel was printed on the map face in later printings of the First Edition⁴ and in the Second Edition.

The numbering and area of each parcel are almost certainly reliable – each surveyor's mapping was checked by a checker and in any event the mechanical nature of assigning a number to a parcel of land and then calculating the parcel's

¹ R Oliver, *Ordnance Survey Maps. A Concise Guide for Historians*, London: Charles Close Society for the Study of Ordnance Survey Maps, 2005, 54.

² <http://maps.nls.uk/>

³ <https://archive.org/details/osbooksofreference> I am grateful for having my attention drawn to this website by Roger Hellyer's note in *Sheetlines* 104, 64.

⁴ See R Oliver and P Bishop, 'Re-drawing of OS First edition 1:2500 sheets for a later First edition printing', *Sheetlines* 106 (2016), 43-49.

area lend themselves to accuracy (especially for OS personnel presumably expert in the calculation of such land areas). I know of no discussion or questioning of these two sets of data. The third column in the Book of Reference gives the parcel's 'Description' (the land-use). Deciding on and recording land-use are less mechanical in nature and it is possible that land-use surveyors made mistakes in this task.⁵ For example, Coppock reported a case of mapped land-use of contiguous fields abruptly changing at a County boundary that would not be expected to have been associated with such marked changes.⁶ I have also found one slip in the Baldernock data that are treated further below: the Book of Reference for Baldernock Parish records a Description of 'Occupation Road' for a land parcel (no. 653) that is actually an agricultural field. Notwithstanding such slips, Harley has noted "that the field recording of the 'state of cultivation' was not a chance or casual process. ... It was ... the responsibility of a field examiner, an independent specialist presumably selected for aptitude in such work, and who would soon have built up useful experience in identifying land-use types in the field."⁷ Nonetheless, Richard Oliver has commented that "the examiners' classification of land-use was not subject to such close control [as the checking of linework and the authorities for place-names]."⁸

Figure 1 indicates some of the land-uses that were recorded during the 25-inch First Edition mapping. Terms such as 'Orchard', 'House' and 'Ornamental Grounds' are straightforward, as are most of the other land-use descriptors such as 'Forest Trees', 'Underwood', 'Bushes', 'Furze' (whin, gorse), 'Marsh' and 'Sandhills'. Many of these terms are not, in fact, land-use in the sense of 'human' land-use, but 'descriptions', as column 3 in the Book of Reference is actually headed. It is noteworthy – and this is perhaps a key point – that arable (i.e., crops) and pasture, the two broad agricultural land-use types, were not individually indicated by symbols (i.e., agricultural fields were left blank, unless they were, for example, orchards). This apparent anomaly arose in part because a major and enduring issue for OS mapping was not differentiating arable and pasture but the distinction between non-cultivated land and cultivated, the latter including both pasture and arable.⁹ As Harley noted, "The Survey's interest in this line [between non-cultivated land and cultivated] undoubtedly stemmed from the general nineteenth-century trend of waste-land reclamation, culminating in the period of High Farming. But it also became progressively important as a surveying distinction in its own right and after 1855 it was to separate the areas of 6-inch and 1:2500 mapping".¹⁰ It was thus important for the OS to place correctly

⁵ The definitive assessment of the accuracy of the land-use mapping in the Books of reference is: JB Harley, *The Ordnance Survey and Land-use Mapping, 1855-1918*, Historical Geography Research Series, No. 2 (1979), Norwich: Geo Books..

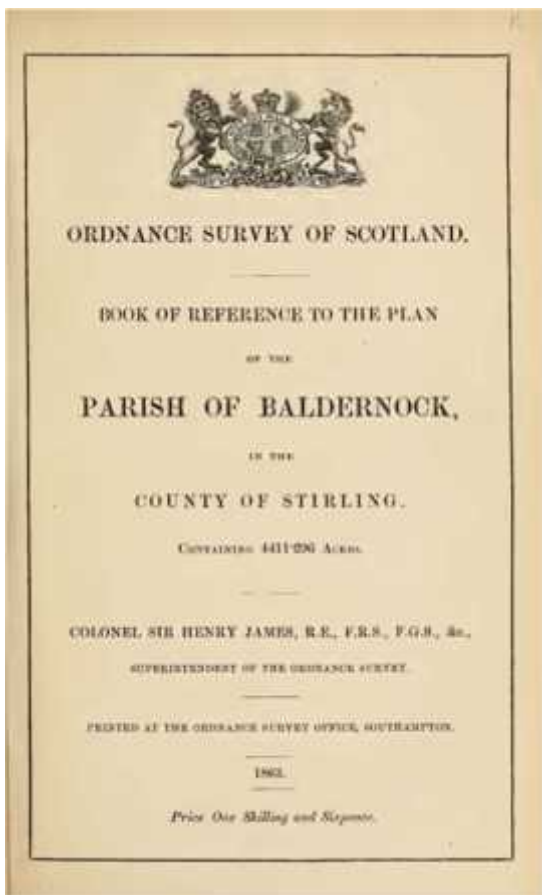
⁶ JT Coppock, 'Maps as sources for the study of land use in the past', *Imago Mundi* 22 (1968), 37-49.

