

USEFUL LOCAL HISTORY SOURCES 4: ORDNANCE SURVEY BOOKS OF REFERENCE

Paul Bishop

The Books of Reference

The Ordnance Survey first mapped Britain by County and Parish at a scale of 1:2,500 in the second half of the nineteenth century, in the County Series First Edition mapping, colloquially called 25 inches to the mile. Not all of Scotland was mapped, the mapping at 1:2,500 scale being limited, in the words of the 1855 Treasury Minute that specified the work, 'to the populous, mineral, and cultivated districts'.¹ The coverage of Scotland is given in Fig.1. At the same time as each Parish was being mapped, every mapped parcel of land was numbered and its land-use recorded by OS surveyors. This number and land-use, and also each parcel's area as calculated by OS surveyors, were

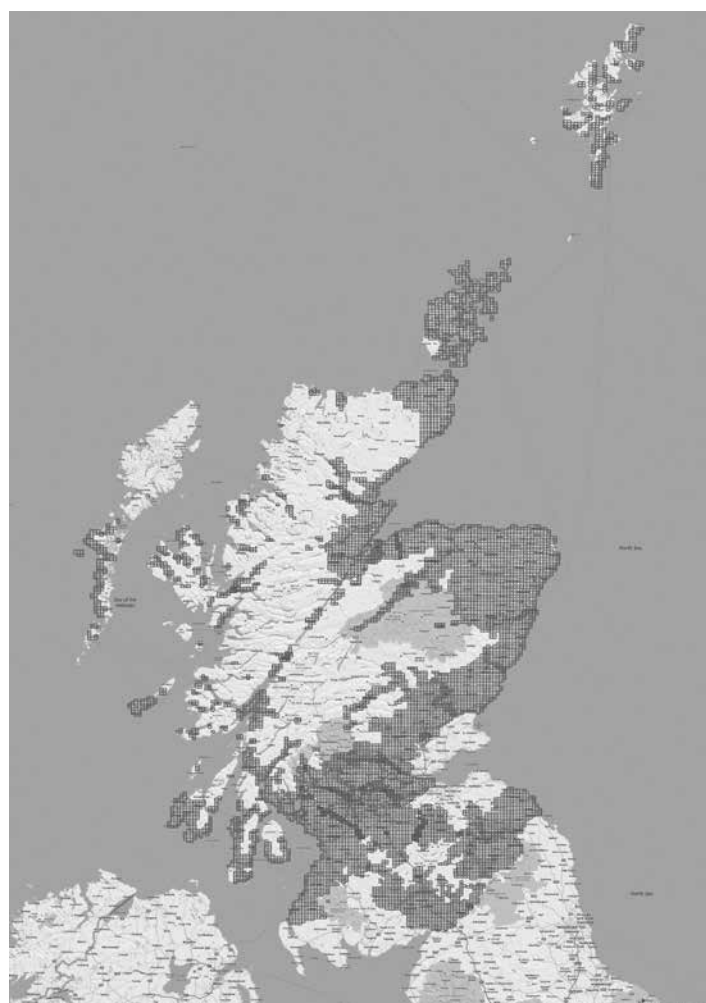


Fig.1: Diagram showing coverage of the 1:2,500 First Edition County Series mapping of Scotland; the darker areas will all have accompanying Books of Reference. The absence of mapping of Edinburgh and surrounding areas and of Fife is perhaps surprising. The diagram is a screen shot of the National Library of Scotland's index page for the 1:2,500 First Edition mapping. Courtesy of Chris Fleet, NLS.

published by Parish in the Books of Reference (also called Area Books and Parish Area Books).² These books are an invaluable source of mid to late nineteenth century land-use data for the local historian, but reservations about their content might prompt caution in using the books.³ This note introduces the Books of Reference and assesses some aspects of their accuracy, especially in terms of their record of land-use.