⁷ JB Harley, op. cit., 28.

⁸ Richard Oliver, *Ordnance Survey Maps. A Concise Guide for Historians*, op. cit. 54.

⁹ JB Harley, op. cit., 29ff.

¹⁰ Ibid.



PARISH OF BALDERNOCK,
17 700.
COUNTY OF STIRLING.

No. of Plan.	Area in Acres.	Description.	No. of Chks.	Area in Acres.	Description.
1	441	Old ground road.	1	100 000	Brought forward.
2	4 799	Craigmaddie Loch (part of).	31	4 907	Platons, slopes, walls, & whins.
3	143 840	Craigmaddie Plantation, trees, slopes, &c.	32	19 263	Arable.
4	2 301	Garden, &c.	1	1 197	Arable.
5	2 294	Outland.	35	5 066	Homecroft garden, &c. (Orkney).
6	1 426	Ornamental ground.	38	7 732	Arable & slope.
7	300	Passer.	37	8 064	Ornamental road.
8	923	Park.	38	229	Plantation.
9	127	Craigmaddie House.	39	9 718	Passer.
10	2 588	Ornamental ground, &c.	40	5 70	Plantation.
11	479	Office, garden, wood, &c.	41	9 651	Arable.
12	44	Ornamental ground.	42	430	Plantation.
13	907	House.	43	2 112	Arable.
14	116	Passer & part of loch.	44	2 776	Temple road.
15	332	Plantation, slopes, & part of loch.	45	3 907	Plantation.
16	2 811	Ornamental ground.	46	3 041	Arable, trees, & part of loch.
17	916	Plantation, slopes, &c.	47	308	Woods, trees, & part of loch.
18	388	Plantation, slopes, and road.	48	7 022	Arable.
19	1 423	Ornamental ground.	49	212	Plantation.
20	1 983	Plantation, slopes, &c.	50	321	College, garden, ornamental ground, &c. (Dunbart).
21	126	Ornamental ground.	51	2 188	Arable, trees, & bank.
22	910	Loch, garden, &c.	52	2 485	Plantation.
23	4 708	Ornamental ground.	53	12 140	Arable & part of thin.
24	311	Plantation.	54	2 632	Plantation.
25	9 640	Passer, walls, & slopes.	55	989	Rough pasture, trees, & whins.
26	8 477	Rough pasture & whins.	56	11 324	Pasture.
27	12 418	Arable.	57	19 317	Pasture.
28	3 381	Rough pasture & whins.	58	2 180	Arable & road.
29	2 948	Plantation & slope.	59	19 792	Arable & road.
30	1 447	Passer & trees.	60	9 987	Plantation.
			61	838	Plantation.
	120 882	Cleared ground.		340 021	Cleared ground.

PARISH OF BALDERNOCK.

No. of Plan.	Area in Acres.	Description.	No. of Chks.	Area in Acres.	Description.
31	232 321	Brought forward.		1819 347	Brought forward.
32	11 896	Arable.	109	139	Pasture, road, & slope.
33	19 542	Arable & road.	101	21 728	Arable & road.
34	910	Plantation & half of trees.	102	610	Quarry.
35	2 207	Part of road.	103	9 904	Arable.
36	535	Rough pasture, trees, & whins.	104	289	Pasture, slope, & trees.
37	11 439	Arable, road, part of loch, &c.	105	9 535	Arable.
38	19 418	Plantation & slopes.	106	2 042	Old private road.
39	229 026	Rough pasture, trees, &c.	107	12 373	Arable.
40	479	Homecroft, wood, garden, &c. (Orkney Moor).	108	3 273	Arable.
41	4 023	Roadway.	109	721	Pasture & trees.
42	54 158	Rough pasture, trees, &c.	110	3 673	Arable.
43	4 904	Arable, plantation, &c.	111	298	Ornamental road.
44	9 944	Rough pasture, trees, &c.	112	3 000	Arable, &c.
45	15 000	Arable & road.	113	2 041	Arable and occupation road.
46	48 840	Rough pasture, trees, &c.	114	2 023	Arable, &c.
47	12 323	Arable, &c.	115	942	Arable and occupation road.
48	18 370	Pasture, trees, & rocks.	116	713	Homecroft garden, &c. (Bank Cottage).
49	64 740	Rough pasture, trees, roads, trees, trees, roads, trees, &c.	117	449	Woods.
50	304	Rough pasture.	118	7 000	Arable.
51	4 544	Arable, &c.	119	1 273	Balton, whins, & trees.
52	30 632	Plantation, slopes, occupation road, &c.	120	4 184	Arable, road, &c.
53	478	Rough pasture & rocks.	121	3 980	Pasture, slopes, road, trees, & ponds.
54	9 007	Arable.	122	284	Arable.
55	210	Rough pasture & trees.	123	120	Houses, cottages, & garden.
56	3 712	Arable.	124	7 806	Arable & trees.
57	3 072	Arable.	125	796	Ornamental road.
58	7 186	Arable & road.	126	11 273	Arable.
59	9 484	Arable.	127	430	Rough pasture.
60	7 523	Arable.	128	546	Arable.
61	815	Houses, garden, &c.	129	1 045	Homecroft garden, &c. (High Bieldon).
62	410	Arable & trees.	130	7 451	Arable.
63	6 000	Arable.	131	2 226	Arable, road, &c.
64	2 864	Arable.	132	2 743	Arable.
65	5 004	Part of road.	133	3 590	Arable.
66	39 000	Arable.	134	10 642	Arable.
67	11 000	Arable, slopes, & trees.	135	17 207	Arable.
68	7 243	Arable.	136	15 440	Arable.
69	2 242	Plantation & slopes.	137	618	Homecroft garden, &c. (Loch).
	1019 347	Cleared ground.		139 719	Cleared ground.