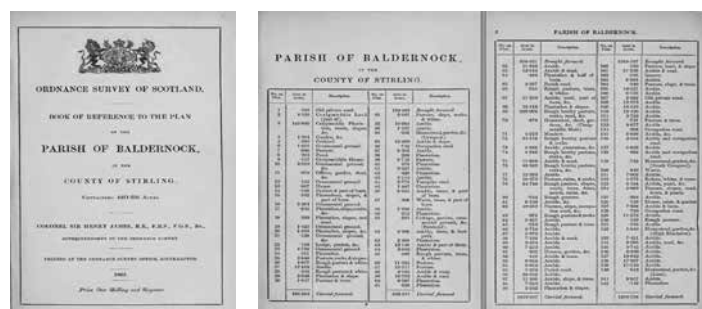


Fig.2: Book of Reference for the 1:2,500 First Edition map of the Parish of Baldernock on the northern outskirts of Glasgow. Fig.2A shows the outside cover and Fig.2B pages 1 and 2.

	A	B	C	D	E	F
1	PARISH OF BALDERNOCK BOOK OF REFERENCE ('AREA BOOK')					
2						
3	Parcel #	Area (ac.)	Description of land-use			
4	1	0.493	Old private road			
5	2	4.19	Craigmaddie Loch (part of)			
6	3	143.86	Craigmaddie Plantation, roads, slopes, etc			
7	4	1.301	Garden, etc			
8	5	0.99	Orchard.			
9	6	1.076	Ornamental ground			
10	7	0.08	Pasture.			
11	8	0.323	Pond.			
12	9	0.127	Craigmaddie House			
13	10	2.089	Ornamental ground, etc			
14	11	0.379	Offices, garden, shed, etc			
15	12	0.145	Ornamental ground			
16	13	0.007	House.			
17	14	0.116	Pasture & pat of burn			
18	15	0.392	Plantations, slopes & part of burn			
19	16	3.361	Ornamental ground			
20	17	0.81	Plantation, slope, rocks, etc			

Fig.3: The first seventeen lines of the Baldernock data in Fig.2B as imported into an Excel spreadsheet.

The local historian will undoubtedly be delighted to know that the National Library of Scotland has had the Books of Reference scanned and made available on-line.⁴ The Books thus form a perfect accompaniment to the on-line scans of the 25 inch map series, and just as with the beautifully scanned maps, the scanning of the Books of Reference has been carried out carefully and the pages reproduced clearly and legibly (Fig.

2).⁵ The Book of Reference for a particular Parish can then be downloaded as a PDF.⁶ The information in the PDF can be imported into an Excel spreadsheet (see Fig.3) to allow the data in the spreadsheet to be manipulated and sorted by, say, land-use type or land parcel area. Areas of different land-uses can then be summed and proportions of different land-use types calculated - and so on; all of the calculations etc that appear below have been completed in an Excel spreadsheet.⁷

The land-use data

Each parcel of land on a First Edition 25 inch map (in effect, each enclosed field and other areas of ground, including roads) was given a number (column 1 in Fig.2B and column A in Fig.3; see Fig.4 for some of these numbered land parcels). Some areas that were given a separate number are very small and there is considerable rationalisation of areas and numbering on the Second Edition 25 inch mapping. For further guidance, the area of each parcel was printed on the map face in later printings of the First Edition and in the Second Edition.⁸ The Books of Reference ceased publication in the 1880s.

The second column in the Book of Reference gives the area of each land parcel (in Imperial acres) and the third gives the parcel's 'Description' (the land-use). The numbering and area of each parcel are presumed to be reliable because it can be assumed that OS personnel would have been perfectly competent in assigning a number to a parcel of land and then calculating the parcel's area - OS personnel would have been fully trained and expert in such procedures. In any event each surveyor's mapping was checked by a checker.