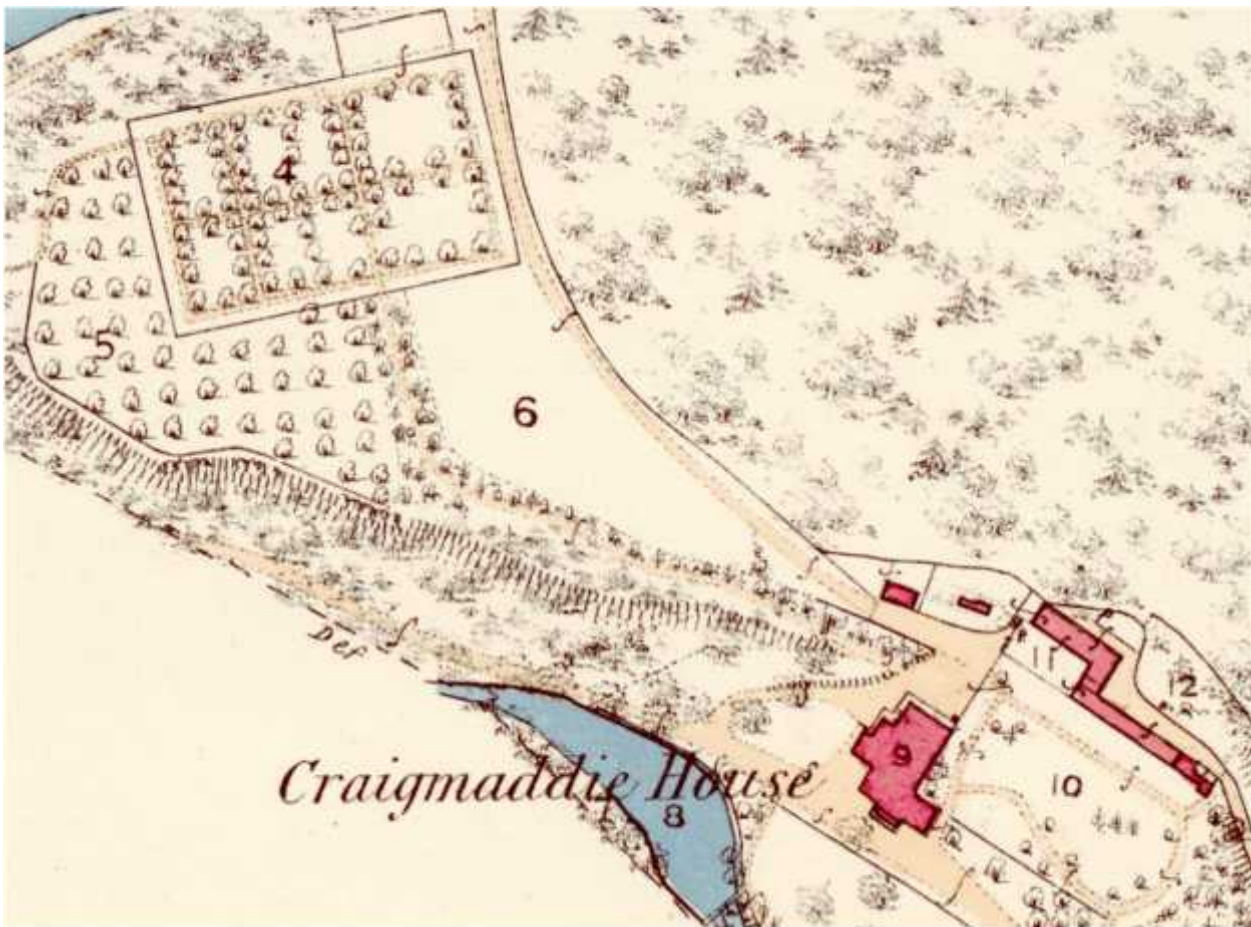


Figure 1 (top). Cover and pages 1 and 2 of the data pages of the Book of Reference for the 1:2500 First Edition map of the Parish of Baldernock.

Figure 2. Part of the First Edition 1:2500 mapping of Baldernock Parish covering the area recorded in the Book of Reference in figure 1. Land parcel 7 is very small – it lies along the western shore of the loch at bottom centre, and the digit “7” can just be discerned immediately below the “ie” of the “Craigmaddie House” label.

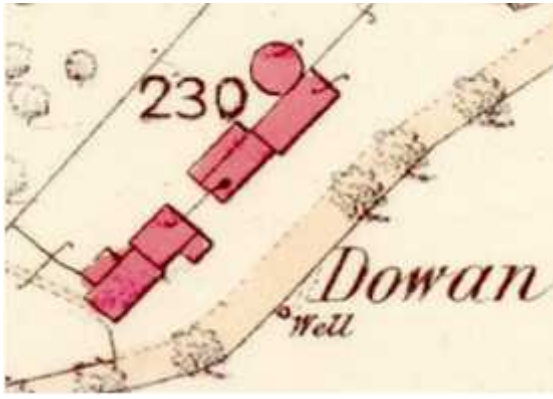


Figure 3A (top). Circular horse gin of the tangential form. Horses walked round the circular roofed and walled building driving a thresher in the adjacent barn. From OS First Edition 1:2,500 Stirling Sheet 32.2 (Baldernock Parish).

Figure 3B. Horse gin of the apsidal form at lower left. The gin was roofed and walled, and the thresher was in the adjacent barn. The half-circle and parallel-walled connection to the adjacent barn accommodated the full circle of the horse walk. From OS First Edition 1:2,500 Stirling Sheet 32.3 (Baldernock Parish).

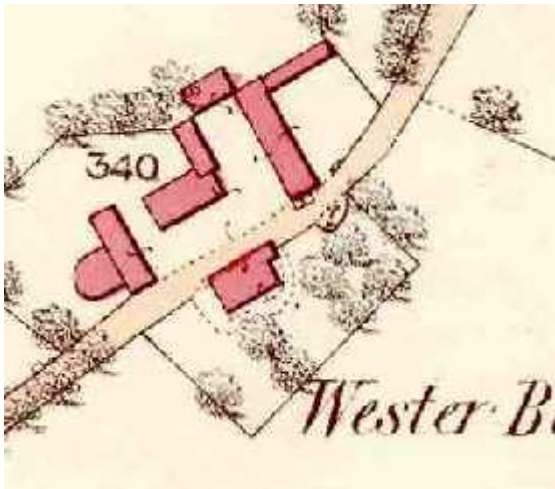


Figure 3C. Horse gin of the unroofed but walled circular tangential form. As for all horse gins, the thresher was in the adjacent barn. From OS First Edition 1:2,500 Stirling Sheet 32.3 (Baldernock Parish).

Figure 3D. Open air (unroofed and unwallled) horse gin as confirmed by a 1960s photograph. From OS Second Edition 1:2,500 Lanarkshire Sheet 2.09.

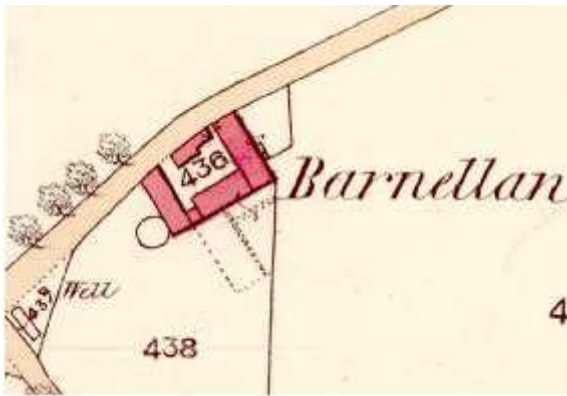
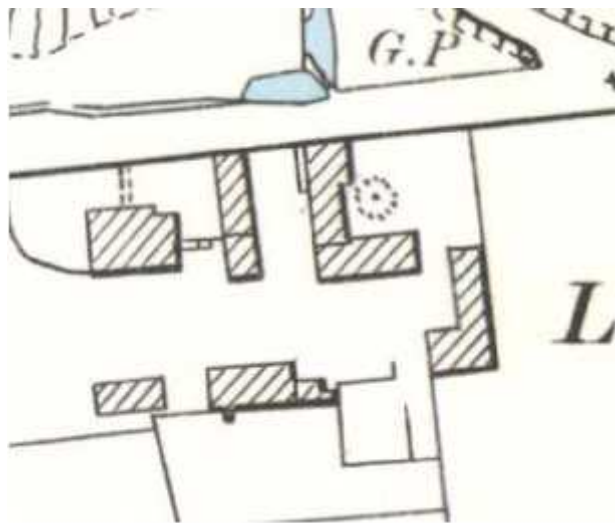


Figure 4. Google Earth© image approximating the area of Baldernock Parish. The buff-coloured fields have been recently ploughed and are the fields generally sown to a crop each year; they cover ~8% of the image area. When questioned, local farmers estimated 'off the tops of their heads' that arable cultivation covers 10-15% of the Parish's area, which is broadly consistent with the 8% measured from this Google Earth image. The farmers stated that, if hay fields are included as arable (see text), the arable area increases to about 30%. Hay fields are not distinguishable on the Google Earth image.



the boundary between cultivated and non-cultivated, whereas, as Harley noted, the distinction between arable and pasture “may be less consistently accurate than the simple distinction between cultivated and non-cultivated land.”¹¹ Moreover, crop rotation and fallowing of land, for example, mean that the use of a particular field could change over time, and the interpretation that such a change in a field’s use was indicative of a change in overall land-use is likely to have been erroneous. Harley noted that fallowing was known by some surveyors to have been part of the regional agricultural practice (e.g., for OS surveyors in the West Country) and was intentionally described in the land-use data for such areas as ‘Arable and Pasture’.¹² However, that term could also have described a situation in which arable and pasture were found within a single field (the smallest unit for which an area was given and a land-use described). The possible uncertainties are clear.

The distinction between pasture and arable becomes critical when using OS mapping to investigate land-use history, as I have done, for example, in relation to doocots (dovecotes, pigeon houses)¹³ or horse gin-powered threshing machines¹⁴ (*figure 3*). Local cultivation of grain crops is a pre-requisite for the installation of threshing machines and doocots, raising interesting questions about an area’s proportion of pasture versus arable in the mid-nineteenth century, when the First Edition County Series were compiled and doocots and horse gins functioned. If an area’s agriculture was dominantly pastoral, then the area might not be expected to have needed threshing machines or to have supported doocots. The timing and rate of spread of horse gin-driven threshing machines into the more pastoral areas of the west of Scotland, for example, thus become key issues in these areas’ local history and part of the understanding the diffusion of agricultural innovation throughout Scotland.

Land-use proportions in Baldernock Parish as a whole

Rural land-use in Baldernock Parish in the twenty-first century is predominantly grazing (pasture) (*figure 4*). Using OS map evidence, I have nonetheless found that horse gins, which processed grain crops (i.e., arable production), were indeed common in Baldernock Parish in Scotland’s western Central Belt by the mid-nineteenth century, with ~40% of farms having a horse gin.¹⁵ This figure is consistent – disarmingly so! – with the *New Statistical Account (NSA)*, the ‘snapshot’ of every Parish in Scotland that was compiled in the period 1834–45. For readers unfamiliar with the *Statistical Accounts* of Scotland, these were

¹¹ JB Harley, op. cit., 32. It is also intriguing to note the earlier Irish mapping at 1:2500 was in part related to the delimitation and mapping of cultivated lands for taxation purposes and to speculate whether this gave a fundamental emphasis in OS mapping to the distinction between cultivated and non-cultivated lands.

¹² JB Harley, op. cit., 36.

¹³ e.g., P Bishop, ‘Doocots in East Dunbartonshire: A preliminary compilation’, *Vernacular Building* 39 (2015-16), 67-80.

¹⁴ e.g., P Bishop, ‘Horse gins in Baldernock, East Dunbartonshire’, *Vernacular Building* 38 (2014-15), 7-26.