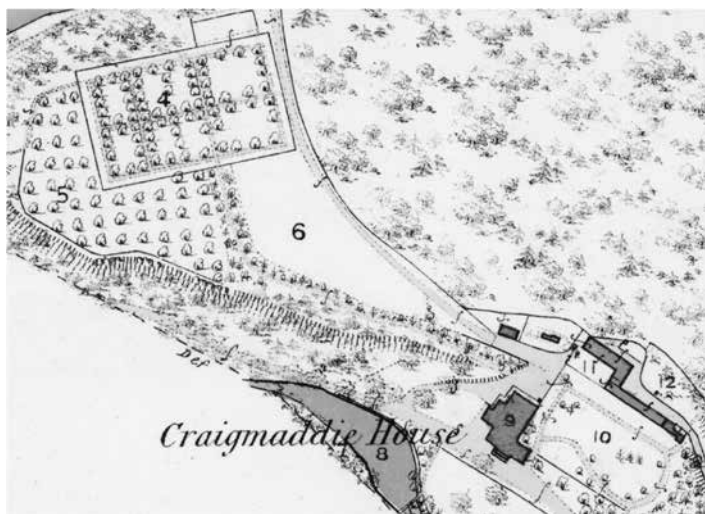


Fig.4: Part of the First Edition 1:2,500 mapping of Baldernock Parish covering the area recorded in the Book of Reference in Figs 2 and 3. Land parcel 7, on the western shore of loch at bottom centre, is only 0.08 acre, and the parcel's number '7' is just discernible below the 'ie' of the 'Craigmaddie House' label (Stirling Sheet 27.14 (Baldernock); survey date 1860; publication date 1865).

In relation to the quality of the land-use data (column 3 in the Book of Reference), Coppock reported a case of mapped land-use of contiguous fields abruptly changing at a County boundary where such marked changes would not have been expected⁹ and so there might be concerns about the quality of the land-use data. The author has noted one mistake in the Baldernock Parish Book of Reference (Fig. 5) but such mistakes do seem rare. Indeed, and more generally, 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'.¹⁰ It must nonetheless be remembered that even if the land-use was mapped 'correctly', it was merely a record of the land-use at the time of the survey. Crop rotation and fallowing of land, for example, might have meant that the use of a particular field changed over time, in which case an interpretation that such a change in a field's use is indicative of a change in overall land-use is likely to be erroneous.



Fig.5: Two numbered land parcels on the First edition 1:2,500 mapping of Baldernock Parish showing the land-use 'Description' assigned to each parcel in Baldernock's Book of Reference. Both parcels are labelled 'Occupation road' which generally indicates a farm track or road and is correct for parcel 652 (top). However, Parcel 653 is obviously an agricultural field and should have been described as either 'Pasture' or 'Arable', the latter more likely on the evidence of the adjacent fields (Stirling Sheet 32.7 (Baldernock); survey date 1860; publication date 1864).

Some of the land-uses that were recorded by OS surveyors during the 25 inch First Edition mapping can be seen in Fig.2B. 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. 'Orchard', 'House' and 'Ornamental Grounds' are useful land-use terms but the local historian might be more interested in greater detail on the agricultural activity. In this regard, OS only distinguished arable from pasture in the Books of Reference, and, unlike for, say, orchards, no specific symbol is used on the mapping to distinguish arable from pasture; OS mapping simply left agricultural fields blank.

The distinction between pasture and arable becomes critical when investigating local land-use in general, as well as for the specifics of the local history of, for example, horse gin-powered threshing machines or doocots, which the author has investigated for Baldernock.¹¹ Threshing machines and doocots both pre-suppose local cultivation of grain crops (to be

threshed or for the pigeons to feed on), turning the spotlight on the fundamental issue of the local area's proportion of pasture versus arable in the mid-nineteenth century, when the First Edition County Series was compiled. If an area's agriculture was mostly or wholly pastoral, then it 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 thus become key issues in these areas' local history and in understanding the diffusion of agricultural innovation throughout Scotland.

Land use proportions in Baldernock Parish

Using OS map evidence, the author has found that horse gins were indeed common in Baldernock Parish in Scotland's western Central Belt by the mid-nineteenth century, with about 40% of farms having one.¹² This figure is uncannily consistent with the *New Statistical Account*, which reports that farming in Baldernock Parish in the 1830s–40s occupied a total of 2,550 acres. This total comprised 1,045 acres (41%) devoted to the arable crops of oats, wheat, barley, potatoes, beans or turnips, with the remaining 59% (1,505 acres) being devoted to pasture, hay or fallow. The figures suggest that the percentage of farms that had horse gins corresponds to a similar percentage of land devoted to arable but two important caveats must be highlighted: firstly, the author's figure for the proportion of arable cultivation in Baldernock is based on the *number* of farms with a horse gin as a proportion of his estimated total number of farms in the Parish. And secondly, the *NSA* classified any land that was being used for the cutting of hay as pastoral (i.e. grazing, non-arable) whereas, as is shown below, early farm surveyors in Baldernock mapped hay fields as arable and it seems that OS surveyors did the same.