¹⁵ Ibid.

written by the Parish Minister, sometimes assisted by the local School Master, covering for each Parish “a wide spectrum of subjects including agriculture, education, trades, religion and social customs”.¹⁶ The *NSA* for Baldernock reports that farming in Baldernock Parish occupied a total of 2,550 acres, comprising 1,045 acres (41%) devoted to the arable crops of oats, wheat, barley, potatoes, beans or turnips, with the remaining 59% of agricultural land (1,505 acres) being devoted to pasture, hay or fallow. It must be noted that the *NSA* treated hay as non-arable (along with pasture and fallow), whereas the instruction to OS surveyors that “P[asture] is only applicable to permanent pasture” indicates that hay was treated as crop.¹⁷ Early nineteenth century farm surveyors, whose farm plans are discussed below, also classified the cultivation of hay as arable. The similarity between one of these surveyors’ and the OS proportions of arable and pasture that is noted below confirms that the OS also classified hay as arable (i.e., a crop). In any event, the *NSA* proportions of 60:40 for pasture:arable must be a maximum for pasture if hay is moved to the arable class for the purposes of the comparison with the data in the Baldernock Parish Book of Reference.

To obtain the arable versus pasture data for the OS Book of Reference for Baldernock Parish, I summed the respective areas of pasture and arable and converted each to a percentage area of the total of those two figures.¹⁸ I simply used all descriptions that included the respective terms of “Arable” and “Pasture” (including “Rough pasture”), even when the descriptors included additional words, e.g., “Pasture, slope, &c”, “Pasture, slope, & trees”, “Arable & road”, “Arable, trees & part of burn”, and so on. I did this because I assume that the secondary descriptors were more minor land-uses of the parcel of land (but I do note that this assumption might not necessarily be valid because “arable” and “pasture” are themselves never used in the Baldernock Parish Book of Reference as secondary terms in a land-use description, such as in, for example, “Slope & pasture”). Nor did I include “Plantations” in any of my calculations.

In the Baldernock Parish Book of Reference, the “Arable” descriptor is assigned to 84% of the land area devoted to the combined areas of arable and

¹⁶ <http://stat-acc-scot.edina.ac.uk/sas/sas.asp/?action=parishlist&atoz=S&county=Stirling&naecache=3&parishsearchflag=county&parishsearchterm=Stirling&searchtype=frommap&session-id=00d689793dccb4e660a5a2ffbc51f4bd> consulted May 28 2016. The *New Statistical Account* for Baldernock is at <http://stat-acc-scot.edina.ac.uk/link/1834-45/Stirling/Baldernock/>

¹⁷ Ordnance Survey, *Instructions to Field Examiners*, 1905, Southampton, quoted by JB Harley, op. cit., p.33. Although the date of this *Instruction* is many decades after the demise of the *Books of Reference*, Harley argued that these instructions reflected procedures when the *Books of Reference* were still being compiled. Harley also noted that the Tithe Commutation Act in England gave very clear instructions on how to classify various grasslands in terms of arable or pasture, but this clarity was lacking in OS instructions (and in any event, the Tithe Commutation Act did not apply in Scotland).

¹⁸ These calculations were done in an Excel spreadsheet of the Baldernock Parish Book of Reference data, having imported the data from the scanned online Book of Reference into Excel and ‘tidied it up’.

pasture, with the remaining 16% being assigned the “Pasture” descriptor. Given that the Parish was surveyed in 1860 for the 25-inch map sheets, this difference from the NSA’s 1830s-40s proportions of pasture and arable prompted further investigation, for which I used farm plans for those parts of an estate that lie within Baldernock Parish.

Areas of land-use types in Dougalston Estate farms in Baldernock Parish

I used farm plans from 1805¹⁹ and 1830²⁰ for Dougalston Estate farms that lie within Baldernock Parish; these Dougalston farms cover 800 acres of the Parish’s ~4,400 acres. In the 1805 plans, the areas of Arable and Pasture (and Planting and Unarable, where relevant) are given in “Scotch measure” (acres, rods and falls [square falls]) for each field in the plan, in a table in the cartouche of plan – *figure 5*). Generally, a field is either arable, pasture or planting, but in some cases areas of arable and pasture are given for the one field. Each field on the 1805 farm plans is usefully shaded to indicate arable, pasture or woodland. This shading should of course be consistent with the classification given in the plan’s table of data and, perhaps more importantly, mixed land-uses (e.g., arable and pasture) can be visually represented on the plan itself (the lack of this capacity, as noted above, being something of a shortcoming of OS maps). These various areas were summed by the farm plan surveyor in each farm plan’s table (and for the 1805 plans later corrected in pencil, if the sums given on the plan are incorrect²¹). I summed all these correct sums and calculated the proportions of arable and pasture.

The farm plans from 1830 (i.e., from about the time of the *New Statistical Account*) follow a similar structure except that all fields areas are described only as either arable or wood (i.e., woodland), with not a single field being described as pasture; the field shading is not informative with respect to the various land-uses. The lack of pasture in the 1830 plans points either to the preponderance of arable that the OS data indicate or that, for the 1830 plan, the term “arable” also encompassed pasture land and simply meant “farmed” or an equivalent.

The same fields can generally be identified in the farm plans and the OS maps. I have checked the land-use description of each field mapped by the OS and on the 1805 farm plans by superimposing each 1805 farm plan on the corresponding OS map and making the 1805 plan semi-transparent (all this done in PowerPoint). The 1805 plan is then rotated and adjusted to check the coincidence of field boundaries. There is a high degree of persistence in field boundaries between the 1805 plans and the 1860s OS maps (*figure 6*). That is an

¹⁹ Hand-drawn plans of the 21 individual farms of Dougalston Estate, all of which are in the same anonymous hand, with two – the plans for Boghall and Hillend, both in Baldernock Parish – dated 1805 (RHP5302/1-21 in the National Records of Scotland).

²⁰ Hand-drawn plan in six sheets of Dougalston Estate, surveyed by John Fullarton June 1830 (RHP5306/1-6 in the National Records of Scotland). The plan’s summary table gives the area of each field (parcel) by farm.

²¹ A dated annotation (1831, possibly in July of that year) is on an Estate farm outside of Baldernock Parish but it is in the same hand as the annotations within the Parish and so it is assumed that the Baldernock annotations also date from the same time.

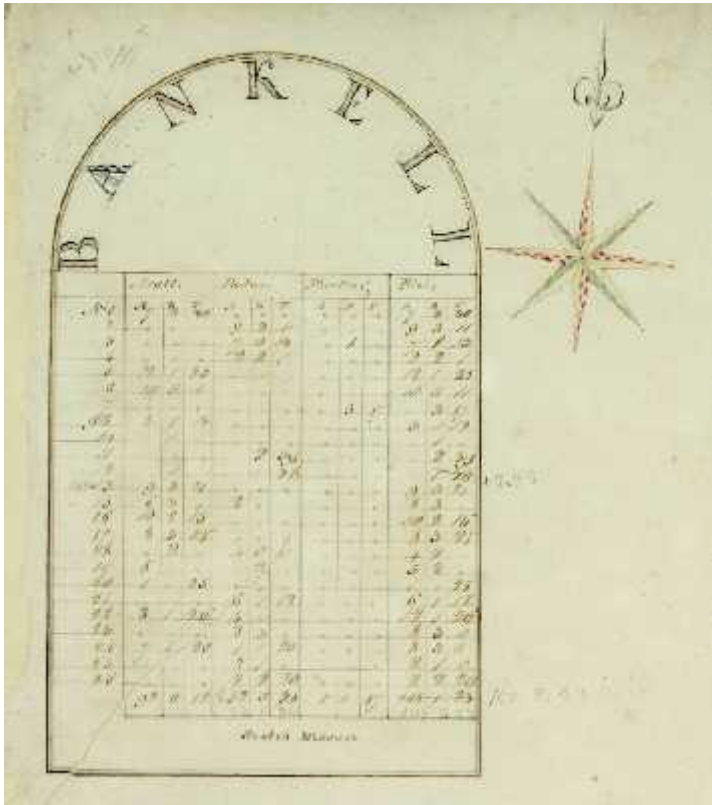


Figure 5. The cartouche on the 1805 plan of Bankell farm in Dougalston Estate in Baldernock Parish showing the land-use and area data for each parcel of land. Note the predominance of Arable, and the pencilled corrections (assumed to be from 1831, based on pencilled and dated comments on other farm plans from the same group of Dougalston plans – RHP5302/1-21 in the National Records of Scotland).

Figure 6 (below). Langbank Farm on the 1805 Dougalston Estate farm plan (left) and OS First Edition mapping (right; OS First Edition 1:2,500 Stirling Sheet 32.6 (Baldernock Parish)). The farm house has been moved between the two sets of mapping but there is virtually complete correspondence between field boundaries on the two plans. Parcel 7 on the 1805 plan corresponds to OS parcels 578 and 591 (centre right), with their respective areas – parcel 7: 19.3 imperial acres; parcels 578 & 591: 21.4 imperial acres – essentially confirming their equivalence (i.e., $\pm \sim 10\%$). Note how the 1805 plan distinguishes Arable (parallel lines symbol) and Pasture (stippling) within parcel 7; the OS simply records the land-use in parcels 578 and 591 as Arable. (The farm plan should be rotated about 20° anti-clockwise to match the OS orientation.)



interesting point in itself for land-use historians. In more detail: of the 800 acres of Baldernock Parish occupied by Dougalston Estate farms, the OS mapped 610 acres as Arable (76% Arable) and the 1805 plans mapped 560 acres as Arable (70%). There is thus quite reasonable agreement between the two sets of data. Some of the relatively small mismatch between the OS and 1805 areas result from the 1805 mapping providing more detail within individual parcels (e.g., 1805 parcel 7 in *figure 6*).