Keeping in mind those two caveats, the percentage areas – about 40% arable and 60% pasture – can be compared with the percentage areas of arable and pasture in the data in the Baldernock Parish Book of Reference. For this comparison, the author summed the respective areas of pasture and arable and converted those to percentage areas of the total of those two figures. His calculation used all descriptions that included the respective terms of 'Arable' and 'Pasture' (including 'Rough pasture'), even when the descriptors included additional words, for example, 'Pasture, slope, &c', 'Pasture, slope, & trees', 'Arable & road', 'Arable, trees & part of burn', and so on. He assumes that the secondary descriptors were more minor land-uses of the parcel of land, but notes that this assumption might not be completely 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, for example, 'Slope & pasture'). Nor did he include 'Plantations' in his calculations.

The results are striking: 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 pasture, with the remaining 16% being assigned the 'Pasture' descriptor. As a check on the quality of OS data and mapping, the author used plans of Dougalston Estate farms within Baldernock Parish. Dougalston Estate farms were surveyed in 1805¹³ (Fig.6) and 1830¹⁴ (Fig.7). In the 1805 plans, each field's area (in 'Scotch measure' – acres, rods and falls [square falls])

and land-use (arable, pasture, wood or unarable) are tabulated on the farm's plan (Fig.6). Generally a field is either arable or pasture but areas of arable and pasture are sometimes given for a mixed-use field. Field areas are likewise given on the 1830 plans, but the land-uses in 1830 are only either arable or wood (i.e. woodland) and there are no areas of pasture, pointing to the preponderance of arable seen above in OS data. The farm surveyors summed these areas in the plans' tables. For 1805, the author calculated the proportions of arable and pasture; as already noted, the 1830 plans indicate 100% arable in terms of an arable-pasture split.

The proportions of arable *versus* pasture for Baldernock Parish in these various data sets are as follows:

Source of data	% of fields arable	% of fields pasture
1805 Dougalston Estate farms in Baldernock Parish	85	15
OS Book of Reference Baldernock Parish surveyed 1860	84	16
1830 Dougalston Estate Farms in Baldernock Parish	100	0
1830s-40s <i>NSA</i> Baldernock Parish	41	59

Number of farms in Baldernock Parish with a horse gin 1860¹⁵ - 42%

Estimated number of farms in Baldernock Parish without a gin 1860¹⁶ - 58%

It is clear that OS and the 1805 farm plan are in close agreement, which gives considerable confidence in OS mapping and the Books of Reference. The agreement is in fact closer than simple percentages of the total areas mapped. The author has checked the land-use description of each field mapped by OS and on the 1805 farm plans and 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 Baldernock Parish, encompassing 85% of the number of fields. Remarkably (and this is interesting in itself), the same fields can generally be identified in both sets of maps/plans.¹⁷ It then becomes obvious where the farm layout has been adjusted, which is an interesting local history point in its own right. Returning to the main point: the land-uses shown on two completely independent sets of maps – one consisting of 1805 estate farm plans and the other of OS 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. This agreement is striking, given the potential for changes of land-use especially in the post-Waterloo era when agriculture pulled back from upland areas into which it had expanded during the Napoleonic Wars; that issue is a matter for further investigation. It is also clear that the proportions of arable:pasture from the *NSA* report on Baldernock are inconsistent with these figures, perhaps largely reflecting the *NSA*'s classification of hay as pasture.

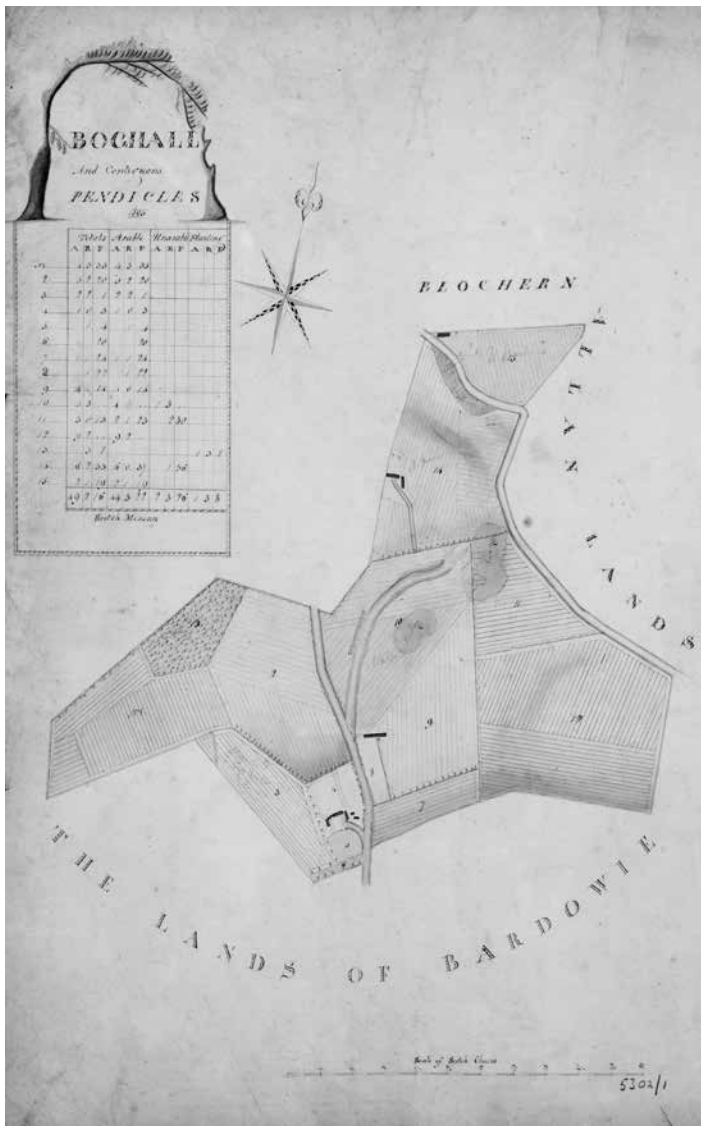


Fig. 6: Anonymous farm plan of Boghall Farm, Dougalston Estate, Baldernock Parish, dated 1805 on the cartouche. The table gives the area in Scotch measure and land-use of each field (in this case Arable, Unarable or Planting). The shading of each field indicates its land-use (National Records of Scotland RHP5302/1).

Interestingly, many of the fields on the 1805 plans have pencilled annotations of the land-use and/or a surname (a tenant's name?). These annotations are in at least two different hands, one of them dated 1821 and the other July 1831 (Figs 8 and 9). The author therefore believes that these annotations indicate the field's land-use around the 1820s. Virtually all of the annotations (e.g. 'In barley sown down'; 'First crop oats and potatoes'; 'Hay' [multiple times in fields mapped as arable]; 'One years oats' [multiple fields]; '1st cut hay'; 'Barly [sic] sown down'; 'Wheat sown down'; '2nd crop oats'; and so on) match the arable or pasture land-use mapped in 1805. The land-use Description data provide a wealth of information for the local historian. 'Ornamental ground' (formal gardens) are noted, as are various types of road, including 'Occupation road' (which seems to be a farm track of road) and 'Turnpike' (a toll road), as well as 'Parish road', 'Public road', 'Private road' and 'Old private road', the distinctions between which the author still seeks clarification. 'Whin' (gorse, also called 'Furze') is also specified, along with 'Rough pasture & whins', 'Plantations', 'Heath', 'Rough heathy pasture', and so on.



Fig. 7: Plan of the south central part of Dougalston Estate by John Fullarton and dated June 1830 on the plan's title. The plan's tables give the area of each field in Scotch measure and its land-use; every field on the estate is mapped as either Arable or Wood (woodland). The large body of water at centre right is Dougalston Loch, now part of Fairways Estate, Milngavie (NRS RHP5306/5).