The correspondence between the percentages Arable (70-75%) and Pasture (25-30%) in the individual farms in 1805 and in the OS Book of Reference surveyed in 1860 is striking and gives considerable confidence in the OS surveying of land-use. This correspondence suggests that the 1830 Estate mapping that indicates that the non-woodland agricultural land-use was 100% Arable is difficult to take at face value, and suggests, as noted above, that “Arable” on the 1830 plans included both cultivated land and pasture.

Numbers of fields of different land-use types in Dougalston Estate farms in Baldernock Parish

My earlier discussion of horse gins in Baldernock Parish used an estimate of the *numbers* of farms (i.e., not area of farms) with and without horse gins on the OS First Edition 25-inch mapping to suggest that the percentage of arable versus pasture was in the order of 40:60. The numbers of land parcels that were given the same descriptors (i.e., Arable or Pasture or ‘Mixed’) in the 1805 and the OS mapping were tallied. The 1805 mapping and the OS gave the same descriptor to 85% of fields, and disagreed on 15%. The match is close.

The more reliable Book of Reference data do not confirm my ‘round-about’ estimate of the proportions based on the number of farms with a horse gin and so the *NSA* data for Baldernock, which also present ~40:60 arable:pasture proportions, are likewise notably inconsistent with the estate plan and the OS data. This mis-match between the *NSA* and the OS mapping probably largely reflects the *NSA*’s classification of hay as pasture. As well, Harley has noted the potential problems in using schoolmasters to undertake the land-use surveys during – to quote an early proposal by the then-Director of the Ordnance Survey to a Parliamentary Select Committee – the schoolmaster’s “walk in the evening or in the morning, to see what crop was growing in certain fields, and that he might, of course, do [this] without reference to either owner or tenant”.²² Crop rotation and fallowing are noted again as possible sources of error, as well as straightforward mistakes by the Parish Minister and/or the Schoolmaster.

It is clear that the OS and the 1805 farm plan are in close agreement, which gives considerable confidence in the OS mapping and the Books of Reference. The agreement is in fact closer than the simple percentages of the total areas mapped that have already been noted. Of more relevance here is the fact that the two sets of maps/plans agree on the land-use description (arable, pasture or woodland) for 93% of the total area of fields in the Dougalston Estate farms in

²² Quoted JB Harley, *op. cit.*, 26.

Baldernock Parish, encompassing 85% of the number of fields. In other words: the land-uses shown on two completely independent sets of maps – one consisting of 1805 estate farm plans and the other of OS mid-nineteenth century First Edition 25-inch mapping – agree closely with each other, and it is reasonable to conclude that land-use as reported in Baldernock Parish’s OS Book of Reference is accurate, especially given the time gap between the two sets of information.

The consistency of the 85:15 split between arable and pasture in 1805 and in 1860 prompts the conclusion that there have indeed been changes in land-use since the mid-nineteenth century in Baldernock, which is now dominated by pasture and grazing. Interestingly, and unlike the OS procedures, the 1805 farm plans shade each parcel of land according to its generalised land-use – Arable, Pasture, Planting (i.e., planted woodland), or Unarable (e.g., land rendered uncultivable by the remains of mining and limeworks) – with some parcels having two symbols. Thus, a visual impression of the proportions of arable vs pasture is available immediately on viewing the plan. Annotations that were pencilled on some fields on the 1805 farm plans in July 1831 give the crops that were being cultivated in those fields at that date and confirm the dominance of arable land-use. In most cases for Baldernock Parish, the pencilled annotation from 1831 (e.g., “In barley sown down”, “1st crop oats”, “Potatoes 7 acres”, “Sown down”) confirm arable land-use in 1831 in a field that had been mapped thus in 1805. 1831 annotations of “Hay” and “1st cut Hay” in fields that were mapped as Arable in 1805 and whose areas are given under the Arable column in the plan’s table of areas confirm the treatment of hay as arable by the farm surveyor (and presumably by the OS surveyors).

Conclusion

The assessment of the OS land-use data in an individual Book of Reference confirms the accuracy of the OS survey data for that Parish. As Harley has noted, the OS land-use surveyors ‘knew what they were doing’ and, notwithstanding some obvious slips, generally seem to have got it right. The Books of Reference thus provide a trustworthy source of information on past land-uses. They are therefore an invaluable resource and probably deserve to be better known and used.

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