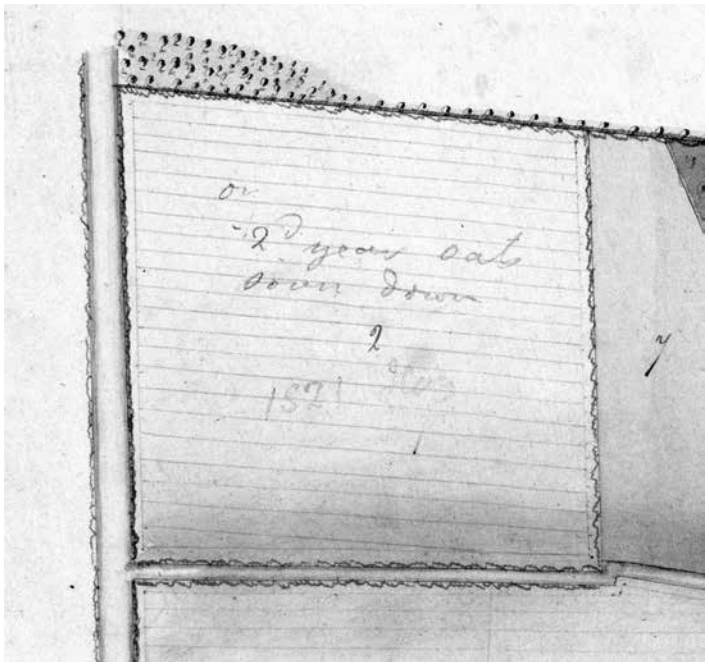


Fig. 8: Pencilled annotation on a field on the 1805 farm plan for Gartconnel Farm, Dougalston Estate (NRS RHP5302/18). The separate annotations read '2^d year oats sown down' and '1821'.



Fig. 9: Pencilled annotation on a field on the 1805 farm plan for Moss Head Farm, Dougalston Estate (NRS RHP5302/17). The annotation reads 'Sown down for [July] 1831'.

Other information in the Books of Reference

The Books of Reference often reveal detail of housing. Thus for the author's own house, which is known to have comprised two separate households in the 1841 and 1851 censuses, the OS First Edition 25 inch mapping symbol shows a building with an internal division that signifies two separate but contiguous houses.¹⁸ The Book of Reference description for Baldernock Parish parcel 221, which includes this house, is 'Houses, garden, &c'; the plural 'Houses' being significant and meaningful. A parcel that includes a row of miners' cottages elsewhere in the Parish is described as 'Houses and garden' (parcel 476; again, note the plural) whereas other houses are 'Homestead', probably implying a single dwelling.

Further aspects of the usefulness of the Books of Reference can be noted. The data are fully searchable, using either Acrobat Reader in the downloaded PDF of the Book of Reference or in a spreadsheet if the data have been imported into Excel. The researcher can thus quickly locate land parcels that are associated with a particular use or descriptor. The author is interested in lime works and so he is able to search for 'lime' in downloaded PDFs of the Books of Reference from the areas in Fig.1. He has successfully searched for 'lime' in the PDF of the downloaded Book of Reference for the Parish of Baldernock but online searching for 'lime' in the volume of Parish Books that includes Baldernock has not been successful. It is unclear why this situation should prevail, especially as 'Baldernock' can be searched for and found in the relevant volume of online Parish Books. In any event, the local historian is likely to want to download the Book for ongoing consultation and so the latter uncertainty is not likely to be problematic.

Closing note

In summary then, the Books of Reference are wonderful resources that are accurate, as is to be expected of OS and is confirmed by the data I present here. Compared to the NSA data, a great advantage of OS land-use data for every parcel of land is that the spatial distribution of land-use in the mid-nineteenth century can be assessed, enabling investigation of changes in land-use over time at a much more detailed scale than is permitted by the simple proportions of different land-use types that might be provided by the NSA. Combining such investigations with corresponding examinations of farm plans from, for example, earlier in the nineteenth century enables a consideration of whether the locations and proportions of arable and pasture land-uses have changed over time, perhaps in response to changing economic conditions, growth of population centres, and so on. Moreover, and given that OS land-use data are reliable, changes in land-use between the mid-nineteenth century and the modern era can also be assessed. Such a comparison for Baldernock Parish was where this investigation started and I am certainly struck by the amount of arable cultivation in the mid-nineteenth century compared to the modern use of these still- agricultural fields, which are now dominated by grazing and pasture. And that is where the Books of Reference can lead us, into much deeper and more profound issues of local history.

Acknowledgements

The author wishes to thank the Editors of *Scottish Local History* for the invitation to write this piece and Dr Kirsteen Mulhern, Maps and Plans Archivist at the National Records of Scotland, for providing access to and wise advice on the Dougalston plans.

Extracts of the Plans of the Estate of Dougalston, Dunbartonshire & Stirlingshire dated 1805 (NRS reference RHP5302/1-21) and 1830 (NRS reference RHP5306), from the records of Thomson & Baxter WS, are published with the permission of Gillespie Macandrew LLP as successor legal firm to Thomson & Baxter WS. The author is grateful to Mr Gordon Hamilton, Partner in Gillespie Macandrew LLP, for providing this permission. He wishes to thank Chris Fleet of the National Library of Scotland for cheerfully providing Fig.1. The extracts from OS maps and OS Books of Reference are reproduced with the permission of the National Library of Scotland. These scanned materials are a superb resource for any local historian.

Endnotes

- 1 Quoted by JB Harley, *The Ordnance Survey and Land-use Mapping, 1855-1918*, Historical Geography Research Series, No. 2, 1979, Geo Books, Norwich, p.4.
- 2 R Oliver, *Ordnance Survey Maps. A Concise Guide for Historians* (Charles Close Society for the Study of Ordnance Survey Maps, London, 2005), p.54.
- 3 The definitive assessment of the accuracy of the land-use mapping in the Books of reference is: JB Harley, op cit. See also JT Coppock, 'Maps as sources for the study of land use in the past', *Imago Mundi*, 22 (1968), pp.37-49.
- 4 <https://archive.org/details/osbooksofreference> The author is grateful for having his attention drawn to this website by a note from Roger Hellyer in *Sheetline (the Journal of the Charles Close Society for the Study of Ordnance Survey Maps)*, 104 (2015), p.64.
- 5 The Scotland Parish's Books of Reference are published in 22 volumes covering the parishes by alphabetic groups and the covers of all 22 volumes are displayed when <https://archive.org/details/osbooksofreference> is opened. Hovering the cursor over a cover displays the parishes that are covered in that volume. For example, when the cursor is hovered over the volume with 'Parish of Ardersier' on the cover, the small pop-up window displays the following: 'Vol 1 855-1882: Ordnance Survey of Scotland, Books of reference to the 25 inch parish maps of Scotland, Vol. 47, Ardersier to Bellie'. This is the volume that contains the Book of Reference for Baldernock Parish and the whole volume can be downloaded.
- 6 After the volume is downloaded, the pages of unwanted Parishes in the volume can be 'stripped out' using Acrobat Professional, which is paid-for software. This stripping out is not essential, however, as the pages of the downloaded multi-Parish volume are searchable using the free Acrobat Reader.
- 7 The author is happy to make available his notes on how to import the Books of Reference data into Excel, which is useful for sorting and summing the data, conversion of units and so on. Please contact paul.bishop.3@glasgow.ac.uk but also be warned that the procedure is rather 'fiddly' and repetitive.
- 8 R Oliver and P Bishop, 'Re-drawing of OS First Edition 1:2500 sheets for a later First Edition printing', *Sheetlines (The Journal of the Charles Close Society for the Study of Ordnance Survey Maps)*, 106 (2016), pp.43-49.
- 9 JT Coppock, op cit.
- 10 JT Coppock, op cit, p.28.
- 11 e.g. P Bishop, 'Horse gins in Baldernock, East Dunbartonshire', *Vernacular Building* 38 (2014-15), pp.7-26; P Bishop, 'Doocots in East Dunbartonshire: a preliminary compilation', *Vernacular Building* 38 (2015-16), pp.67-80.
- 12 P Bishop, 'Horse gins in Baldernock, East Dunbartonshire', op cit.
- 13 Hand-drawn plans, with individual field areas, for the 21 farms of Dougalston Estate (RHP5302/1-21 in the National Records of Scotland). These plans, dated 1805 on two plans (e.g., Fig. 5), are all in the same hand.
- 14 Hand-drawn plan in six sheets of Dougalston Estate, surveyed by John Fullarton, June 1830 (Figure 6) (RHP5306/1-6 in the National Records of Scotland). The plan's summary table gives the area of each field by farm.
- 15 P Bishop, 'Horse gins in Baldernock, East Dunbartonshire', op cit.
- 16 Ibid.
- 17 The author made this check by superimposing each 1805 farm plan on the corresponding OS map and making the 1805 plan semi-transparent. The 1805 plan can then be rotated and adjusted to check the coincidence of field boundaries. These procedures can be done in PowerPoint.
- 18 P Bishop, 'The internal divisions and size of mapped buildings', *Sheetlines*, 105 (2015), pp.27-33.